Understanding expressed low concern and latent concern near a hazardous waste treatment facility

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Abstract

This paper discusses local small town residents' concerns about risk and safety near a hazardous waste facility at Swan Hills, Alberta, Canada. The majority of the residents studied outwardly express that they have low concern about the facility. The purposes are to both elaborate existing theory that potentially explains low concern and to explore new explanations of low concern in everyday life. Theories or concepts which potentially explain expressed low concern are start-points for this qualitative case study. These include: economic risk theory, psychometric risk theory, cultural risk theory, cognitive dissonance (threat denial), community identity and stigma, and risk attenuation. Thirty-eight in-depth resident interviews involving views of facility risks, as well as community life, are used to better understand the social construction of risk. It is found that despite the fact that 31 residents outwardly insist they have no/low concern about facility risks when first prompted, 11 actually do show latent concerns when probed further, expressed as uncertainty, reservations, and doubt. It is argued that juxtaposing the views of insiders against those perceived to be held by outsiders furthers understanding of why facility concern is rarely expressed in such a community. There is a heightened sense of pride and positive community identity manifest as a defensive reaction by insider residents to outsiders who are perceived to hold negative, stigmatizing views of the facility as well as the town. Implications relating to community and industry vigilance as well as the impacts of outsiders sensationalising risk are discussed.

KEY WORDS: risk, social construction, attenuation, hazardous waste, Swan Hills, risk perception, cognitive dissonance, threat denial, community identity, latent concern

1. Introduction

Much has been written in the risk and hazards literatures about residents' concerns regarding the potential problems arising from technological environmental hazards (e.g. Edelstein, 1988; Bullard, 1990; Elliott *et al*., 1993; Couch and Kroll-Smith, 1994; Cutter, 1995). Although these concerns have motivated the ongoing development of a considerable literature on best practices for risk communication (e.g., Covello, 1995;

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Leiss, 1996) the focus remains largely on the *negative* impacts of hazards on communities – including physical impacts such as groundwater contamination, and social impacts like community conflict. Yet there are some cases, like the one described here, where communities break the mould so often depicted in these literatures, who are undaunted by and, even welcoming of, existing or potential noxious facilities (e.g., Zonabend, 1993). Since these communities are less problematic from the perspective of facility siting and risk communication they have received scant attention in the literature. However, knowing the aspects of both the hazards *and* the communities hosting those hazards that contribute to low concern will be useful for making informed decisions about managing risks in these communities and for siting future, similar facilities. If *low concern* is defined as outward expressions by residents that a facility overall, 'does not concern' them, poses 'few risks' and is 'not worth worrying about', then knowing what factors shape such views will be important for developing effective risk communication and management strategies to make facilities safe and 'accepted'. This definition is practical since 'outward expressions' are the substance of survey work that might tap into community concerns. However, It will be shown that outward expressions of low concern, even when adamant, are in some cases only partial representations of residents views.

   This case study is an example of a community with apparently pervasive low concern. Swan Hills has lived with a hazardous waste treatment facility for over 13 years, and despite two accidents at the site, one leading to considerable PCB contamination and two large health studies, locals seem to agree that the facility represents minimal risk and is not worth worrying about. It is important to note that the objective was to study the social construction of risk generally in the aftermath of a voluntary siting process – expecting to find a balance of *both* high concern and low concern. However, initial interviews refocused attention specifically on explaining *why* the level of expressed concern is generally so low, and *how* this is socially maintained.

   The paper is organized into six remaining sections. First, there is a review of the literature which potentially explains low community concern in the shadow of potential hazardous facilities. Second, is a brief description of the Swan Hills community, the facility siting process and the two accidents to give clues as to why expressed concern is low and remains so. Third, there is a short description of the two-stage interview methodology, followed by the interview findings in the fourth section. The fifth section discusses how the case study extends some of the existing literature, while the sixth section highlights conclusions and implications.

2.   Theories of low concern about risks from environmental hazards

It is important to be clear from the outset that this paper pertains to theoretical development as much, or more than it pertains to theoretical verification. Thus, the literatures reviewed are presented as potential sources of explanation which were not explicitly used to structure the initial work in any formal way to test theory. Nevertheless, these literatures were available for guidance as needed in the interview process (e.g., probes) and the analytical process (e.g., choice of theme/code name) (Denzin and Lincoln, 2000). Comment is made on seven, sometimes interconnected, explanations for expressed low concern about technological environmental hazards: economic risk theory, psychometric risk theory, cultural risk theory, cognitive dissonance (threat denial), community identity and stigma, and risk attenuation. Though many of these are drawn on later in

the discussion, overall they did not provide a full explanation of the Swan Hills situation. In this review expressed low *concern* about technological environmental hazards from expressed low *risk* is not distinguished. This seems reasonable since risk, in lay terms, tends to mean concern-evoking images of 'accidents' or 'danger' as opposed the more academic definition of harm coupled with probability (Slovic *et al.*, 1993). Further, the evidence of Zonabend (1993) is acknowledged that both perceived risk *and* concern can also be suppressed and remain *un*expressed individually and socially in communities coping with local hazards in their daily life – indeed this is one of the key findings here.

Much economic theory of risk is based on the idea that views of risk and concern about local industrial hazards may be muted if that same industry is a major local employer. For example, this has been depicted in the 'donut effect' whereby those closest to the facility may express substantial concerns but those who actually work at the facility and generally live slightly farther from it have the fewest concerns (e.g., Macey, 2001). Further, it is generally presumed that there is a cost-benefit tradeoff whereby economic benefits like stable jobs, improved wages and other local concessions serve to offset hazard concerns since overall individual, household and community well-being is improved. In a collection of studies concerning views of high level radioactive waste disposal facility siting across the US, several studies investigate this thesis, with mixed results (Dunlap *et al.*, 1993a). For example, Krannich *et al.* (1993) do find that communities closer to the Yucca Mountain (Nevada) site value the economic benefits that a local repository might bring. Further, these views correlate with lower concern about health and safety risks more so than distant communities who do not value such benefits as highly. They qualify the findings by pointing out that these benefit-conscious communities had recently experienced 'economic instability and uncertainty'. While many studies find that economic benefits are significant predictors of attitudes towards facilities, perceived risk, and facility support, the correlations and contributions to models are often relatively low (e.g., Brody and Fleishman, 1993; Desvousage *et al.*, 1993; Dunlap *et al.*, 1993b; Slovic *et al.*, 1993). Consistent with prospect theory (Kahneman and Tversky, 1979) these studies also find that concerns about the threats from such facilities outweigh the imputed benefits. Further, Kraft and Clary (1993), who use a more inductive analysis, find that public testimony at repository site hearings reveal more concerns about *negative* economic impacts on potential host communities than *positive* impacts. Thus, the relationship between perceived low risk or expressed low concern and the perception of economic benefits is unclear and warrants further investigation.

Psychometric and cultural theory research focus on aspects of hazards and individuals that are quantitatively associated with risk perception. Psychometric research highlights the perceived aspects of hazards that are correlated with the view that those same hazards are high or low risk including: *dread*, *unknown*, and *trust*. Though much of this work is focussed on identifying factors contributing to perceived high risk rather than perceived low risk (e.g., Gardener and Gould, 1989; McDaniels *et al.*, 1992; Gregory and Mendelsohn, 1993; Savage, 1993), the work does give some clues about the latter. For example, those hazards that are not dreaded, are perceived to be well known to science and are perceived to be under the control of trusted authorities will *likely* be perceived to be low risk and hence be of low concern (Slovic *et al.*, 1982; Slovic, 1987). This work also centres on aspects of *individuals,* rather than communities, and shows, for example, that households with no children, households with male heads, and older residents are

more likely than their counterparts to assess technological hazards as low risk (Madisso, 1985; Jones and Dunlap, 1992; Dunlap *et al.*, 1993b). Similarly, research concerning the relationship between cultural biases (or worldviews) and perception of risk establish other individual-level differences. For example, Slovic *et al.* (1993) find that those prone to agree with individualistic worldviews (e.g., believe: 'Those with more ability should earn more') are more likely than those who hold egalitarianism worldviews (e.g., believe: 'If people were treated more equally we would have fewer problems') to perceive technological hazards as low risk (see also, Douglas and Wildavsky, 1982; Dake, 1991; Rayner, 1992). Unfortunately, respondents in these studies are not necessarily people facing such hazards on a daily basis, as the studies are designed for generalizations to wide populations. Thus, such research can only partially inform specific cases involving actual communities, hazards, and risks.

Festinger's (1957) notion of cognitive dissonance has been adapted by hazards researchers into the notion of *threat denial* and both have been used to explain reactions to *natural* hazards more than they have been used to explain reactions to *technological* hazards (e.g., Burton *et al.*, 1969, 1978; Renn, 1989; Cutter, 1993; Schoeneich and Busset-Henchoz, 1998). The appeal of both concepts is that they potentially explain apparently 'irrational' views and behaviours. Dissonance – 'a state of psychological discomfort' – is induced by exposure to, and interpretation of, at least two inconsistent pieces of information (e.g., perceive risk of floods to be *high* plus moving off a floodplain is too costly). This explains low concern whereby, the interpretation (cognition) of the two pieces of information must be made consistent in order to abate the discomfort (e.g., perceive risk of floods to be *low* plus moving off floodplain is too costly). Unfortunately, cognitive dissonance and its variant, threat denial, represent a methodological conundrum as it is extremely difficult to ascertain when and if a persons' thoughts or perceptions are inconsistent. This is especially problematic since the theory presumes that 'harmony' (lack of dissonance or lack of threat concern) is the usual state. For example, Shippee *et al.*'s (1980) inability to show threat denial in neighbourhoods closest to an environmental hazard (a recent explosion) may have much to do with the fact that no baseline pre-hazard measurements of neighbourhood assessment were taken. Indeed most cases lack such a baseline.

Community identity emphasizes group-held views, which distinguishes this concept from the majority of risk studies which use the individual as the unit of analysis. This concept assumes that strong identification with local group values and beliefs may prompt residents to unite in times of crisis in order to sustain local social order (Aronoff and Gunter, 1992a). This can happen, for example, when a place faces stigmatization from negative media coverage (e.g., Slovic *et al.*, 1994; Gregory *et al.*, 1996; Flynn *et al.*, 2001). While there is some literature concerning the stigmatization of place (e.g., Edelstein, 1988; Easterling, 2001), there are few studies which specifically explore the links between community identity and views of technological hazard risk (Rayner, 1992). A notable exception is the work of Aronoff and Gunter (1992a, 1992b) who find, for example, that the desire to maintain a positive community identity amongst forceful community leaders strongly influences community responses to a hazard. What is important is that the seriousness of the threat or harm from the hazard was not the focus of community action as in other studies (e.g., Freudenburg and Jones, 1991; Couch and Kroll-Smith, 1994). Aronoff and Gunter (1992a) point out that it is the social construction of the *problems* posed by events (e.g., degree of threat versus desire for action on cleanup) that is central to explaining community action or lack of community

action. Thus, if the problem is defined as, 'how do we get the contamination cleaned up', instead of, 'what is the degree of health threat posed by contamination' the potential for positive effects on community identity are enhanced.

The social amplification/attenuation of risk framework is meant to be used to understand some of the contextual influences on community reactions to risks from technological environmental hazards (Kasperson *et al.*, 1988; Renn, 1992; Kasperson, 1992; Kasperson and Kasperson, 1996). It provides the conceptual tools for explaining how institutions and people interact to heighten concern (amplification) or diminish concern (attenuation) in the wake of hazard events. Thus, as a framework for explaining attenuation it is one of the few frameworks that specifically identifies the psychological, social, institutional, **and** cultural influences on low concern about hazard-related events (e.g., spills, leaks, siting). This framework has drawn much attention in the literature so a short discussion of is limitations is warranted. These limitations include that: it has undergone little theoretical development since its inception, there is scant empirical support for the concept of attenuation as opposed to amplification, and there is too much focus on processes at the level of the individual at the expense of processes at the group level (Kasperson, 1992).

A key finding from empirical work on amplification and attenuation is that there is often *scale divergence*. This occurs when amplification processes emerge at the regional and/or national levels (e.g., if the issue touches a controversial national debate) at the same time that attenuation happens at the local level. Metz's (1996) study of communities surrounding nuclear weapons facilities extends the notion of scale divergence whereby local residents closest to a facility draw on *pragmatic logic* – practical local knowledge and experience – to support united views of low concern. Yet, Kasperson is concerned that things like scale divergence need further explanation through further case studies and that there is, 'the need for more cultural studies that do not merely view culture as an implicit "supervariable"' (Kasperson, 1992, p. 176)

This study addresses at least three key limitations of the literatures reviewed above. First, there is often too much focus on individuals' views of the characteristics of technological hazards at the expense of understanding the social, contextual influences on those views. Second, the hazards themselves are often studied in populations who may not face them directly in their everyday lives. Third, and most importantly for the present purposes, there are few case studies which attempt to understand how expressions of low concern about risk are sustained in communities living with facility hazards. By studying risk in everyday life, reducing residents to collections of individual traits, predefining culture as narrowly defined worldviews, and treating culture as 'an implicit supervariable' are resisted. Thus, it is argued that outward expressions of low concern about risk, must be understood at some point, in the context of everyday life. The notion that risk is socially constructed must be taken seriously, a point of view that is consistent with many of the theories, approaches and concepts reviewed here. Nevertheless risk defined as such deserves more in-depth study. The case study that follows describes low community concern about a technological hazard with a focus on residents' interpretations of not only the hazard, but the social world that shapes those interpretations.

3. Setting the stage for expressed low concern: Swan Hills and its hazardous waste facility

This section describes some of the wider contextual influences on low concern in the

community. Swan Hills, the host of the Swan Hills Treatment Centre (SHTC),[1] was chosen as a study site for understanding views of risk for at least two reasons. First, the SHTC, located 15 kilometres from town, is a large scale hazardous waste treatment facility with a relatively high local, provincial, and to some extent national, public profile. Second, the facility was located in Swan Hills using a 'voluntary siting process' and there are few published studies in the aftermath of such a process. Though this paper is not specifically about siting, It is argued in the next section that the process itself helped set the stage for ongoing expressed low concern in the community.

The community is rural and small located in a remote part of Alberta's boreal forest. Though the area is noted for its recreational opportunities, residents most commonly refer to Swan Hills as a 'resource town' or 'working town' since the major employers are primary industries such as oil and gas, forestry, and the SHTC. The town's population at the time of study was approximately 2000 but the population and economy fluctuate – drastically at times – with the prosperity of these three industries (Statistics Canada, 1996). The town is somewhat transient with relatively low home ownership (49% compared to 68% for the Province) but with high median incomes ($56 559 compared to $42 701 for the Province). Thus, the transient nature and economic dependence of the town on the SHTC sets the stage for low concern (e.g., Krannich *et al.*, 1993).

Many facility-related events highlight the potential for heightened concern, yet the enduring majority sentiment in the community has been low concern. The facility siting process itself produced conditions for muted concerns since communities ultimately competed to have the facility in a 'voluntary' process. That is, the process attracted mainly communities who were experiencing local economic crises and who considered the facility an opportunity to diversify and stabilize their local economies (McQuaid-Cook and Simpson, 1986). Since the results of community plebiscites to gauge local support for the facility was a criterion for site selection, the process actually encouraged communities to at least give the appearance of low concern if they hoped to gain the much needed jobs.

Approximately 10 years after becoming operational in 1987 there were two major incidents at the facility, a leak of PCBs, dioxins and furans in 1996, and a less serious explosion and fire in 1997. Thus, these events enhanced potential for residents to express concerns about facility safety. Though residents were concerned about Bovar's (operator) delay in announcing the leak which ultimately resulted in a Provincial fine of over $0.5 million, they waited patiently for the results of a provincial health study of resident's blood samples which indicated that human health was not at risk. These findings were reassuring despite the fact that contamination of some deer and moose invoked a hunting ban that was in effect at the time of the interviews (Alberta Health, 1997). The coincidence of the 'no risk to humans' message and the hunting ban sent mixed messages to residents who were being urged to both not be concerned about contamination and at the same time to avoid eating local game. Further, it is important to note the contrast in news media coverage about these incidents and the facility generally. While news media outside the community tended to be more alarming about risks and critical of Provincial financing of the facility (e.g., Arnold and Struzik, 1997; Hryciuk, 1997), the

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[1] At the time of the interviews the SHTC was actually called the Alberta Special Waste Treatment Facility (ASWTF) but, changed its name during the research. The name change coincided with the Provincial Government removing itself from partial ownership of the facility.

local media tended to be more reassuring about facility safety and was more apt to discuss the potential for job losses or gains at the facility (e.g., *Grizzly Gazette*, 1999).

Thus, some events provide context that sets the stage for residents to show little outward expression of concern about facility risks (e.g., siting process) while other events showed the actual durability of residents' lack of expressed concern (e.g., muted reactions to the mishaps). The next section reviews the findings from a set of interviews conducted with residents. These further reveal how this apparently low level of concern is sustained in the community context.

4. Methodology – face-to-face interviews

The interview methodology was inductive and involved two rounds of interviews, with the second round building on findings from the first round. The overall strategy was to analyse for emergent themes to understand views of risk in the context of the everyday lives of the residents. Face-to-face semi-structured interviews were conducted with 38 Swan Hills residents in the summers of 1998 (round 1, $n = 27$) and 1999 (round 2, $n = 11$) (Table 1). The sample was randomly selected from the phone book and was screened to include roughly proportional numbers or residents from groups expected to have distinct views about the facility: SHTC facility *employees* ($n = 8$), community *leaders* ($n = 9$) and non-leader/non-facility employee *residents* ($n = 21$). The interviews were taped, transcribed verbatim, and managed using NUD*IST and NVivo qualitative data management software (Richards, 1999). Interviews were stopped once themes in the conversations with the residents repeated and little new information emerged – 'saturation' was reached (Fontana and Frey, 2000). The round one interviews explored views on general topics such as: community risk, community safety, the SHTC, and general environmental and community concerns. The round two interviews explored these same issues with 11 new respondents along with topics which emerged as key themes in the first round transcripts including perspectives on: openly expressing concerns about the facility within the community and; community reactions to such residents who actually do express concern. The topics were relatively general to allow residents to speak on their own terms. It became clear early on in the interviewing that understanding the determinants of low concern would form the basis of much of the inductive analysis.

As far as methodological rigour is concerned, the credibility and dependability of the findings were bolstered by the use of four recognized strategies: member checking (residents' agreement that our preliminary interpretations 'made sense'), source triangulation (multiple passages in support of a theoretical construct), researcher triangulation (authors' agreement

Table 1.   Swan Hills study participant characteristics

	Leader		*SHTC worker*		*Other residents*		*Total*
	Men	*Women*	*Men*	*Women*	*Men*	*Women*	
Round 1 – Summer 1998	2	7	6	2	3	7	
	9		8		10		27
Round 2 – Summer 1999	0	0	0	2	4		
	0		2		9	5	11
Totals	9		10		19		38

on independent interpretations of a subset of transcripts), and low inference descriptors (maintaining the words of the residents in the interpretations)(Lincoln and Guba, 1985; Baxter and Eyles, 1997).

5. Interview findings

The analysis of the interviews produced over 300 hierarchically organized themes. What follows are 57 of the key themes in the interviews, categorized into tables of interrelated subthemes (see Tables 2–7). Frequencies of both respondent mention and passages across all transcripts are presented to show thematic prominence – the former being the more conservative measure of prominence (see footnote, Table 2). However, it is the selected quotations that provide the conceptual detail. The findings that follow are divided into two related sections. The first establishes the residents' lack of expressed concern about SHTC risks. These are then put in the context of everyday concerns, to understand how SHTC concerns fit with everyday life concerns. The second section elaborates on the reasons for expressed low concern, and how the lack of expressed concern gives way to expressions of latent concern.

6. Low concern about the facility

Table 2 includes all themes from the interviews relating directly to concerns and views of

Table 2. Views of risk and concern regarding waste treatment facility (SHTC)

Theme	Number of residents who mentioned theme (% of the total: n = 38)	Number of passages
Facility is low/no concern	27 (71)	56
Facility is low risk	15 (39)	29
Latent concerns	11 (39)	37
Economic losses	11 (29)	14
Plant is risk	9 (24)	17
Health advisory re: hunting/fishing bans	7 (18)	13
Unfair testing	5 (13)	7
Reports and information	5 (13)	7
Transportation	5 (13)	10
Health (particularly children's)	3 (8)	3
Ground water	3 (8)	3
Workers	2 (5)	3
Cancer	1 (3)	2
Community lulled into complacency	1 (3)	2
Maximum all interviews	30 (79)	90

The *local prominence* of each theme (how it compares to similar themes indicated by the table title) is determined by comparing the counts *down* the middle and right columns. The number of residents (middle column) mentioning the theme is the more conservative estimate of a theme's prominence than the raw number of passages concerning the theme (right column) since several conversations on the topic may actually come from within a single interview. Comparing each theme to the maximums for all interviews (bottom row) is useful to understand the *global prominence* of each theme (how it compares to the maximums for the entire theme database).

SHTC risk. There are at least three indicators of an overall lack of expressed community concern. First, the most prominent theme is *facility is low/no concern* (27 residents, 56 passages) and *facility is low risk* (15 residents, 29 passages). Second, the themes that do mention threats such as *plant is a risk* (9 residents, 14 passages), *transportation* (5 residents, 10 passages), *health* (3 residents, 3 passages), *groundwater* (3 residents, 3 passages), *workers* (2 residents, 3 passages) and *cancer* (1 resident, 2 passages) have relatively low prominence compared to the other themes in the table (local prominence) and the entire database (global prominence)(see Table 2 footnote). Third, the respondents were further classified as *concerned* (*n* = 7) or *unconcerned* (*n* = 31) based on the response to a direct question about facility risk concerns. Of the latter, only eight worked at the facility or had family that worked there, eight were community leaders, while the remaining 15 were other residents. For example, Monica's comments reveal how unconcerned some actually are, whereby living next door to it 'wouldn't bother her a bit':

Interviewer: So the waste plant and stuff like that doesn't concern you at all?

Monica (resident-leader[2]):   Oh no I'd live right next door to the waste plant and it wouldn't bother me a bit.

Inerviewer: Why is that? Like other people would be pretty nervous about it.

Monica: Well 'cos there's nothing there. I've got more, more dangerous stuff in my kitchen, you know.

Helen, the only case of a community leader whose spouse also works at the SHTC, understandably agrees. She talks about her lack of concern about the health implications for her husband and her children:

Interviewer: So you're saying that you're not concerned about your health or your children's health, or family's health, why is that? When other people are supposedly ...

Helen (resident-leader):   'Cs I don't think PCBs are gonna kill me. I don't think PCBs are that dangerous that I can die from it. My common-law husband worked out there for a while, his PCB levels had went up, of course I mean he worked out there it was going to happen. They monitored him quite regularly, I think he was tested I think every three months. And his levels went up and down and up and down and I asked him one night, are you concerned about this do you think you're going to be affected? And he said no. My doctor, when, I just had, I have a three month old baby and when I was going through my first stage of my pregnancy the doctor had asked me if I was concerned with PCBs? No I'm not and don't ever bring it up again (laughing).

Beyond the fact that Helen expresses no health concerns related to the facility, two points are noteworthy. First, she refers to a conversation with her husband in which he

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[2] Each resident is identified according to the sample stratification: resident (non-leader, non-facility worker); resident-leader; and resident-facility worker.

says he is not concerned about elevated levels of PCB in his blood. This highlights the importance of family in the social construction of low concern. Second, her response to her doctor's enquiry about pregnancy and PCBs is, 'don't ever bring it up again', which demonstrates how steadfast is her position on the topic, seemingly to the point of denial.

It is crucial to note that the climate of low concern extends beyond community leaders and facility workers (and their families). For example, Michael explains how a tour of the facility reversed his formerly staunch opposition to the SHTC:

Interviewer: So how would you describe the role of the waste facility in the community?

Michael (resident):   At first I was opposed to it. I wouldn't have nothing to do with it because . . .

Interviewer: So you would have been here when they were deciding you know whether or not it should come here. Did you vote in the plebiscite?

Michael: I did so. I said, 'No' too. But then it came here and it went up and I took a tour of the place and saw what they did and I'd rather they do it somewhere and do it properly than have somebody bury it and leave it for 20-year later.

Interviewer: So it was the tour that changed your mind was there anything else that helped change your mind?

Michael: No pretty much the tour.

Though a facility tour changed Michael's mind, there are some unconcerned residents who have never actually visited the facility, like Grace. That she expected there would be a hard time finding any residents 'nervous' about the facility is testament to how widespread low concern seems to be:

Grace (resident):   I was going to ask you if you got other people saying they were nervous of the plant out there?

Interviewer: I'm still looking.

Grace: (laughing)

Interviewer: Do you think I'll find anyone?

Grace: Not really.

Interviewer: Do you know of anyone who's expressed any concerns? I mean you said you heard stories in the bar but they were just stories, are they people who were actually concerned?

Grace: Not really. No.

In fact, outward expression of concern may actually be socially unacceptable. This notion emerges most starkly through responses to a second-round question that asked residents to explore possible community (not personal) reactions to a scenario where a parent outwardly expresses concern that their child is 'sick because of the facility'. Four of the 11 residents asked, specifically mentioned that the *burden of proof would be on the family* with the sick child, while all the rest mentioned things like: being *sceptical* (5 residents, 6 passages) wanting to *know more* (2 residents, 2 passages), and being *ganged*

up on by the rest of the community (1 resident, 1 passage).[3] For only two of these people (2 passages) was their immediate reaction *sympathy*. Diane explains that such people 'wouldn't be received very well' or even 'horribly':

Interviewer: Say I was living in the community and I started to express concerns about the site for whatever reason, say my child was sick and I said the plant was the reason. How would that be received in the community?

Diane (resident – facility worker): Horribly.

Interviewer: Yeah?

Diane: You would see the town kind of turn on you unless your child, like we have kids in Swan Hills that do have cancer and stuff but nothing and I mean they go to specialists and it's nothing from that. I mean you go anywhere, you go to Barrhead, you go to Whitecourt, you go anywhere and there's kids with cancer and stuff and there's not … There's one kid actually and he's recovering just fine but you wouldn't be received very well. The people in the town would say well my kid, like the majority of the kids are not like, you're one kid compared to the other 200 kids.

Thus, low concern appears to be quite socially ingrained in the community. This is further reinforced by Victoria's rather unique, and perhaps extreme, view of the apparently widespread low-concern consensus. Being concerned herself, she feels the rest of the community are 'hypnotized':

Interviewer: You mentioned the horror movie on the phone in a different context …

Victoria (resident): It is.

Interviewer: What did you say on the phone?

Victoria: I said Chem Security (Bovar) is like those old horror movies where everyone's hypnotized and they're all around the one, that's what Chem's like.

This notion that expressing concern is to some extent socially unacceptable is more subtly manifest in the notion of *latent concerns*.

6.1. LATENT CONCERNS

Latent concerns, the third most common topic in Table 2 (11 residents, 37 passages), is defined as any passage where one of the 31 'unconcerned' residents, actually mentions a specific concern, some doubt, or apprehensions about possible effects, elsewhere in their interview. For example, Jenny, after claiming to be generally unconcerned, cites the idea that 'nothing is foolproof' and that they are indeed 'taking a chance':

Jenny (resident): Nothing is foolproof. So you don't want to sit here and say, 'Oh, no nothing will ever happen to that plant, nothing'. But you never know, there's a little part of me that goes, 'You never know nothing

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[3] Table 'expressing concern' is not included in this paper since the table is small with all themes actually reported in the body of this paper.

is foolproof and we all have to you know …'. But that's a chance I guess I take. That's a chance we'll take. And like my husband has no concerns so that's an agreement. Yeah it's funny you know. It's funny the questions that people ask you and stuff about it and it's like it doesn't bother me and I wonder why it bothers them? It's funny but maybe we are too trusting I don't know (laughing).

Two things are important here. First, Jenny has doubt – though she wonders why the SHTC bothers other people (usually people *outside* the community) she also wonders if she is 'too trusting' that the facility will be safe. Second, like Helen in the previous section, Jenny refers to her spouse and their mutual agreement that there is no risk. This reinforces that views of risk and concerns about the facility are socially constructed. These ideas come into focus in a passage further into Jenny's interview where she, like Helen, indicates some denial by saying she 'refuses to listen to anything that is said about it':

Interviewer: What kind of risks does the plant pose on you?

Jenny (resident):   Well, our health. Like maybe they don't know maybe as much as they think they know. And so of course they're not telling us and we are you know eating and drinking and carrying on and maybe we won't see anything until our kids have kids you know. But, I still don't believe that. I don't know if I'm just being stubborn, because people have put our town down for so long I'm being very stubborn about it, I just refuse to listen to anything that's said about it. I find out for myself and you know.

Thus, her lack of concern is tied to community identity, a sort of defence mechanism against those who have been, 'putting the town down for so long'. It is important to note that of the 11 residents who show latent concerns two actually worked at the facility. The fact that two are workers suggests that these nagging doubts do extend to groups who are presumably also knowledgeable about the facility.

6.2.   COMMUNITY CONCERNS

It is important to place the concerns about the facility in the context of general community concerns to see how prominent are those related specifically to the facility (Table 3). Though there is not one single theme that dominates the table, they all in effect, refer to the notions that the town is small, dependent on the resource industry, and susceptible to boom – bust cycles. It is important to recognize that in the interviews the residents were actually asked to talk about these community concerns *before* they were asked about SHTC concerns – this was to see if the facility itself represented a prominent community concern. The SHTC is only mentioned in the context of the threat of *downsizing* (5 residents, 6 passages) and the potential loss of *community stability* (7 residents, 11 passages). Miriam highlights the link between the town's identity as economically vulnerable and open expressions of opposition to the SHTC:

Miriam (resident):   I think that's another thing you know, a lot of people in power in the community of course aren't going to say a lot of negative things towards it (SHTC). That's the bread and butter of this community. You know now that most of us (oil industry)

Table 3. General community concerns

Theme	Number of residents who mentioned theme (% of the total: n = 38)	Number of passages
Lack of amenities	9 (24)	9
Community (in)stability	7 (21)	11
Lack of medical facilities	7 (21)	9
Bussing and schools	6 (16)	10
Oil industry downsizing	6 (16)	6
Decline of property values	6 (16)	6
SHTC downsizing	5 (13)	6
Everybody knows your business	5 (13)	7
Children's future	5 (13)	7
Few employers – poor town management	4 (11)	5
Drinking water	3 (8)	4
Drinking/fights/brawls	2 (5)	2
Maximum all interviews	30 (79)	90

> employees have chosen to live in Whitecourt as opposed to Swan Hills, the majority of the employees here are out at that plant. And if that goes it would be a ghost town here. And they did talk about it when all these issues and fines and things were coming up last year. Wow, that was a lottery, there would be nothing to stay here for.

Thus, Miriam suggests that people who speak against the facility would actually be speaking against the town itself. This is powerful motivation for viewing the facility as low risk, or at the very least suppressed outward expression of concern. The next sections expand on such ideas by showing how and why the unconcerned residents sustain their views.

7. Key reasons for low concern

The next four tables and quotations have to do with *how* and *why* the majority of residents in this study, the 'unconcerned', claim to have low concern. Specifically, some of the main reasons for low concern are: *knowledge and familiarity* (Table 4), *reactions to outside media* (Table 5), *benefits* (Table 6), and *coping to sustain low concern* (Table 7). Throughout, though are the sub-texts of threat denial, the struggle to sustain a positive community identity, and the need to protect against negative community outsiders–all of which are socially constructed and sustained.

7.1. KNOWLEDGE AND FAMILIARITY

One of the themes mentioned by most 'unconcerned' residents has to do with familiarity with the SHTC (Table 4). Interestingly, these passages directly juxtapose local knowledge against outsider knowledge. That is, the top themes in this table are *familiarity/used to it* (24 residents, 43 passages) and *we are knowledgeable – outsiders are not* (21 residents,

Table 4. Reasons for low concern: familiarity/knowledge

Theme	Number of residents who mentioned theme (% of the total: n = 38)	Number of passages
Familiarity/used to it	24 (63)	43
We are knowledgeable – outsiders are not	21 (55)	55
Low quantities of 'fugitive' emissions	18 (47)	37
Physical properties of chemicals not threatening	16 (42)	22
Know workers	15 (39)	24
Comfortable with SHTC	15 (39)	21
Confidence in science/best available technology	14 (37)	20
Resource town	13 (34)	23
Community consensus: 'no problems'	10 (26)	17
Resignation	4 (11)	14
We chose to live here	4 (11)	4
Maximum all interviews	30 (79)	90

55 passages). Clarence whose wife once worked at the plant reveals that 'knowledge' is socially constructed and filtered through friends and family:

Interviewer: Why aren't you very concerned about the plant?

Clarence (resident):   I guess for various reasons even though I've never toured the plant. I really am somewhat familiar about it but I've never toured the plant. I am aware that they have spent a lot of money and technology in developing it and I know from people that have worked there, including my wife, that they go to great extremes to make sure the product is handled properly and disposed of properly.

Regardless of what these people actually know about the facility, these passages reinforce that trust in fellow residents, particularly family, seems more important than seeking out information from the operators or third-party sources. Thus, since most outsiders, particularly casual acquaintances lack contact with knowledgeable locals, the formers' views can readily be disregarded by residents. This is quite evident in the residents' perceptions of outsider news media.

7.2. REACTION TO OUTSIDE MEDIA

News media originating outside of Swan Hills seem to play an important role in solidifying views of low facility concern in the community (Table 5). There is a common perception that 'outside media', particularly that from the Province's largest urban centres like Edmonton and Calgary, are overemphasizing the hazards from the facility and underplaying its societal benefits. For instance Nigel complains that these outsider reports are: *politically motivated* (16 residents, 25 passages) and *blowing things out of proportion* (11 residents, 15 passages):

Nigel (resident-leader):   One scientist, well respected scientist, said to me one day, you have an awful lot of politics and very little science.

Table 5. Reasons for low concern: outside media

Theme	Number of residents who mentioned theme (% of the total: n = 38)	Number of passages
Politically motivated reports	16 (42)	25
Blown out of proportion	11 (29)	15
Only negative reports	5 (13)	6
Sensationalized	5 (13)	7
Pushed by media	2 (5)	2
Maximum all interviews	30 (79)	90

> And I've lived off that statement and that's the way it is. And so you have the paper and news media that like (have) feeding frenzies and (they) want to exploit, maybe that's not the right term but sensationalize. But even today in today's journal, my wife called to read it to me and I went and read it at noon, 'Pregnant women concerned that Swan Hills ..' something or other.

Thus, the perception of the 'outside' media is central to the local social construction of risk and the sustenance of a positive community identity. Since the outside media are viewed to be 'sensationalizing' the negative aspects of the facility the residents seem to prefer turning inwards to local media, local political representatives, the facility operator and the rest of the community for information about SHTC issues. For instance, at least three people list the local newspaper as their *most* trusted source of information about the facility, while none mentioned outside media.[4] The messages from these local sources are generally reassuring regarding facility risks and reinforce low concern. This perceived stigmatization extends to more direct interactions with outsiders as well. For example, residents also complained of outsiders characterizing Swan Hills residents in a derogatory manner, as for example: 'mutants' or 'glowing green' (6 residents, 6 passages).

7.3. BENEFITS

Rather than dwell on the negatives, as outsiders are perceived to do, most residents prefer to cast the facility in a positive light by pointing out the various benefits of the facility (Table 6). While many talk about various *economic* (23 residents, 35 passages) and specifically *job* (19 residents, 25 passages) related benefits, even more prominent is the notion that the *facility fulfills a need* (26 residents, 90 passages), and that since it provides wide social and environmental benefits they should actually receive more *notoriety* (10 residents, 11 passages) for *disposing other's waste* (9 residents, 10 passages). It is important to note that, as a group, these are among the most prominent themes in the entire data set. The salience of social facility benefits for these residents is echoed in Elizabeth's pride as follows:

> *Eltzabeth* (resident): Actually I'm proud it's here. I'm saying, 'Alberta is first'. We created it, it's up to us to dispose of it. And somebody's got to

[4] In the interest of brevity, the table: 'Trusted Sources of Information', not included in this paper.

Table 6. Reasons for low concern: benefits

Theme	Number of residents who mentioned theme (% of the total: n = 38)	Number of passages
Facility is needed	26 (68)	90
Economic (unspecified)	23 (61)	35
Jobs	19 (50)	25
Bovar – good corporate citizens	15 (39)	21
Environmental (provincial)	10 (26)	14
Notoriety	10 (26)	11
Social benefits	9 (24)	11
Community stability	9 (24)	12
Disposing other's waste	9 (24)	10
Benefits outweigh costs	5 (13)	10
Maximum all interviews	30 (79)	90

> be a leader. It's like, when they fought for democracy some-
> body had to go to war. Well I think that Alberta did the right
> thing.

That the residents are made to feel stigmatized in Canada, and perhaps Alberta is found in her comments about standing up for her beliefs and being willing to 'go to war' for those beliefs. Such comments further reinforce that low concern is tied to community identity through defensive reactions against what outsiders are perceived to be saying about the community.

7.4. SUSTAINING LOW CONCERN: HOPE, FAITH, DENIAL

Both 'concerned' and 'unconcerned' residents talked about ways they coped with the potential risks of the facility even though this was not specifically a topic on the interview checklist (Table 7). Such coping strategies allow them to get on with the more immediate tasks of everyday life. Most of these themes pertain to residents giving thoughts of the waste facility low priority, including: *hope/faith that all is well* (9 residents, 20 passages), *denial* (9 residents, 14 passages) and *don't think about it* (4 residents, 6 passages). Similar to Jenny's comments regarding latent concerns above, Miriam talks about once being

Table 7. Sustaining low concern

Theme	Number of residents who mentioned theme (% of the total: n = 38)	Number of passages
Hope/faith that all is well	9 (24)	20
Denial	9 (24)	14
Don't think about it	4 (24)	6
Get on with life	2 (24)	2
Don't be negative	2 (24)	2
Maximum all interviews	30 (79)	90

concerned but now she relies on faith that things will be okay to support her image that Swan Hills is a 'great community':

> *Miriam* (resident): Well at first it was on my mind a lot more and it affected a lot of my thinking then it just kind of went into the background and didn't really pose much emotional stress. I don't know I mean it's concerning especially when you listen to some of your friends that work out there and what they do say. You wonder. But what I say it's a great community if you could move that part (the SHTC) away.

8. Summary of findings: an heuristic framework of expressed low concern

The findings are summarized in an heuristic framework for understanding the maintenance of low concern about the SHTC (Fig. 1). Figure 1 consists of three main sections: overlapping *community concerns* in the centre rings; *insider* perceptions at the top and *outsider* influences at the bottom. All reinforce a deeply held *low level of concern* about the facility (inside ring). However, *latent concerns* (middle ring) remain in the minds of some of these outwardly unconcerned residents, and any thought of facility risks are often overshadowed by *everyday concerns* (outer ring) about community viability which are directly connected to the economic aspects of the facility rather than hazard risks. There are also two important intervening concepts: a heightened sense of *community pride*; and *stigma*. These form part of the subtext of interplay between insiders and outsider whereby insiders are reacting to negative images of the facility and community perceived to be perpetuated by outsiders. Outsiders play an unlikely and important role in the stigmatization of the community if they have anything bad to say about the community and the facility. The effect of stigmatization is to reinforce the resident's sense of outward pride and positive community identity. The next section describes how such a framework fits with existing theory on low concern about technological hazards, and with what implications. Thus, the findings concerning *knowledge familiarity*, *benefits*, and *faith/hope* are outward manifestations of these equally important, and broader social processes.

9. Discussion

The main argument is that residents' outward expressions of low concern about the SHTC are socially constructed or perhaps more accurately, socially sustained, through the interaction of outsider (non-community) and insider (community) influences. Further, the by-product of this social construction is muted, latent concern. Thus, the community has to a large extent defined the facility *problem* (Aronoff and Gunter, 1992a) in terms of threats to community identity (including, sustained employment) rather than treats to community health and safety. In particular, community identity and pride are threatened by what is perceived to be outsider negativity towards the facility, and by association, the community. Community stigma is a strong motivating force for: reinforcing expressed low concern, bolstering a positive community identity, but at the same time, silencing some residual concerns. While their defensive stance towards perceived outsiders' views is no doubt tied to some extent to protecting economic interests and jobs, that these
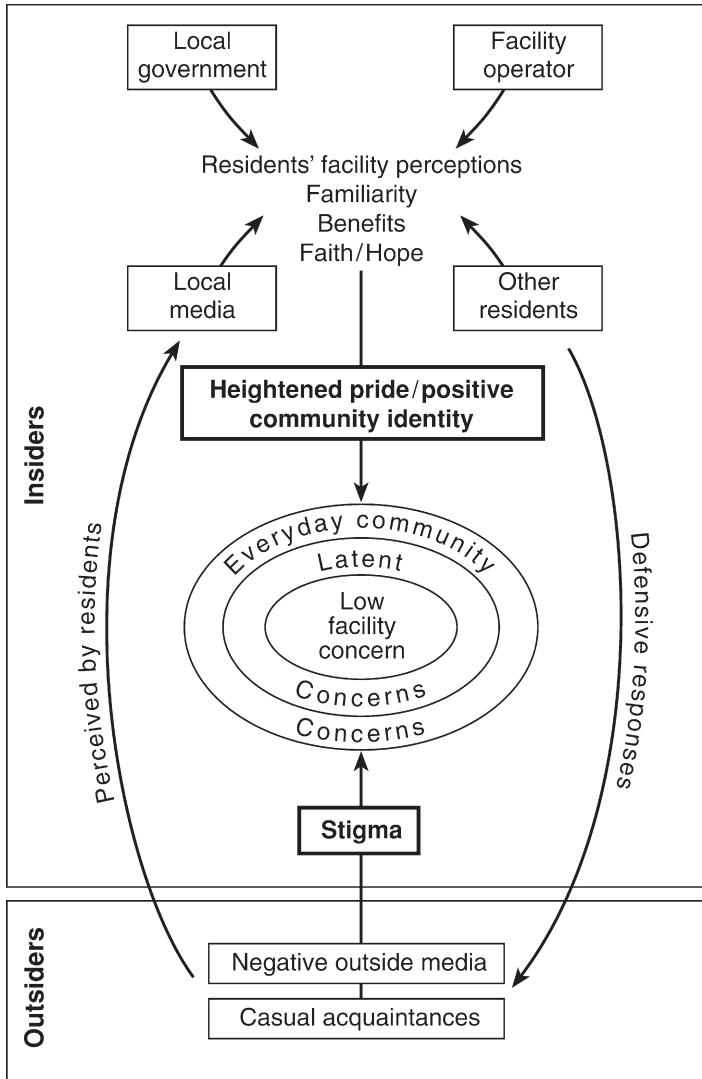
Fig. 1. Conceptual framework for understanding the maintenance of low concern about the ASWTF at Swan Hills.

views extend beyond the workers and their families into the wider community suggests that purely economic explanations of low concern are not complete.

   The review of the relationship between economic benefits and perceived risk shows that while some studies show them to be negatively associated (Gardener *et al.*, 1982; Renn, 1989; Flynn *et al.*, 1992; Dunlap *et al.*, 1993b; Gregory and Mendelsohn, 1993) the contribution of *benefits* to models of perceived risk is quite low (e.g., Brody and Fleishman, 1993; Desvousage *et al.*, 1993 Dunlap *et al.*, 1993b; Slovic *et al.*, 1993). It is shown that perceived economic benefits are certainly part of the lexicon of outward expressions of low concern in Swan Hills. The Swan Hills interviews are replete with references to jobs, economic stability, and being a 'working town', particularly from

those 31 who were explicitly unconcerned. The Swan Hills interviews may even go beyond existing quantitative studies since there is little doubt that the SHTC is perceived by the residents to be an economically stabilizing industry. Yet, even if this forms a large part of the explanation, it is useful to know how concern, or lack thereof, is negotiated in everyday life.

The relative importance of benefits to other factors is being explored more extensively at Swan Hills in a related survey study. This study will specifically try to tease out the separate effects of different types of benefits. For example, the views on economic benefits versus social benefits of technological hazards, that surface so prominently in the interviews, will be explored for independent effects. The two types of benefits are likely linked but social benefits in particular may be connected to perceived altruistic goals and in particular, community pride. This would be consistent with Renn's (1989) research on public views of nuclear energy that economic benefits played a small role in explaining 40% public support. Though he admits measuring 'altruism' was beyond the scope of his own study, he speculates that support for 'altruistic goals', like improved environmental quality in the short-run, is a reasonable alternative explanation for support. Likewise, It is found that the entire community may be united in altruistic pride for doing a service to the wider society by disposing of hazardous waste. This is similar to Zonabend's (1993) finding that workers in a nuclear waste treatment facility in la Hague France frequently cite pride in being part of a 'respected' high tech industry.

There are also direct links to the psychometric literature. The notion of being *knowledgeable*, often touted by Swan Hills residents, is also prominent among psychometric study findings. For example many studies have replicated Slovic's (1987) finding that if the effects of a hazard are perceived to be well-known the hazard has a greater chance of being viewed to be low risk. Yet this work is extended by describing the nature of the relationship between personal and community knowledge, whereby knowledge is often obtained indirectly and filtered through family and friends. What is striking is the extent to which low concern seems unconditional for some. It is remarkable that some support the facility without first-hand knowledge of it. Akin to Metz's (1996) notion of *pragmatic logic,* this implies that direct knowledge is not necessary, rather, knowing somebody who is more directly knowledgeable is all that need be in place to be reassured. Knowledge as objective, verifiable 'facts' about things like PCBs and dioxins is somewhat irrelevant to the pragmatic. Thus, in relation to 'insiders' and 'outsiders', residents need only know that there are locally supportive experts in place ready to debunk outsiders perceived to be overzealous, sensationalistic, and stigmatizing the facility and the community. It is also striking that these residents report low concern despite negative facility events like the leak and fire. Such events have the potential to destroy trust and to dissolve community consensus. For example, Edelstein (1988) and Couch and Kroll-Smith (1994) show how such events can actually weaken pride and heighten internal community conflict. However, in Swan Hills the social construction/maintenance of such events as 'not as big a deal' as outsiders would make them out to be appears to be important. Some residents did candidly admit the delay in announcing the leak was a concern, yet this was not enough to destroy their overall faith in the operators. Further, the findings of Aronoff and Gunter (1992a, 1992b), regarding community identity may be extended. While they highlight the role of dynamic, forceful, and proactive community leaders who actively promoted their community to outsiders in order to garner clean-up and economic revitalization, the Swan Hills study shows how a community may also turn in upon

itself and take a more defensive response against outside information, institutions and people perceived to be threatening and stigmatizing. This is emphasized best in the residents' responses to the question about the hypothetical parent claiming the plant caused their child to be ill. That the burden of proof is on the parent to show there is a causal link may not be as surprising as the fact that mentions of 'prove it', and being socially shunned in the community preceded any mention of sympathy for the sick child. This is not to say the residents are unsympathetic, they did eventually mention sympathy for this hypothetical family, rather it shows the immediate importance of community protection.

As far as the attenuation of risk literature is concerned, the notion of insiders and outsiders is echoed in Kasperson's (1992) notion of *scale divergence* whereby concern about risks is low at the local scale and high at the regional and national scales. Though comparing Swan Hills residents' views to those in three other local communities is ongoing, the Swan Hills case offers an explanation for how scale divergence can be played out at the local scale. There is a tendency here to 'circle the wagons' on the issue of risk, to defend against hostile outsiders perceived to be bent on being negative about the facility whose economic future has been uncertain throughout its history (e.g., Provincial divestment). Further, motivations for being defensive are not only economic, they are moral. Though the facility has buoyed the town with jobs it also represents for the residents a moral debate over the social responsibility to rid society, and the environment, of hazardous waste with the best available technology.

Morality and social responsibility are central to Janis' (1982) idea of *groupthink* among policy-makers. Groupthink involves a group of like-minded people who overestimate the morality of their views and hence are resistant to changing those views. This is supported by Sabatier and Jenkins-Smith's (1993) notion of *core beliefs* in the context of policy-making (see also, Converse, 1964). Similarly, Kasperson and Kasperson (1992, p. 12) refer to *ideological hazards* – 'hazards that remain hidden or unattended in a web of social values and assumptions that either denigrates the consequences or deems them acceptable, elevates associated benefits, and idealizes certain notions or beliefs' (see also, Kasperson and Kasperson, 1991). These may be contrasted with stigmatized hazards whose consequences are implied to be out of proportion with existing scientific evidence (e.g., Powell and Leiss, 1997; Flynn *et al.*, 2001). The SHTC certainly seems to be a case of the former, whereby residents repeatedly tout both economic and social benefits. Unfortunately, the degree to which these benefits are 'elevated' and risk 'denigrated' is difficult to tell – there are no benchmarks.

A number of authors have explored the implications of a lack of attention to risk that can lead to foreseeable accidents (Perrow, 1984; Freudenburg, 1992; Zonabend, 1993; Pidgeon, 1994). A central theme of such research is that there can be lack of attention to risks and complacency within complex corporate and government systems. Further, complacency is fed by the fact that these systems rarely experience failures. Yet, failures are inevitable in these tightly coupled systems, sometimes with catastrophic consequences (Perrow, 1984). Though Swan Hills was recently exposed to 'system failures' like the leak and explosion/fire, there still seems to be an implicit reluctance or perceived lack of need on the part of residents to mobilize in any new ways to bolster facility and community safety. That few of the people spoken with actively, directly seek out information or visit the facility is testament to this. This may be an appropriate response, but it may also lead to the *atrophy of vigilance* on the part of residents and/or facility operators to watch over facility safety (Freudenburg's, 1992). Further, care was taken not to retreat

to the misleading dichotomy of actual/objective risk in relation to perceived/subjective risk (Krimsky and Golding, 1992). It is trite to say that hindsight is always clearer than foresight, but what is important is that the latter is inevitably fraught with so much uncertainty that accurate prediction is at best problematic (Perrow, 1984). It is inappropriate and impossible to say that the residents are underestimating the 'actual' risks of the facility. What is desired to emphasize is that the climate of low concern in the community is pervasive, staunch and must be put in the context of outside influences. Concern is that the stage is set for the *potential* denial of serious risk and the *potential* lack of vigilance to ensure safety.

It is difficult to know if cognitive dissonance or, threat denial exist at Swan Hills. Thus, these concepts, in their strictest forms, are not particularly useful for explaining the residents views. Even though the methodology did allow tapping into latent concern where survey instruments likely would not have, it is very difficult to assess the pervasiveness of denial. The one person that 'refuses to listen to anything (bad) that's said about it' is likely the clearest instance of outward denial from the interviews yet more subtle cases may remain undetected. Nevertheless, it seems that the social context for allowing denial is heightened such that it is rather easy, through social support, for someone in Swan Hills to refuse the negative, potentially uncomfortable (i.e., dissonance) possibility that serious risks exist.

Despite the lack of outwardly expressed concern, latent concerns remain. That is, although first reactions are often expressions of low concern, further probing reveals some concerns, reservations, and doubts. At the very least the conversations with residents prompted some to think more closely about their views of the facility. Unlike the present study which focuses equally on facility workers and non-worker residents, Zonabend (1993) reports extensively on the 'latent anxiety' of workers and their families at a nuclear fuel reprocessing plant. In particular, women workers and spouses were apt to outwardly express some reservations or doubts about safety and future health. Her entire book centres on the language of risk and safety at the facility and particularly the silences on such topics – often indicating latent anxiety – even when asked directly. This study finds likewise, but extends such findings to show that the socially constructed views can expand beyond facility workers and their families into the entire community.

10. Conclusions and implications

The objective of this inrestigation was to understand views of technological risk in the context of everyday life, but ended up focussing on how and why expressed low concern is sustained and with what effect. While empirical case studies of how low concern is sustained are relatively rare in the literature, this case study affirms and extends exiting literature that is at least tangential to this area. There are four key conclusions. First, the Swan Hills study generally supports the notion that risk perception and concern are socially constructed through the interaction of individuals, institutions, and communities. While not a new idea, this remains a rarely explored area of risk research. Second, juxtaposing the views of *insiders* against those perceived to be held by *outsiders* furthers understanding of why facility concern is rarely expressed in communities living with potentially serious hazards. Residents seem more apt to view outsiders' (negative) views of the facility and the town as a threat than they are to view the facility itself as a threat. Thus, the influence of the extra-local context in the social construction of risk is

particularly powerful in this case. Third, expressed concerns may underestimate the true level and variety of concerns in such communities – latent concerns may remain. Initial expressions of low concern/low worry about a facility may give way to some concern, or at least lingering doubts, upon extended questioning. Fourth, the reluctance to express facility risk and safety concerns, latent or otherwise, may be traced to a community's historical and economic context, as well as the legacy of facility siting. In this case, an historically floundering local economy combined with a voluntary siting process set the stage for ongoing individual and social suppression of concern.

There are at least four key implications of this work, one methodological, and the other three related to the actual findings. First, this research shows the importance of using intensive methods for developing detailed understandings of community views of technological hazards. Standardized methods of measuring risk and concern may miss more subtle manifestations of concern. Qualitative face-to-face interviews that allow for extended conversation on facility issues can reveal important subtleties, like latent concerns, likely to be missed by more structured and restrictive survey instruments.

Second, although it is very difficult to assess the implications of sustained low concern in a community living with a hazard for only 11 years, the stage *may* be set for a lack of diligence to protect community safety. Certainly, if the facility is managed well, and contamination is minimized, expressed low concern is justified. Further, it is very difficult to determine the 'actual' level of risk presented by the facility. That was not the purpose. Regardless of the level of danger posed by the facility, the study reveals that the low level of concern in the community can survive numerous insults and remain in tact. Even in the face of potentially dangerous facility-related events like the 1996 leak, the residents have remained relatively unswervingly, unconcerned. Yet, as long as the community's attention is focussed on outsider perceived to be threatening the SHTC and the community, complacency and distrust of negative information about facility hazards will likely remain an issue. Hopefully, the residents will not become victims of their own moral stance against outsiders' views.

Third, the discussion of latent concerns implies that some facility-related concerns may go unattended as they are subconsciously or actively suppressed, ostensibly, for the common good of the community. Risk communicators need to explore ways to uncover such concerns in their efforts to abate any lingering resident worry.

Fourth, the burden of risk (perception) management should not be placed entirely on the residents and the facility operators. How localized risks are interpreted and portrayed by *outsiders* is worthy of further attention. Sensationalizing risk is not new, but this case study turns the usual implication – that resources may be over-utilized to abate relatively low risks – on its head. For example, media sensationalism that hazard events are extremely serious may have the unintended effect of reinforcing overconfidence in those local communities living with hazards who are prone to believing the opposite.

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