

ALBERTA ENVIRONMENTAL APPEALS BOARD

Report and Recommendations

Date of Report and Recommendations – August 14, 2015

IN THE MATTER OF sections 91, 92, 94, 95, and 99 of the *Environmental Protection and Enhancement Act*, R.S.A. 2000, c. E-12, and section 115 of the *Water Act*, R.S.A. 2000, c. W-3;

-and-

IN THE MATTER OF appeals filed by Roxanne Walsh and Julie Walker with respect to the decisions of the Director, South Saskatchewan Region, Operations Division, Alberta Environment and Sustainable Resource Development, to issue Amending Approval Nos. 1242-02-02, 1242-02-04, and 1242-02-05 under the *Environmental Protection and Enhancement Act* and Approval No. 00334295-00-00 under the *Water Act* to the Town of Turner Valley.

Cite as: *Walsh and Walker v. Director, South Saskatchewan Region, Operations Division, Alberta Environment and Sustainable Resource Development, re: Town of Turner Valley* (14 August 2015), Appeal Nos. 13-022-025, 14-011 and 14-018-R (A.E.A.B.).

BEFORE:

Mr. Alex MacWilliam, Panel Chair;
Mr. Jim Barlishen, Board Member; and
Dr. David Evans, Board Member.

PARTIES:

Appellants: Ms. Roxanne Walsh and Ms. Julie Walker.

Approval Holder: Town of Turner Valley, represented by Mr. Ron Kruhlak and Ms. Jessica Proudfoot, McLennan Ross LLP.

Director: Mr. Brock Rush, Director, South Saskatchewan Region, Operations Division, Alberta Environment and Sustainable Resource Development, represented by Ms. Alison Altmiks, Ms. Wendy Thiessen, and Ms. Nicole Hartman, Alberta Justice and Solicitor General.

WITNESSES:

Appellants: Ms. Roxanne Walsh; Ms. Julie Walker; Dr. Udo Weyer and Mr. James Ellis, WDA Consultants Inc.; and Mr. Sunil Beeharry, Alberta Health Services.

Approval Holder: Mr. Barry Williamson, Town of Turner Valley; Mr. Randall Boras, MPE Engineering; Mr. David Alberti, Stantec; Mr. Lincoln Weller, Stantec; and Mr. Robert Nowak, Groundwater Exploration and Research.

Director: Mr. Brock Rush, Director, South Saskatchewan Region, Operations Division, Alberta Environment and Sustainable Resource Development; Mr. Frank Lotz, Municipal Approvals Engineer, Alberta Environment and Sustainable Resource Development; Ms. Janet Brown, Contaminant Hydrogeologist, Alberta Environment and Sustainable Resource Development; and Ms. Barbara McEwen, Risk Assessment and Contaminated Sites Specialist, Alberta Environment and Sustainable Resource Development.

EXECUTIVE SUMMARY

Alberta Environment and Sustainable Resource Development (AESRD)* issued three Amending Approvals under the *Environmental Protection and Enhancement Act* and an Approval under the *Water Act* to the Town of Turner Valley (the Town) to construct, operate, and reclaim a waterworks system for the Town and to construct an infiltration gallery below the bank of the Sheep River.

Ms. Roxanne Walsh and Ms. Julie Walker (the Appellants) appealed the decisions to issue the Amending Approvals and *Water Act* Approval.

The Board held a hearing, which included consideration of the following issues:

Does the conversion from the well capture system to the infiltration gallery or the vault system, as currently constructed, increase the risk of contamination to the Town's water supply system? Do the terms and conditions in EPEA Amending Approval 1242-02-02 and Water Act Approval 00334295-00-00 adequately address any increased level of risk?

Are the changes to the frequency and parameters of sampling, monitoring, testing, and reporting provided for in the Amending Approvals appropriate to ensure the protection of the environment, including human health?

Based on the submissions, evidence, and applicable legislation, the Board found the Amending Approvals and *Water Act* Approval do not increase the risk profile of the Town's waterworks system. The source water currently being collected by the infiltration gallery and what had been previously collected by the well capture system is essentially the same water. The Board does not believe the source water is being impacted by the historical contamination found in the Turner Valley area. The extensive monitoring that has been conducted in the area to date has not identified any water quality concerns and, with additional monitoring being added by the Amending Approvals, the Board is satisfied the waterworks system will provide a safe water supply.

The Board is, however, concerned that the public consultation process among the Appellants, the Town, and AESRD is not effectively working. While the Appellants are entitled to file an appeal

* AESRD is now named Alberta Environment and Parks. However, all relevant events occurred regarding these appeals while the Department was named AESRD.

if they choose, an appeal hearing before the Board should not be the only remedy available to the Parties to settle their differences. To address this concern, the Board is recommending that all written communication between the Town and AESRD regarding the Town's waterworks system should be posted on the Town's website. This will ensure that residents of the Town and other users of water from the Waterworks System will have full access to all relevant information as it becomes available.

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I. INTRODUCTION

[1] This is the Environmental Appeals Board's (the "Board") Report and Recommendations regarding a number of appeals filed in opposition to work proposed by the Town of Turner Valley (the "Town") to its waterworks system (the "Waterworks System").¹ The Waterworks System provides potable water to the Town, the Town of Black Diamond, and other users within the Municipal District of Foothills.

A. THE PROJECT

[2] The Town filed four applications with Alberta Environment and Sustainable Resource Development ("AESRD")² for permission to repair damage done to the Waterworks System by the 2013 flood and to upgrade certain parts of the Waterworks System, as is normally done as municipalities grow and circumstances change.

[3] The Town filed two applications in order to replace four water supply wells destroyed in the 2013 flood, with an infiltration gallery. Two of the destroyed water supply wells belonged to the Town and two belonged to the Town of Black Diamond. The infiltration gallery, constructed on the banks of the Sheep River, consists of a central vault with lateral pipes extending into the area around the vault to collect the water. At the time of the hearing, the Town had chosen not to install the lateral pipes, as the central vault, by itself, was collecting sufficient water to meet the water supply needs.³

[4] In order to construct the infiltration gallery as originally designed, the Town required an Approval (No. 00334295-00-00) under the *Water Act*, R.S.A. 2000, c. W-3 (the

¹ Appeal Nos. 13-022, 13-023, 13-024, 13-025, 14-011, and 14-018. See also: 13-030.

² AESRD is now named Alberta Environment and Parks. However, all relevant events occurred regarding these appeals while the Department was named AESRD.

³ The Board's analysis of the project is based on the infiltration gallery being built without the lateral pipes being installed. Some arguments were made that the risks associated with the infiltration gallery with the lateral pipes installed may be different than the well capture system. Given that the laterals have not been installed, the Board is of the view that it is not necessary to determine the merit of these arguments.

The Board notes that the Town is collecting more data regarding the potential use of the laterals. (See: Town's Written Submission, dated April 17, 2015, at paragraph 28.) Further, the Board notes that the *Water Act* Approval has expired. As a result, if the Town subsequently wanted to install the laterals, a new *Water Act* Approval would be required.

“*Water Act* Approval”)⁴ and an amendment to the existing *Environmental Protection and Enhancement Act*, R.S.A. 2000, c. E-12 (“EPEA”) Approval (No. 1242-02-00) that regulates the entire Waterworks System (the “EPEA Approval”).⁵ The Town requires a *Water Act* Approval to build the infiltration gallery because the construction is in or near a water body. Amending Approval No. 1242-02-02 (“Amending Approval #2”) is required to make changes to the EPEA Approval, allowing the Town to use the water from the infiltration gallery as a source of supply for the Waterworks System). Amending Approval #2 also made a number of other changes to the EPEA Approval, including the development of a Remedial Action Plan and changes to a number of monitoring conditions, all in relation to the infiltration gallery and remaining wells.

[5] The Town also filed an application to add additional equipment to the water treatment plant. In response, Amending Approval No. 1242-02-04 (“Amending Approval #4”) was issued by the Director and added:

1. an additional rapid sand filter;
2. an ultra-violet disinfection system;
3. an on-site sodium hypochlorite generation system; and
4. a biologically activated carbon filtration system

to the water treatment plant. Amending Approval #4 also made other changes to the EPEA Approval, including increased performance targets for the water treatment plant and changes to a number of monitoring conditions related to the water treatment plant.

[6] Finally, the Town filed an application to make changes relating to the raw water reservoir. In response, Amending Approval No. 1242-02-05 (“Amending Approval #5”) was

⁴ The *Water Act* Approval was issued by AESRD on February 10, 2014. This Approval expired on February 9, 2015. This does not prevent the Board from recommending this Approval be varied.

⁵ The EPEA Approval regulates the Town’s Waterworks System from the point where raw water is collected from the environment to the point where potable water is delivered to users. The major components of the Waterworks System are:

1. the infiltration gallery, and associated monitoring wells;
2. the raw water reservoir, and the associated monitoring system; and
3. the water treatment plant, which takes water either from the infiltration gallery or from the raw water reservoir.

issued by the Director and made changes to monitoring conditions relating to the raw water reservoir that were the subject of a previous appeal before the Board.⁶

[7] The three Amending Approvals were issued at different times over a nine month period: on February 12, 2014, July 10, 2014, and October 29, 2014 respectively.⁷ Each of these Amending Approvals resulted in Notices of Appeals being submitted to the Board. This resulted in a protracted lead-up to the hearing of these appeals, including numerous preliminary motions. The procedural background for these appeals is found in Appendix A to this Report and Recommendations.

B. THE APPELLANTS

[8] The appellants opposing the issuance of the *Water Act* Approval and the three EPEA Amending Approvals are two residents of the Town, Ms. Roxanne Walsh and Ms. Julie Walker (the “Appellants”). While the Appellants have, for all intents and purposes, appealed all of the work the Town has proposed, they do not necessarily oppose all of the “upgrades” the Town wants to undertake. Their fundamental concern is the potential for contamination entering the Waterworks System and negatively impacting the people who use water supplied by the Waterworks System. In their appeals, the Appellants are asking the Board to send the Town “back to the drawing board” to reconsider all of its work and to better address the risk of contamination entering the Waterworks System.

[9] The source of potential contamination that concerns the Appellants is the historic oil and gas development in the Turner Valley area, which began in the 1920s. When this oil and gas development began, there was little regulation of the environmental impacts of such development. Moreover, record keeping regarding what was done and where it was done was poor or non-existent. As a result, contamination from this historic oil and gas development has

⁶ See: *Walsh v. Director, Southern Region, Regional Services, Alberta Environment, re: Town of Turner Valley* (28 February 2008), Appeal No. 06-071-R (A.E.A.B.).

⁷ Amending Approval #2, Amending Approval #4, and Amending Approval #5 are referred to collectively as the “Amending Approvals.”

The EPEA Approval has also been amended on two other occasions. Amending Approval No. 1242-02-01 was issued in letter format on October 26, 2012, requiring the Town to develop a Drinking Water Safety Plan. Amending Approval No. 1242-02-03, issued on June 6, 2014, allowed for temporary pumping of water from the infiltration gallery to the raw water reservoir. Neither of these amendments was appealed.

been found within the Town's boundaries and in the surrounding area. Significant work has been, and continues to be, done to remediate this contamination, however some contamination remains. The Appellants argued, and the Board accepts, that it is possible that some historical contamination has yet to be discovered.

[10] The Appellants argued that because of this remaining contamination and, in particular, the potential for undiscovered contamination, the Town and AESRD are not doing enough monitoring and treatment to protect the water supply. The Appellants stated they do not believe the standard requirements for a municipal waterworks system are sufficient for the Waterworks System. The Appellants argued the Waterworks System must be enhanced and additional monitoring must be added to ensure the safety of water users.

[11] The Appellants have been advocating this position for at least 10 years and, as a result, this is the third round of appeals involving the Town, AESRD, and Ms. Walsh.⁸ Communications between the Appellants and other Parties are strained. The Appellants appear to view the appeal process as the only way to have their concerns heard and ensure the Town's proposed water supply and treatment system is properly scrutinized.

C. THE BOARD'S FINDINGS

[12] Based on the evidence and submissions before the Board, the Board believes that the Amending Approvals do not increase the risk profile of the Waterworks System. The source water currently being collected by the infiltration gallery (without the lateral pipes) is the same as what was collected by the well capture system. While there are physical differences in how the water is now collected, based on the evidence before it, the Board is not concerned that the source water is being impacted by the historical contamination found in the Turner Valley area. The monitoring that has been conducted in the area to date has not identified any reason for these concerns. Further, the additional monitoring requirements and other terms and conditions included in the Amending Approvals satisfies the Board that the changes to the Waterworks System will not jeopardize the safety of the water supply.

⁸ See: *Walsh v. Director, Southern Region, Regional Services, Alberta Environment*, re: *Town of Turner Valley* (28 February 2008), Appeal No. 06-071-R (A.E.A.B.), and *Walsh v. Director, Southern Region*,

[13] However, the Board is concerned that, the public consultation process among the Appellants, the Town, and AESRD (collectively the “Parties”) is not working effectively. A hearing before the Board should not be the only remedy available to the Parties to resolve their differences. The main source of the problem appears to be a lack of effective communication.⁹ To address this problem, the Board is recommending increased transparency in all dealings between the Town and AESRD regarding the Waterworks System. Specifically, the Board is recommending that all written communication between the Town and AESRD regarding the Waterworks System should be posted on the Town’s website. This will ensure that all residents of the Town and all users of water from the Waterworks System will have full access to all information that is available. In the Board’s view, this is part of the best practices that all municipal approval holders should adopt.

II. ISSUES

[14] At the hearing of these appeals the Board considered the following issues:¹⁰

1. Does the Director have the authority to make the changes included in the Amending Approvals given the issuance of Ministerial Order 5/2008 in EAB Appeal 06-071?

Environmental Management, Alberta Environment, re: Town of Turner Valley (15 July 2009), Appeal No. 08-019-DOP (A.E.A.B.).

⁹ Walker’s Initial Written Submission, dated March 23, 2015, at page 8:

“On a more personal note, Alberta Environment and the Town office in Turner Valley sent many replies to my submissions early on in the process, asking me as an appellant, for proof of and to substantiate the concerns I have in regards to the potential of industry chemicals entering our drinking water....

In my defense, I am here to demonstrate the imbalance of the public process, set up by the Alberta Government. The behaviour and mean spiritedness of Alberta Environment in the communications does not reflect their vision.... I feel the Director has not acted in accordance with the vision proclaimed on the website and as a citizen of Alberta with many family members involved with oil and gas, I am disappointed with the role of Alberta Environment and their commitment to adhere to their principles.”

¹⁰ The Board struck some of the issues originally set after the Appellants provided their initial submissions and the Town filed a motion to strike certain issues. The basis of the Town’s motion, supported by Director, was that the Appellants’ Initial Written Submissions did not present any evidence or make any legal arguments on some of the issues. Specifically, the Board struck: Issues 2(b), 2(c), and 5; and parts of Issues 6 and 7 with respect to agricultural and farming activities.

2. Does the conversion from the well capture system to an infiltration gallery or the vault system, as currently constructed, increase the risk of contamination to the Town's water supply system? The potential sources of contamination include:
 - a. the remediated industrial landfill located across the Sheep River;
 - b. [issue struck];¹¹
 - c. [issue struck];¹²
 - d. historical oil and gas activities upstream of the infiltration gallery site; and
 - e. current and historical oil and gas activities and infrastructure (wells, pipelines, tanks and flare pits) around the infiltration gallery site.

The Board notes that the industrial landfill appears to have been remediated ... therefore the likelihood of any residual contamination from these sources may need to be considered.

3. If the answer to Issue 2 is "yes", do the terms and conditions of the Amending Approval #2 and the *Water Act* Approval adequately address the increased level of risk of contamination?
4. Should the minimum monitoring frequency, detailed in Table 1 of the EPEA Approval for PCBs, NORMs, and Petroleum Hydrocarbon Fractions F3 and F4 be: twice per year; one time prior to water from the infiltration gallery entering the raw water storage reservoir or water

¹¹ Issue 2(b) provided: "Does the conversion from the well capture system to an infiltration gallery or the vault system, as currently constructed, increase the risk of contamination to the Town's water supply system? The potential sources of contamination include ... the decommissioned residential subdivision (Calkins Place) septic tank and field system located near the infiltration gallery site...."

¹² Issue 2(c) provided: "Does the conversion from the well capture system to an infiltration gallery or the vault system, as currently constructed, increase the risk of contamination to the Town's water supply system? The potential sources of contamination include ... agricultural and farming activities upstream of the infiltration gallery site...."

treatment plant; or some other frequency? (Table 1 is found in section 8 of EPEA Approval.)

5. [Issue struck.]¹³
6. Are the changes to the frequency of sampling, monitoring, testing and reporting provided for in the Amending Approvals appropriate to ensure the protection of the environment, including human health? The historical and ongoing oil and gas activities ... and other industrial activities that have occurred in the area should be considered.¹⁴
7. Are the changes to the parameters that need to be sampled, monitored, tested and reported provided for in the Amending Approvals appropriate to ensure the protection of the environment, including human health? The historical and ongoing oil and gas activities ... and other industrial activities that have occurred in the area should be considered.¹⁵
8. Was it reasonable for the Director to rely on the reports, data, and other information that were provided to him to make the changes in the Amending Approvals to the frequency and parameters described in Issues 6 and 7?

III. APPELLANTS' SUBMISSIONS

[15] Both of the Appellants provided written submissions addressing their concerns, and Dr. Udo Weyer, with the assistance of Mr. James Ellis, filed a written submission addressing the technical matters on behalf of the Appellants. For the most part, the Appellants organized

¹³ Issue 5 provided: "Does the use of a granulated activated charcoal filter system decrease the risk of contamination to the Town's water supply system? Is the use of a granulated activated charcoal filter system appropriate to protect the environment, including human health, given potential contaminant sources?"

¹⁴ Issue 6 initially provided: "Are the changes to the frequency of sampling, monitoring, testing and reporting provided for in the Amending Approvals appropriate to ensure the protection of the environment, including human health? The historical and ongoing oil and gas activities, agricultural, farming, and other industrial activities that have occurred in the area should be considered."

¹⁵ Issue 7 initially provided: "Are the changes to the parameters that need to be sampled, monitored, tested and reported provided for in the Amending Approvals appropriate to ensure the protection of the environment, including human health? The historical and ongoing oil and gas activities, agricultural, farming, and other industrial activities that have occurred in the area should be considered."

their written submission as narratives¹⁶ explaining their overall concerns, rather than addressing each issue in turn. As a result, the Board will summarize the Appellants' submissions on a global basis, and then turn to a consideration of each issue, at which point the submissions of the Town and the Director on the individual issues will be summarized.

A. Walsh

[16] Ms. Walsh titled her written submission: "Is the Drinking Water Safe in Turner Valley Alberta?" She described her motivation to bring these appeals. She discussed how she was concerned with the lack of transparency in her dealings with the Town and stated "...it takes citizens with great courage to step forward to question 'officials' (humans), municipal leaders (humans), and experts (humans), processes, and methodologies."¹⁷ Her reference to "humans" is founded in the view that humans can make mistakes, and it is only by questioning and challenging decisions that these mistakes can be found and corrected.

[17] Ms. Walsh provided a history of the Turner Valley Gas Plant (the "Gas Plant"), stating that it is necessary to understand this history in order to understand the scope of the historical contamination found in the Turner Valley area. A substantial portion of her submission focused on the Gas Plant. The Gas Plant is located 250 metres downstream of the infiltration gallery. Her summary of the early history of the Gas Plant provided a good example of the lack of effective environmental regulation and the lack of proper record keeping that existed in the 1920s and 1930s during the initial development of the Turner Valley gas fields. The summary also demonstrated the initial focus of regulation at the time was the orderly development of the gas reserves, rather than environmental protection.

[18] The history Ms. Walsh provided, described the eventual closure of the Gas Plant in approximately 1985, and noted the Gas Plant ended up being owned by Alberta Culture (now called Alberta Culture and Tourism).¹⁸ Since acquiring the Gas Plant, Alberta Culture has

¹⁶ Walsh's Initial Written Submission, dated March 25, 2015, at page 1: "This is my narrative based on documents, letters, and newspaper clippings that I have read and cited or attached as well as my personal experiences since I moved to Turner Valley in 1998."

¹⁷ Walsh's Initial Written Submission, dated March 25, 2015, at page 1.

¹⁸ See: <http://www.history.alberta.ca/turnervalley/about/history/history.aspx>. "In 1988, Alberta Culture acquired the Turner Valley Gas Plant, and in 1989 it was designated a Provincial Historic Resource. In 1995 it was also named a National Historic Site."

undertaken remediation work at the site, although Ms. Walsh was clear in her view that this remediation work was not as thorough as required and is not moving as quickly as necessary. Ms. Walsh also expressed concern that the Government of Alberta has taken over the environmental liabilities associated with the Gas Plant that should rightfully be carried out by the oil and gas industry.

[19] One of Ms. Walsh's chief concerns was the potential for historic contamination from the Gas Plant site entering the Sheep River, and in turn, the potential for this historical contamination to impact the Town's water supply. She disputed a Government of Alberta statement that "...there has been no evidence of contamination entering the (Sheep) river from the site."¹⁹ She summarized a number of internal AESRD memoranda, covering the years 1978 to 2004, discussing the potential for contamination at the Gas Plant site to enter the Sheep River.²⁰ Included in her summary was a letter dated February 16, 2003 from the then Minister of Culture, Gene Zwozdesky, stating that "...no contaminants have been detected in the Sheep River..."²¹ Ms. Walsh rejected Minister Zwozdesky's statement as being uninformed. She expressed the view that the Town has been "misled" by the statements from the Government of Alberta into believing that "...there is nothing wrong..."²² and that it is not appropriate to leave the Gas Plant under the control of Alberta Culture, when it should more correctly be dealt with by AESRD as a contaminated site.

[20] Ms. Walsh was highly critical of how AESRD has dealt with the Gas Plant. In particular, she pointed to the use of "visual inspection" (sight and smell) used by AESRD in a number of cases as being a poor substitute for a proper scientific investigation. Ms. Walsh highlighted the written report authored by Mr. David Hill entitled "A History of Production Processes, and Waste Management at the Turner Valley Gas Plant."²³ She pointed to David Hill's work as identifying locations of possible contamination sources in and around the Gas

¹⁹ Walsh's Initial Written Submission dated March 25, 2015, at page 8. See: Footnote 8.

²⁰ Walsh's Initial Written Submission dated March 25, 2015, at pages 8 and 9.

²¹ Walsh's Initial Written Submission dated March 25, 2015, at page 10.

²² Walsh's Initial Written Submission dated March 25, 2015, at page 11.

²³ Walsh's Initial Written Submission dated March 25, 2015, at pages 13 and 14, footnotes 59 and 61.

Plant and she said this provided a basis for her concern that contamination is getting into the groundwater and the Sheep River.

[21] Ms. Walsh also referenced documents from 1981 that discussed the illegal dumping of waste products by the oil and gas industry in Alberta. She suggested that there was a regulatory gap, in that no government agency had taken responsibility for following up on this issue and she pointed to this as further evidence of significant uncertainty about possible contamination at the Gas Plant and surrounding area.

[22] Ms. Walsh also expressed concern about possible health impacts and their connection to potential contamination at the Gas Plant and the surrounding area. She pointed to newspaper articles (quoting Dr. David Swann) and letters from the Calgary Health Region (written by Dr. Brent Friesen) discussing the possible sources of high rates of multiple sclerosis (“M.S.”) and brain tumors in Alberta.²⁴ Ms. Walsh expressed concern that no studies relating to increased rates of M.S. and brain tumors have been done in connection with the Gas Plant. Ms. Walsh also identified a number of other possible health concerns with the Gas Plant site, and objected to the site being used as a “tourist attraction” because, in her view, it has yet to be cleaned up to an acceptable standard for public use.

[23] Ms. Walsh specifically identified a review conducted by Mr. Sunil Beeharry of Alberta Health Services.²⁵ Mr. Beeharry had been requested by the Director’s staff to conduct a review of a report entitled “AMEC Human Health and Ecological Health Risk Assessment for the Turner Valley Gas Plant” in relation to the Town’s application for approval of the infiltration gallery. Ms. Walsh quoted the conclusion reached by Mr. Beeharry: “Overall the risk assessment does not address the potential for contaminants to be pulled into the Town’s [Waterworks System].”²⁶

²⁴ Walsh’s Initial Written Submission dated March 25, 2015, at page 19.

²⁵ Mr. Sunil Beeharry was subpoenaed as a witness at the hearing at the request of the Appellants.

²⁶ Walsh’s Initial Written Submission dated March 25, 2015, at pages 22 and 23. The Board notes that Mr. Beeharry also stated the risk assessment does not consider the potential health impacts on small children. However, as will be discussed later in this Report and Recommendations, the Board does not consider this risk assessment prepared with respect to the Gas Plant, and reviewed by Mr. Beeharry, particularly useful with respect to understanding the risks associated with the infiltration gallery, which is across the river and upstream.

[24] Ms. Walsh had concerns with what she believed were conflicts of interest for the Town. On one hand, the Town is charged with protecting its residents from any historical contamination found within its boundaries while, on the other hand, the Town is also responsible for promoting economic opportunities. Ms. Walsh pointed to efforts to develop the Gas Plant into a tourist attraction as an example of these conflicts of interest. In Ms. Walsh's view, based on these alleged conflicts of interest, the Town cannot be trusted to take the continued development of the Waterworks System as seriously as it should. Ms. Walsh stated that the Town's "business decisions" do not adequately ensure the protection of the health and safety of the water users. Ms. Walsh also expressed concerns the Town is always in a rush to make changes to the Waterworks System. In her view, this prevented the Town from carrying out careful analysis and also prevented good decision making.

[25] Ms. Walsh reviewed information on the oil and gas infrastructure that remains in the area. She specifically identified a number of wells and other facilities and provided the following views:

1. Dingman 1/Royalite 1 – This well appears not to have been properly abandoned and as of 2011 was still leaking sour gas, although the leak appears to be considerably less.
2. Dingman 2/Royalite 2 – This well may be associated with the seepage coming from the Gas Plant. During a re-entry attempt, water was pumped into the well and began flowing out of the river bank.
3. Okalta 22 – This well was discovered during the construction of the raw water reservoir. The well has been abandoned by the Orphan Well Fund. Ms. Walsh questioned the abandonment work by the Orphan Well Fund because it is industry funded and, as there is no reclamation certificate in place, there is no independent verification of the work. She expressed concern that neither the Town nor AESRD ever requested or reviewed the final reclamation report. As a result, the report was not considered when the Amending Approvals were issued.

4. Royalite 19 – Ms. Walsh advised that this well ended up “being in the River during the 2013 flood.”²⁷ While the well has been re-abandoned, Ms. Walsh remains concerned as to what will happen during the next flooding event.
5. Calmont 1 and 3 – These wells were drilled in the riverbed, upstream of the infiltration gallery site. Ms. Walsh noted they do not have reclamation certificates.
6. Okalta 1 and 2 – These wells are also located upstream of the infiltration gallery. Ms. Walsh stated these wells appear to be leaking as there is a sour gas smell in the area.
7. Pipelines – Ms. Walsh cited the David Hill Report that indicates there are hundreds of underground pipelines in the area and such pipelines have a history of leakage.²⁸ Ms. Walsh indicated that no proper investigation of these pipelines has been undertaken, and it is possible some of the pipelines travel under the river, providing a possible conduit for contamination.
8. Landfills – Again, Ms. Walsh cited the David Hill Report, which suggested that it was common for waste materials simply to be buried at industrial sites. She specifically identified the reclaimed industrial landfill between the Gas Plant and the Sheep River.²⁹ She expressed concern that unidentified landfills could provide a source of possible contamination to the Waterworks System.

Ms. Walsh argued that there has been insufficient analysis of these various hazards, and unless they are fully investigated they pose a risk to the Town’s water supply.

[26] Ms. Walsh discussed the role of a number of companies that operated in the Turner Valley area. She identified Imperial Oil as the parent company of Royalite and discussed

²⁷ Walsh’s Initial Written Submission dated March 25, 2015, at page 33.

²⁸ Walsh’s Initial Written Submission dated March 25, 2015, at page 35.

²⁹ Walsh’s Initial Written Submission dated March 25, 2015, at page 36.

a number of legal disputes that involved Imperial Oil. She commented on some of these cases, with respect to what she views as the failure of regulators.³⁰

[27] Ms. Walsh discussed the role of ConocoPhillips, who was responsible for the remediation of the industrial landfill at the Gas Plant site. She commented that ConocoPhillips was the friendliest of the oil companies to speak with.³¹ However, she was critical of the company in its dealings with a well that was damaged during construction³² and work undertaken in relation to the McLeod 5 well.

[28] Based on her review of specific documents, Ms. Walsh suggested the parameters that should be monitored in the water sampling and testing should include:

1. amines and sweetening agents (1988 internal AESRD memo),³³
2. semi-volatile and volatile organics and extractable organics (Westerhoff Engineering Resource Inc. report),³⁴
3. algaecides, biocides, hexavalent chromium, and PCBs (Western Decalta Petroleum letter),³⁵ and
4. arsenic, boron, nitrates/nitrites, pesticides, and herbicides (Stantec report).³⁶

Ms. Walsh also provided a list of other documents that she obtained from the Provincial Archives that suggest that other parameters should be monitored.³⁷

[29] Ms. Walsh expressed concern with: the decommissioning of the Calkins septic tanks (an issue that was struck by the Board from the issues set for the hearing) and traces of cadmium found in the area; the area up gradient of the Gas Plant owned by ConocoPhillips and

³⁰ Walsh's Initial Written Submission, dated March 25, 2015, at page 40, discussing D. Belanger et al. (1977) "Remembering Rumsey Ranch: A case study of the pollution of a cattle ranch in the Alberta Foothills".

³¹ Walsh's Initial Written Submission, dated March 25, 2015, at page 41.

³² Walsh's Initial Written Submission dated March 25, 2015, at page 41. See also: Ms. Walker's Technical Report, March 25, 2015, at page 1.

³³ Walsh's Initial Written Submission, dated March 25, 2015, at page 43 at footnote 135.

³⁴ Walsh's Initial Written Submission, dated March 25, 2015, at page 44 at footnotes 136 and 137.

³⁵ Walsh's Initial Written Submission, dated March 25, 2015, at page 45 at footnotes 140 and 141.

³⁶ Walsh's Initial Written Submission, dated March 25, 2015, at pages 45 and 46 at footnote 142.

³⁷ Walsh's Initial Written Submission, dated March 25, 2015, at page 46.

the lack of information about this area; and the quality of the containment wall constructed at the Gas Plant.³⁸

[30] Ms. Walsh provided a list of contaminated sites in Turner Valley and Black Diamond.³⁹ She expressed concern that the list is incomplete, and there are other sites within these communities that she understands are also contaminated.⁴⁰

[31] In her conclusion, Ms. Walsh indicated that she is very concerned about the potential impacts of the Waterworks System on her own health and safety and that of other residents in the community. She also expressed the following views:

1. Neither the Town, nor AESRD have reviewed the relevant documents, such as the David Hill Report, necessary to make informed decisions about the Waterworks System.
2. There needs to be a full assessment of contamination in the area. It is technically possible to develop the monitoring system to do this and all that is missing is the will to define the proper scope of the work and provide the funding.
3. The precautionary principle dictates that the water treatment plant should be designed to filter out all industrial waste.
4. The Town does not have the expertise to make informed decisions as to how to deal with historical contamination.
5. AESRD and the Alberta Energy Regulator are not requiring enough of the Town or the oil and gas industry, particularly in the area of complete remediation.
6. The Director has made decisions without proper consideration of the historic contamination in the area.
7. The Town and the Government need to acknowledge the mistakes that have been made before they will be able to correct them.

³⁸ Walsh's Initial Written Submission, dated March 25, 2015, at pages 47 to 50.

³⁹ Walsh's Initial Written Submission, dated March 25, 2015, at page 51

⁴⁰ Walsh's Initial Written Submission, dated March 25, 2015, at page 51.

8. Requiring the Town to meet minimum standards is not good enough, particularly given the historical contamination that is present in the Turner Valley area.

Ms. Walsh asked the Board to completely reverse all the decisions under appeal. In her opinion, there needs to be a full assessment of the area so more-informed decisions can be made. Ms. Walsh wants the water treatment plant upgraded to ensure that it is capable of filtering out all industrial waste and she wants an extensive monitoring system to be put in place to provide further assurance. Finally, she argued that a forensic audit must be done of all the available information, to identify any gaps, and that this needs to be done by an independent and highly qualified company.

B. Walker

[32] Ms. Walker's initial written submission was provided in two parts. The first part was a narrative outlining her concerns,⁴¹ and the second part she referred to as a technical report.⁴² In many cases, the written submission presents open-ended questions without providing any responses. Much of Ms. Walker's rebuttal submission follows the same pattern.⁴³ Ms. Walker's main concern was that waterworks systems are built and tested to "minimum standards." In her view, these minimum standards are not appropriate for Turner Valley given the historical oil and gas activities in the area, and in particular, the oil and gas infrastructure that is "upstream, up-gradient, or downstream" from the Waterworks System. She stated that contamination that is not tested for cannot be detected.

[33] In reviewing the *Potable Water Regulation*, A.R. 227/2003 and "Part 2 – Guidelines for Municipal Waterworks - Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems", dated April 2012, Ms. Walker noted that neither document addresses the potential contamination from oil and gas operations. However, she pointed to these two documents as providing a good foundation for a source protection plan, but that such a plan does not address the risks created by extreme events such as the 2013 floods. As a result, she argued that in the Turner Valley context, more extensive monitoring is required.

⁴¹ Walker's Initial Written Submission, dated March 23, 2015.

⁴² Walker's Technical Report, dated March 25, 2015.

⁴³ Walker's Rebuttal Written Submission, dated April 20, 2015, see page 6 for examples.

[34] Ms. Walker argued that in order to adequately protect the Town's water supply, more extensive measures must be taken to protect the water source and the water treatment plant must be enhanced. She recognized that such measures may be expensive, but argued that these steps must be taken to ensure continued economic development in the Town.

[35] She raised concerns about the reclaimed industrial landfill across the river from the infiltration gallery and other potential sources of contamination. She reviewed the Stantec Report 2011 - Surface Water Inventory (the "Stantec Report 2011"),⁴⁴ which reviewed the various possible sources of contamination that could impact the infiltration gallery. She was critical of the Stantec Report 2011, in that it only reviewed information starting in the 1950s, and therefore did not address the potential contamination that started as far back as 1914.

[36] She reviewed the moderate risks identified in the Stantec Report 2011. These risks include: run-off from lawns and gardens and winter road maintenance, the location of water sources in the flood plain, inactive or abandoned oil and gas wells, abandoned pipelines, hydrocarbon storage tanks, an abandoned sour gas well, a dormant ground flare, the former industrial landfill, and historical dumping and spills. She did not believe it is reasonable to allow these many moderate risks to exist near the source of the Town's potable water. She stated that, in her view, this list is incomplete.

[37] Ms. Walker argued that AESRD should take responsibility for the historical contamination, fully assess the Turner Valley area, and address the contamination to ensure the safety of area residents. Without a "full forensic assessment" being conducted, she believed that it cannot be possible to ensure the safety of the Town's Waterworks System. She argued that the historic nature of the contamination requires AESRD to take extraordinary steps. In the meantime, the situation requires that enhanced requirements are necessary to ensure the safety of the Waterworks System. Alternatively, she argued that either the collection point for the Town's source water should be moved significantly upstream from its current location or the water treatment plant needs to be upgraded to ensure that all contaminants can be removed.

⁴⁴ Appeal Nos. 13-022-025, Director's Record, dated April 11, 2014, at Tab 142. See: Walker's Initial Written Submission, dated March 23, 2015, at pages 6, and 12 to 16.

[38] Ms. Walker objected to the public consultation, public involvement, and appeal processes that have been established by legislation. She stated the system is biased against citizens raising valid concerns. As an example, she cited the “prohibitive” cost of a citizen having water testing done to collect “evidence” to participate in this process. She stated AESRD should take responsibility for responding to the concerns raised by citizens in situations like this.

[39] She raised the potential for health impacts from possible contaminants present in the Turner Valley area. She specifically cited three studies to support her concerns.⁴⁵ She stated:

“...[I]f there is residual contamination in the area ... and there is a lack of full assessment to determine if the contaminants could be pulled in by the town's new water intake, then we may have a problem. ...[I]f the intake is going to stay where it is, then the only reasonable solution is a quality water treatment system, backed up with monitoring, detection, and response in order to ensure suitable water quality for the town.”

She argued that, with respect to being protective of human health, the “precautionary principle” needs to be applied. She stated that the precautionary principle is the “preferred method for making scientific judgments when data are incomplete or inconclusive, and where significant harm may follow from false negative judgment... In Short (*sic.*) why take chances on our quality of health.”⁴⁶ She also expressed concern that no contingency plan has been developed to address human health issues in the event that contamination is found.

[40] Finally, she stated that what is needed is a comprehensive plan to undertake a comprehensive assessment of the Turner Valley area, and that this assessment must use better

⁴⁵ Walker’s Initial Written Submission, dated March 23, 2015, at page 9:

- K. Cooper et al. (2011) Early Exposures to Hazardous Chemicals/Pollution and Associations with Chronic Disease: A Scoping Review. Canadian Environmental Law Association, Ontario College of Family Physicians, and Environmental Health Institute of Canada.
- Thea Colborn et al. (2011) Natural Gas Operations from a Public Health Perspective. Human and Ecological Risk Assessment: An International Journal, 17:5, 1039-1056.
- Theresa McClenaghan et al. (2003) Environmental Standard Setting and Children's Health in Canada: Injecting Precaution into Risk Assessment, Journal of Environmental Law and Practice, 12(2): 141-279.

⁴⁶ Walker’s Initial Written Submission, dated March 23, 2015, at pages 10 and 12.

practices than are currently accepted. This assessment is necessary to address all of the historical contamination, for which the Turner Valley area has been carrying an unfair burden.

[41] The second part of Ms. Walker's submission was entitled "Technical Report". She stated that because of the cost of obtaining "hard evidence," her Technical Report consisted of information from publicly available documents. She advised that her purpose was to "...demonstrate the nature of [her] concerns regarding the unknown chemicals which may be persistent in the groundwater, alluvial aquifer and soils and around the surface water area of our water infiltration gallery."⁴⁷

[42] Ms. Walker provided the following information:

1. There was a sour gas leak from an unknown abandoned well that was damaged during construction.⁴⁸
2. During the construction of the raw water reservoir, the Town discovered the Okalta 4 well within the construction footprint. Records had indicated that the well was in another location.⁴⁹
3. With respect to the Gas Plant, AESRD and Alberta Culture changed the assessment criteria then being used, from a risk management approach to generic commercial land use criteria. Ms. Walker argued that because of the change in criteria, the industrial landfill at the Gas Plant site was not properly assessed.⁵⁰
4. There was evidence that liquid was leaking from the Gas Plant into areas adjacent to the river.⁵¹
5. There was a high probability that contaminants from the Gas Plant were entering the groundwater.⁵²

⁴⁷ Walker's Technical Report, dated March 25, 2015, at page 1.

⁴⁸ Walker's Technical Report, dated March 25, 2015, at page 1.

⁴⁹ Walker's Technical Report, dated March 25, 2015, at page 2.

⁵⁰ Walker's Technical Report, dated March 25, 2015, at page 2.

⁵¹ Walker's Technical Report, dated March 25, 2015, at page 2.

⁵² Walker's Technical Report, dated March 25, 2015, at page 2.

6. There is liquid seeping from the Gas Plant onto the property north of the site and into a creek locally known as Soda Creek.⁵³
7. There was evidence of contaminants being dumped in the Turner Valley area after being removed from industrial sites, and that illegal waste disposal practices have continued, with the location of this dumping being unknown.⁵⁴
8. Free phase hydrocarbons were found in a historic channel of the Sheep River, and along the bank and in the river bottom gravels of the Sheep River adjacent to the Gas Plant, and it was recommended that a containment system be installed.⁵⁵
9. Dr. Brent Friesen, with what was then the Calgary Health Authority, commented about the health impact of the Gas Plant stating: "... [N]o health effects have been demonstrated. It must be understood that at the present time our ability to detect such health impacts is very poor...."⁵⁶
10. There have been leaks from numerous abandoned wells, requiring the wells to be re-entered, with varying degrees of success. Further, there is evidence that some abandoned pipelines have leaked and they can be impacted by flooding events.⁵⁷

In Ms. Walker's view, all of this information demonstrated there are too many unknowns that could be impacting the infiltration gallery. With respect to health impacts, she was of the view that there is an insufficient understanding of the potential impacts to allow this project to proceed without a comprehensive assessment of the area.⁵⁸

⁵³ Walker's Technical Report, dated March 25, 2015, at pages 3 and 4.

⁵⁴ Walker's Technical Report, dated March 25, 2015, at page 3.

⁵⁵ Walker's Technical Report, dated March 25, 2015, at page 4.

⁵⁶ Walker's Technical Report, dated March 25, 2015, at page 5.

⁵⁷ Walker's Technical Report, dated March 25, 2015, at page 5.

⁵⁸ Ms. Walker reiterated this concern in her Rebuttal Written Submission dated April 20, 2015, where she states:

"... I maintain that there has not been enough evidence provided so far to fully reduce my concerns to health risks, especially for young children and seniors (of which I will be one before too long), to long-term, low-level exposure of oil and gas related chemicals, particularly at the levels that may impact the endocrine system"

C. Weyer – Technical Submission

[43] Dr. Udo Weyer, a professional hydrogeologist, was retained as a technical expert on behalf of the Appellants.⁵⁹ In response to the issues set for the hearing Dr. Weyer undertook the following work:

1. An assessment of the capture zones of the water supply wells after the 2013 flood.
2. An assessment of the role of inadequately abandoned oil and gas wells on the Sheep River.
3. The possibility of migration pathways from the landfill to the Town's water sources.
4. The possible effect of the surface water in the Sheep River on the Town's water sources.
5. A comprehensive review of the groundwater flow and chemistry at the raw water reservoir after the 2013 flood.

[44] Dr. Weyer presented his theory about groundwater flow in the Turner Valley area.⁶⁰ This theory provided that "...groundwater flow systems, such as those found in the region, are continuous from the surface to the depth of the oil field and return to the surface..."⁶¹ At the hearing, Dr. Weyer testified that the general scientific community does not accept his theory. Based on this theory, Dr. Weyer argued that portions of the Gas Plant could be within the capture zones for water supply wells used by the Town.⁶²

[45] With respect to the raw water reservoir, Dr. Weyer expressed concern that there are 27 oil and gas wells within a radius of less than one kilometre, of which seven are active, nine are remediated, and eight are abandoned but not remediated. Dr. Weyer argued that in the

⁵⁹ See: U. Weyer, Assessment of groundwater flow and water chemistry at the groundwater production sites, at the raw water reservoir and assessment of the water treatment facility of the Town of Turner Valley, Alberta, Canada, dated March 25, 2015 ("Weyer's Technical Report").

⁶⁰ Dr. Weyer previously advanced this theory at the Board's hearing in Appeal No. 06-071. See: *Walsh v. Director, Southern Region, Regional Services, Alberta Environment*, re: *Town of Turner Valley* (28 February 2008), Appeal No. 06-071-R (A.E.A.B.),

⁶¹ Weyer's Technical Report, at page 10.

⁶² Weyer's Technical Report, at page 10.

long run it is important to properly abandon and remediate these wells to provide additional protection for the groundwater in the area and the Sheep River.⁶³

[46] Dr. Weyer also expressed concern about the erosion caused by the 2013 flood and, in particular, its impact on the aquifer adjacent to the river. As a result of the flood, the river moved approximately 150 metres northwest from its original location, which resulted in about 100 metres of riverbank being eroded. In his view, this could have impacted the water supply to a number of the Town's wells.⁶⁴

[47] Dr. Weyer explained that the current sampling procedure for the groundwater monitoring wells used by the Town is not as effective as it could be. Under the current procedure, before a well is sampled it is purged of all its water three times. The well is then allowed to recover before the sample is taken. If necessary, this procedure is repeated again three days later. The purging of the wells frequently makes it impossible to collect a sample, as the well does not recover sufficiently to provide enough water to sample. This results in no data being collected from the sampling event. In Dr. Weyer's view, this causes under-reporting of substances that are actually present in the monitoring well, particularly dissolved metals.⁶⁵

[48] Dr. Weyer advocated that a different procedure be used for sampling the monitoring wells. This different procedure is called "stress-free low-flow pumping". In simple terms, this procedure collects the samples from the monitoring well without first purging the well.⁶⁶ While this approach could result in more turbidity in the water samples, Dr. Weyer argued that it provides a more representative sample of the substances in the monitoring wells, and ensures that more samples can be taken.⁶⁷

[49] With respect to the remediated industrial landfill, Dr Weyer accepted that the Sheep River formed a natural barrier preventing contaminants from the landfill site located across the river from reaching the Town's water source. However, Dr. Weyer cautioned that this natural barrier may not work if either (a) increased withdrawals from the infiltration gallery

⁶³ Weyer's Technical Report, at page 15.

⁶⁴ Weyer's Technical Report, at page 19.

⁶⁵ Weyer's Technical Report, at pages 20 and 21.

⁶⁶ Weyer's Technical Report, at page 21.

caused a drawdown effect that essentially pulled contaminants across the river, or (b) if the lateral pipes are added, the reach of the infiltration gallery is effectively extended 30 metres into the river, again increasing the possibility that contaminants could cross the river.⁶⁸

[50] Dr. Weyer also expressed concern that, in his view, there is insufficient information about the direction of water flow in the area of the landfill to accurately predict the movement of contaminants. He also indicated that, in his view, the landfill was not completely remediated as there were areas that could not be reached due to pipeline infrastructure, and that the landfill may extend off the ConocoPhillips property such that not all of the landfill was remediated. In particular, he identified a region on the escarpment below the ConocoPhillips land and in the flood plain of the Sheep River that may be part of the landfill.⁶⁹

[51] Dr. Weyer concluded⁷⁰ that in his view:

1. There is a possibility that the conversion from a well capture system to the infiltration gallery may increase the risk of contamination to the Waterworks System.
2. It is possible, but unlikely, that the remediated industrial landfill and surrounding area may provide a source of contamination for the Waterworks System.
3. The historic oil and gas activity in the area remains a possible source of contamination for the Waterworks System.
4. With respect to groundwater monitoring, there is evidence that the chemistry of the samples changes on a seasonal basis. The evidence shows that samples show higher levels in the summer (peaks) and lower levels in the winter (troughs). The frequency of sampling should be modified to ensure that both the peaks and troughs are included in the sampling protocol.

⁶⁷ Weyer's Technical Report, at page 22.

⁶⁸ Weyer's Technical Report, at pages 22 and 23.

⁶⁹ Weyer's Technical Report, at page 24.

⁷⁰ Weyer's Technical Report, at page 15.

5. The information filed by the Town to support its application, was based on incorrect groundwater flow patterns and groundwater level trends. As a result, it was not reasonable for the Director to rely on the reports, data, and other information provided to him by the Town to issue the Amending Approvals.

IV. DISCUSSION

A. General Discussion

[52] The main concern raised by the Appellants in these appeals is the potential for contamination entering the Waterworks System and negatively impacting the people who use the water. However, their underlying concern is much broader. The Appellants do not believe that enough has been done to clean up the historic contamination in the Turner Valley area. They distrust virtually all the work that has been done, particularly where it was funded or overseen by the oil and gas industry.

[53] In keeping with this broader concern, their submissions, in large part, advocate for a complete review or forensic audit of all the information available pertaining to potential contamination in the Turner Valley area. This would be the precursor to an extensive clean-up effort. The Appellants would like to see AESRD step in to take over and manage this clean-up effort, and more importantly they believe that the Government of Alberta, or someone other than the Town, should cover the costs.

[54] Further, the Appellants also do not trust the Town to construct or operate the Waterworks System to what they believe is a proper standard given the presence of historic contamination in the Turner Valley area. This appears to be based in part on what they perceive to be a conflict of interest on the part of Town officials, a conflict that exists for all municipal officials - balancing the amount of taxes being collected from residents with providing the best possible municipal services.

[55] In support of their position, the Appellants have raised a myriad of concerns, pointing to a wide range of historical issues they believe could result in the contamination of the Waterworks System. While some of the Appellants' concerns regarding the specific infrastructure may have merit in general terms, the information they have provided is not evidence; the concerns are raised as narratives of supposition and opinion. The Appellants are to