

OPG has failed to submit a plan that addresses many important concerns, including the ones I will report here. **I am requesting that you deny the application on the grounds that it is woefully incomplete and fails to address very serious health, socio-economic and safety issues relating to the DGR Project.**

Perhaps more than any other resident in Inverhuron, we have suffered mightily from the legally sanctioned operations at the Bruce nuclear site. Moreover, none of the impacts of these harmful effects have been acknowledged or mitigated by OPG, the industry or regulators. This is so in spite of simple and, in one case, an extensive negotiated resolution in 2002. The impacts have been so severe the Ontario Municipal Board recognized that our property was stigmatized by the operations of the Bruce Heavy Water Plant and awarded us a reduction in assessed property value of 35%.

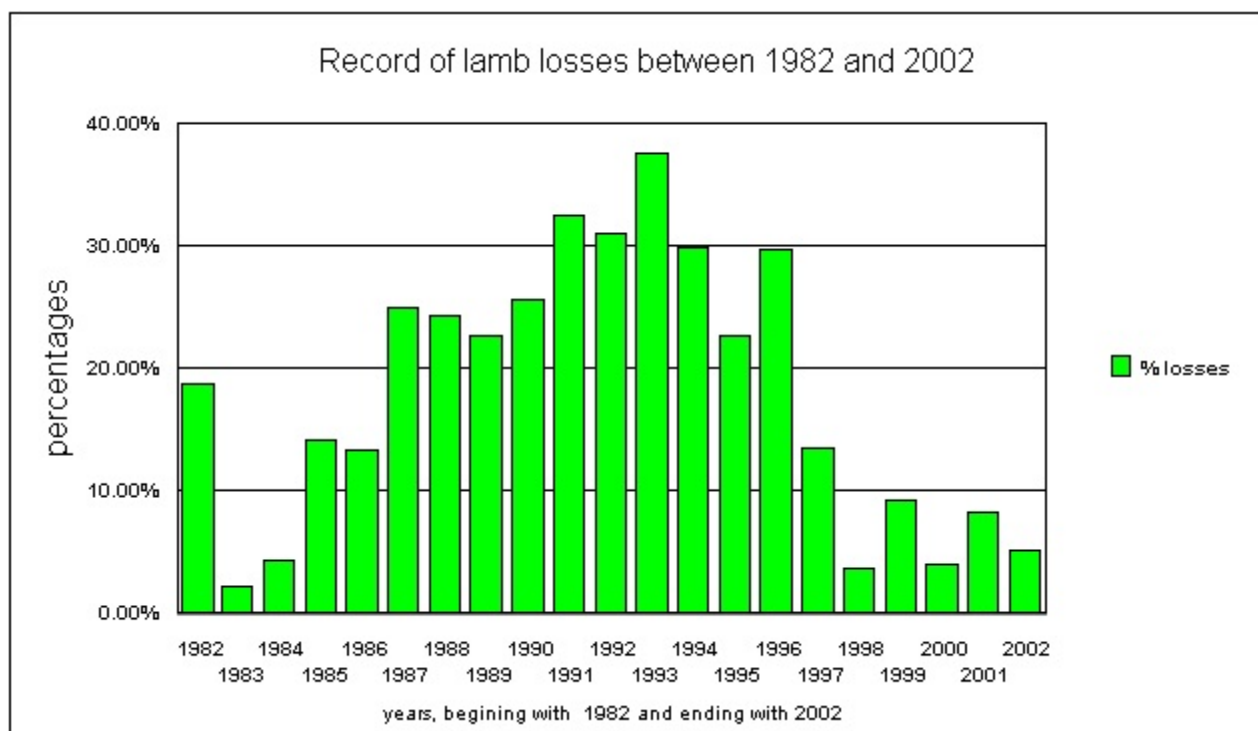
While I understand that the historical operations at the Bruce site are outside the scope of OPG's proposal, I believe that an understanding of the ongoing events are important in determining whether the DGR should be situated at this location. The physics of the region does not change with each new project and it has been the failure to address the known conditions described by air physics that have led to the incidents described below. These past failures are certain to be repeated with the construction and operations of this Project.

Industrial contaminants from the Bruce site have routinely fumigated our property, sometimes in highly toxic concentrations. The first known incident to affect us was from flare stack emissions in 1985 when hydrogen sulphide was burned at the site and flared to atmosphere. Although the meteorology of the region had been thoroughly studied by Ontario Hydro's Y. A. Tam in 1984, demonstrating that the Thermal Internal Boundary Layer (TIBL) was present in this region between the months of April and October, Ontario Hydro routinely chose this delicate period to flare these toxic gasses to atmosphere. A hydrogen sulphide monitor installed by the Ministry of the Environment of Ontario (MOE) at the corner of Albert Rd. and Bruce Township Road 2 demonstrated that what are called instantaneous peak concentrations of hydrogen sulphide of the order of 25 ppb occurred on this occasion in May. What Ontario Hydro, the MOE and the Atomic Energy Control Board (AECB) failed to observe was that this measurement was neither instantaneous nor peak due to the way in which air samples were collected. In this way, a concentration of raw hydrogen sulphide of 110 ppm descending as a tendril from the TIBL would be recorded as an instantaneous peak concentration of 20-25 ppb as the toxic plume passed by the intake tube. Our neighbour, Howard Campbell had been knocked down by the pond on his farm in 1983, which prompted the study by Tam.

I had been preparing the field to plant when I walked into a low-lying region by the river and was almost overcome by the gasses. I immediately experienced a massive headache and nausea but recognized that this was probably due to hydrogen sulphide and its flare stack byproducts. Ontario Hydro annually delivered warnings to all of its nearby neighbours about the dangers of hydrogen sulphide and urged us to get to higher grounds whenever we smelled it. Although I did

not smell it at the time, I struggled home and went to bed to recover.

I had changed our farming operation from a confinement system to a pasture management one. In confinement, we would lose between 3% and 5% at lambing time. Following this incident, and for the next 12 years until the Bruce Heavy Water Plant was shut down, we lost between 25% and 35% of our newborn lambs annually. The following graph demonstrates clearly the impact on our farm animals:



On another occasion in 1990, our entire flock of sheep on pasture went blind temporarily and we discovered this only because they would walk into the electric fence, something sheep avoid whenever possible. Although I begged and pleaded with Ontario Hydro either to change the time of year when it engaged in this routine flaring or, if it must do so then, to inform us when it would be happening so that I could keep our sheep in and stay out of harms way myself, Ontario Hydro steadfastly refused to do either, leaving us at the mercy of our local air, wind and weather patterns. It is as if Ontario Hydro, now called OPG, had few to no concerns about the impact of its operations on the surrounding neighbouring community.

In 1988 I was affected a second time, as was my 11-year-old daughter who was outside at the time. It was late April and I had pastured our bred ewes on the grass around our orchard and garden, just beside our house. On this occasion, it was as if someone banged me over the head

with a large piece of wood, the pain was so intense. I was temporarily blinded, seeing bright lights and stars. My daughter, who was playing on a pile of hay mulch, became suicidal in the aftermath, even writing her last will and testament. As might be imagined, this is an unfortunate and terrible event for any parent to experience.

My symptoms this time were so severe that our GP sent me to the Occupational Health Clinic at McMaster University. There, Dr. Haines referred me to Dr. Carbotte, a psychiatrist, who conducted a series of tests. These demonstrated that I suffered from a central nervous system deficit that had to have been caused by some noxious agent, such as hydrogen sulphide. Although this deficit was unknown at the time to the Sulphide Research Network in Edmonton, Alberta and who were helping me understand the impacts I suffered, subsequent tests on new knock-down patients invariably found it. I was tested again 6 months later and showed marked cognitive improvement, thereby confirming that my symptoms had been caused by this environmental assault.

My daughter did not fare as well because the psychiatrist in London believed that the maximum peak concentration to which we were exposed was 25 ppb of hydrogen sulphide and so, dismissed this as a possible agent. She was treated with a wide range of drugs used for schizophrenic patients that were inappropriate for her and did not help. It took 4 years before she was reassessed by a team at Sunnybrook Hospital in Toronto when it was decided that she did not suffer from schizophrenia at all but now had a personality disorder caused, in part, by her medical treatment. They recommended Lutherwood in Waterloo, an institution that assists such children overcome their anger and resentment. Again, no one at Ontario Hydro seemed to care enough about the impacts she suffered even to inquire about her well-being. Nor did they ask about the impacts of their operations on me and my family.

Fire training activities presented another source of fumigation on our farm. In those days, Ontario Hydro burned Bunker 'C' oil at the facility on site. The plume from this was highly visible as a thick black smoke. It would ascend to the bottom of the TIBL where it would meander along windward, dropping to the ground with descending thermals. One such incident was witnessed in 1992 by one of my employees while he and I were working at the barn. We rushed home and I failed to make it on time, dropping to my knees as the edge of this plume overwhelmed me. Watson Morris, my student employee, wrote about this experience and sent a certified report to the AECB, the MOE, and Ontario Hydro, at the recommendation of my consulting meteorologist, John L Lumley of Cornell University. This report was never acknowledged by any of these bodies. Nor did I receive a response. Ontario Hydro did, however, modify the times and places when it engaged in 'big burn' fire training so we did not experience similar events again until 2002.

In 2002, I was not home when the fire training fumigation occurred. Bruce Power was now operating the reactors on site and had changed the fuel used so that the smoke was no longer visible. It now used a product called TekFlame, a type of jet fuel. This plume descended on our

store and warehouse, driving our customers home and making my wife and staff ill. Sheree, our staff member, described the experience as: “like gulping down diesel”. My wife, who has a disability pension from teaching due to chronic fatigue syndrome, took longer to recover. Following this incident, Sheree and I met over a 9-month period with Bruce Power staff and developed a protocol for fire training activity that we believed would protect us.

Unfortunately, without warning or notice, Bruce Power abrogated that agreement by engaging in fire training first in May, and then in June of 2008. Again, my wife was affected badly because at first she hadn’t recognized what was happening. We sincerely believed that Bruce Power was operating differently than Ontario Hydro did and this incident fully caught us by surprise. I emailed Dan MacArthur, my contact at Bruce Power, who emailed back that he didn’t think they were supposed to do this at those times either. Bruce Power, on the other hand, did not agree.

The second incident in June 2008, a month later, happened as I was baling hay with my employee. While we didn’t notice the fumes from fire training activity, each of us felt ill at that time and we mutually decided to stop work mid-day because of how we felt. Ann, my wife, who was in our store with the windows open, was very disoriented and distraught. It was Sheree who recognized the symptoms for what they were and brought Ann to a higher location in our house and safety.

Bruce Power sent a team here to interview us and decided that it wanted to get to the bottom of things here. I believed their offer was genuine and supported it. This team already knew and understood that this time the dual impacts had impacted Ann severely. We talked during lunch about the pain in her gut that developed after the fumigations, one that just wouldn’t leave. However, when it sent their ‘research’ team here with the equivalent of butterfly nets to try and ‘capture’ the gaseous excursions, I was outraged. They had not researched the literature, did not account for the local meteorology, and had no plan of how to identify and discover the plume. It seemed to me that they simply wanted an ‘investigative’ plan that would fail to find results, much as Ontario Hydro, the CNSC and the MOE had done in the past.

Bruce Power’s response was to instruct its employees not to talk to us and, with a letter to Siskinds, our law firm, they threatened to sue us if we were to talk about how it had fumigated our house and property, harming my wife.

In the spring of the next year I suffered a heart attack without knowing I’d had one. However, Ann’s pain in the gut went undiagnosed until it was discovered that September that she had ovarian cancer.

Bruce Power continues to deny, without any supporting evidence, that its activities fumigated our house and farm.

We are also constantly fumigated with radioactivity from the site. EIS 03-88 describes the Radiological Environmental Monitoring Programme (REMP) data for 2009, the year Ann had

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surgery for ovarian cancer. In it, our leafy vegetables contained a very high 1736 Bq/L of tritium. 6 other locations in the LSA were sampled. These values ranged from 24.1 to 69.1 Bq/L. Clearly, our farm location appears to be a magnet for airborne pollutants from the Bruce site. This is most likely caused by our location below the escarpment and our very local wind and weather patterns. Bruce Power accounts for these anomalies by referring to the restart of Bruce A and local meteorological conditions. Baie du Dore, right next door to Bruce A, did not have values remotely close to the ones recorded here on our farm. Despite this information, the impacts on our farm continue to be ignored.

Our experiences have led us to be extremely fearful of airborne pollutants. They have been life threatening. We are now in old age. We have much less resilience to fend off future attacks. Our experience with both the industry and regulators have demonstrated:

- **that the industry will do whatever it is permitted by the regulators to do; and**
- **that regulators will defend the industry's right to do what it is doing.**

Stakeholder residents, it would appear, are simply collateral damage in any environmental anomalies.

We can no longer afford that luxury. Ann has been in and out of surgery for the past 4 years related to her ovarian cancer. While I have more or less recovered from my heart attack, my breathing, as a result of the flare stack emissions, has become very laboured whenever I do strenuous work. I had to sell our sheep flock last fall. Ann has a persistent cough following her last set of chemotherapy treatments. Without question, our concern about small particulate matter is paramount. We know fully that OPG will do whatever you, as a panel, permit it to do as a result of its application. We need you to stand up for us, the innocent victims of this industry and regulatory nonchalance.

After 25 years and regular appearances before the AECB and CNSC hearings, Commissioner Barnes finally demanded in October of 2009 that the regulator convene a meeting with us relating to our experiences of fumigation from the Bruce site. The meeting was scheduled for February 3, 2010. This was to be the very first time we had been given an audience. Ken LaFreniere of the CNSC was chair of the meeting, with CNSC and MOE staff present. MOE specialists and legal staff were present by phone from London while CNSC legal and compliance staff were present via phone from Ottawa. Our lawyer from Siskinds, Paul Scott, was present by phone and Ann and I were present. It was Ann's first trip out of the house following her surgery and chemotherapy, although she was still taking chemotherapy and susceptible to infection.

Mr. LaFreniere opened the meeting dramatically, by clapping his hands together forcefully and stating unequivocally that as far as the CNSC is concerned, the book has been closed on this subject. I ignored his insensitivity and went on to present as carefully as I could why both regulators ought to have been concerned. Our pleas fell on deaf ears. Dr. Barnes never followed up.

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Bruce Power does not account for the excessively high radioactivity in our garden vegetables directly but rather states that variances are, in part, due to our local meteorology. It is correct to have made this observation. As with everything else, fine dust particles will find their way to our home as well and possibly in devastating concentrations. We won't know until it happens and then, assuming we survive the assault, we will get to travel the regulatory merry-go-round yet again.

It doesn't need to be this way.

In our submissions, I asked pointed questions about how industrial pollutants that are dispersed through air can be measured and modeled. I provided some robust model variables to be considered. I'm still waiting for answers. MOE, in quite a turn-around, also continues to request answers from OPG.

The same is true for noise. 2005 and 2007 are a long time ago and that is when OPG last conducted any empirical analysis by collecting data. It seems, however, that empirical analysis can create embarrassing circumstances so OPG simply rests on its laurels. In the March socio-economic special session, OPG states that it had asked the Ministry of Labour about the need for back-up alarms on construction vehicles. 6 months later we are still waiting for an answer to this. Perhaps, if it only makes two trips an hour at night-time it will not disturb its hourly averages even as it destroys the needed sleep of those of us who are old and recovering from illnesses.

OPG continues to be happy to opine that everything will be just fine. Judging from your own questions and comments during the special technical sessions, it seems that you also, as individual members of the JRP, share similar concerns about OPG's reliance on opinion over data. Dr. Binder, in a recent presentation to the Ontario Energy Board claimed that the nuclear industry and the CNSC are science-based institutions. If so, they are alone in not requiring empirical data and evidence. Please hold OPG to this rigorous standard and do not allow it to get away with this sloppy, *laissez-faire* approach to scientific enquiry.

We in this community have lost significant value in our properties. I have raised this:

- first with a submission pointing out the flawed analysis OPG uses to deny stigma effect;
- and secondly following the Inverhuron Committee tour of the site when Scott Berry and Gordon Sullivan requested that I show them my analysis.

Apparently, OPG does not check the CEAR registry or it would have known about my submission. They promised a response. And then forgot. Until reminded. And then sent the very same data that shows property values in the municipality of Kincardine have fallen behind Port Elgin's property values by some \$33,600 between 2009 and 2012. That represents a loss in value of some \$16,000,000 for Kincardine residents. OPG continues to present its unsubstantiated opinion: there is no stigma here now.

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In any event, this isn't the sort of stigma that concerns OPG. It is concerned about a stigma that is directly caused by radioactivity from the DGR site and its activities. It is property valuation losses from this source alone that would trigger the Property Value Protection Plan in the Hosting Agreement, were any resident foolish enough to make use of this facility. Of course, no resident stakeholder would be able to make this claim because in EIS 05-214 OPG states bluntly that it is impossible to identify radioactivity on the basis of its source. Happily for OPG, it has the upper hand in negotiations and settlement, including the right to purchase the property outright at its current (and, presumably, stigmatized) valuation. How very convenient for OPG to have been incorporated under this lucky star.

No resident stakeholder was given funding to help understand or prepare for this Hearing. Of course, with Bruce Power's threat of suing us and OPG's threat to recover its costs award from the IDRA, it is very dangerous for us to intervene. This is how OPG manufactures consent. That's what makes us a willing host community while Bruce Power attempts to intimidate local individuals with its threats.

Without funding, these monies have had to come directly from our pockets to pay for legal and expert advice. Not only do we, as resident stakeholders, have to contend with falling property values in light of the DGR, we have to dig into our retirement savings funds simply to intervene. The CEEA staff said to me early on in the process that we didn't have to have legal advice to intervene. But if either we or the IDRA were to have said something the industry felt compromised its perspective, we would need legal protection. On the other hand, do you, the JRP, believe that the innocent resident stakeholders who are the front line victims of the DGR Project should bear the weight of financial ruin merely to participate fully and meaningfully in this environmental assessment hearing? Is that how to conduct an open and transparent environmental assessment? OPG has distributed hundreds of thousands of dollars to many others to assist them in their investigations, even though none of these folk live here. Is OPG attempting to use your good graces simply to stack the deck against us here, the unwilling and sceptical host community to silence our opposition?

Groundwater in Inverhuron has been contaminated by radiological leaks from RWOS 1. OPG stated as much to Mary MacKenzie when it told her then in writing that the tritium in her well did not come from either the air or the lake, since each was different than the levels found in her well. A Board Member Document of the AECB at the time observed that these would be resolved. As indeed it was when OPG and AECB staff said that things were resolved. When members of the community asked for empirical evidence to support that view, and when I asked in a submission for this evidence, CNSC staff merely stated that tritium standards around the world vary. Is this what Dr. Binder refers to as science-based decision making? It must be since these are his staff that refuse to provide the evidence that supports its opinion.

We have had community consultation, if by this community consultation means that OPG tells us what to think, while refusing to engage in dialogue, meaningful or otherwise. If we should happen to have thoughts different from the ones OPG requires us to have, we are simply vocal

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dissidents. Although it has spent some 12 years promoting this concept here, as this Panel has heard time and again, no one seems to have been informed about the DGR Project. Polls excluded certain members (like me who lives here full time) and seasonal residents. When the Inverhuron Committee was struck last September, the founding members were on the whole shocked and dismayed to have learned about this only at this very last moment. The Inverhuron Committee was struck because the IDRA was hamstrung by OPG threats and so, could not itself intervene freely. The Inverhuron Committee could, and has, intervened freely but it has taken the members a long time to learn just how potentially and presently harmful the DGR is to our collective and individual interests.

OPG claims to follow international best practices with respect to waste storage and repositories. However, every other peer-group international jurisdiction separates siting hearings from concept hearings. 75% of these jurisdictions separate long-lived wastes from short-lived wastes. The IAEA defines high level waste as long-lived radioactive waste, according to the reference Marie Wilson provided us. Nonetheless, as if by *fiat*, she insists that high level waste must be both heat generating and long-lived.

However, OPG, in its submissions to the record, states otherwise. In EIS 04-109, OPG states: *The word “hot” refers to radioactivity.* Contrary to the hosting agreement that OPG signed with Kincardine, OPG is using the DGR to store what it acknowledges in this response to be high level wastes, except that it now prefers to call them refurbishment wastes. It also states that it will be storing “fuel fragments” in the DGR. Presumably, these fuel fragments are not used fuel because they are called fuel fragments. Both of these are high level radioactive wastes because both are long-lived and ‘hot’. Both are to have been excluded as identified by the Hosting Agreement, but each is included in the DGR.

We still do not know what wastes will be stored in the DGR. It appears to be: *whatever we can get away with.* In the Open Houses and community meetings leading to the EIS, 95% of the waste by volume was to be low level waste and 5% was to be intermediate level waste. Now it’s 80% low level and 20% intermediate level. Will it be 20% low level waste and 80% intermediate level waste tomorrow? What size will the DGR be? OPG stated that it would be 135,000 cubic meters in the Independent Assessment Study. In the Environmental Impact Statement, the size has increased to 200,000. In responses to Information Requests from the JRP, OPG stated that it could be doubled in size. Then, if it changed the site footprint, it could be doubled again.

An environmental impact statement is meant to be a planning tool. How is it possible to use it as such when we, as resident stakeholders, don’t know what wastes are intended to be placed in the DGR nor what size it will be? When we asked how the shaft will be sealed at the NGO site tour, OPG stated that it hadn’t decided yet. Could we not wait to approve the environmental assessment until OPG has some definite and definitive plans? Do you, as a Joint Review Panel, not have an obligation to all citizens and future citizens to make sure that this process is open and transparent?

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OPG has communicated extensively with our Michigan neighbours and with the Great Lakes and St. Lawrence Cities initiative, according to its claims in the impact statement and on the CEAR registry. These folk seem to have had the same difficulties seasonal residents and local stakeholders have had because they don't recall the discussions either. Up and down the coast, municipality after municipality is passing a resolution in opposition to the DGR. The Michigan Senate has passed a resolution opposing the DGR. School children on both sides of the border plead with us not to bury nuclear waste in the Great Lakes basin. It is not a difficult logic to understand. Overconfident and sloppy engineers and scientists have created great harm in the past, often with the best of intentions otherwise.

There are no known safe concentration levels of radioactivity. What we do know is that past assumptions about 'safe' levels are continuously revised to more restrictive ones as we learn how wrong our assumptions have been. We don't know what health impacts this radioactivity has caused here because, well, these effects have not been studied here. Therefore, according to OPG, there is no need to worry about health impacts from radionuclides in our air, water, ground and food. Cumulative effects of exposure is not a concern because OPG uses conservative models. Just ask it.

Is this what Dr. Binder means when he claims the CNSC, as regulator, is science-based? It must be because that is the standard required of OPG in its statements and 'analysis' by CNSC staff. We cannot know now that the Great Lakes will not be compromised in the future by the DGR, and with it some 21% of the world's fresh water supply. And for what? OPG has maintained, until recently, that it's for mops and rags. Waste packages that are safe enough for us to handle without any shielding. Stuff that could be used as landfill in the not very distant future. But, as we have learned in this process to date, that story was just a ruse, a teaser to make us believe there is nothing to worry about.

OPG's sole reason for choosing this site was because the municipality requested it and no other one did. Could that be because it was never shopped around? When it comes to used fuel wastes, there appears to be no end of municipalities wanting to bury it in their back yard. So many that NWMO had to close the door on accepting new applicants. Other interveners have asked this question too: why would municipalities that want high level used fuel wastes not want the mops and rags proposed for the DGR?

OPG claims the geology concept for the DGR is sound. However, this same bedrock sequence pervades all of southern Ontario. When I asked Diane Barker at an Open House in 2010 whether this was an ideal site or whether there might be more appropriate ones elsewhere in Ontario, it went unanswered until Scott Berry answered it last week. Apparently, no other municipality in Ontario requested the DGR. In spite of similar appropriate host rock elsewhere and virtually anywhere, no other site has been studied.

OPG does not consider the political costs associated with choosing this location in the Great Lakes basin for the DGR. Yet community after community on both sides of the border in this

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basin are taking valuable Council time to write and pass resolutions opposing the DGR here. They believe, quite correctly, to be part of the affected community by the project and yet none of these communities has been consulted. Nor have their opinions been sought. Each of these communities is concerned about its drinking water, which comes from the lake; about agricultural produce that is irrigated by it; about the impacts on tourism; about the impacts on enjoyment of property and nature. These are the very same concerns expressed by many of us in the immediate community.

We have a local small business selling wool here that caters to tourism with summer sales in the \$50,000 to \$60,000 range. Our store used to be very busy. Sales have simply fallen off a cliff and we'll be lucky to have \$5,000 of sales. The Cottage Grocery and Restaurant in the middle of Inverhuron will tell a similar story. Our automotive garage in Underwood had a similar story. These are each small businesses and we have all seen our sales disappear. The Independent Assessment Study warned of this, warned that the DGR would affect tourism. It appears to have been a sound warning.

Again, though, OPG takes no responsibility for this. It tells us that tourism is not affected. We must all simply be experiencing deferred sales and not much else. The Bruce nuclear site hasn't negatively affected tourism and so the DGR will not either. Once again, however, OPG does not back up its opinion with data. Could it be that these data would provide it with an inconvenient truth? Innocent resident stakeholders bear the brunt of this impact.

Please, do not fail us. **Tell OPG that it must present a plan that addresses all the significant issues and concerns the DGR represents to us, the host community .** We have been penalized time and again by OPG in this 'willing' host community. This plan has failed to make its case and must not be allowed to go forward.

Thank you for this opportunity to express our views.