COURT OF APPEAL OF ALBERTA

COURT OF APPEAL FILE NUMBER:	1801-0385AC
TRIAL COURT FILE NUMBER:	1701-00469
REGISTRY OFFICE:	Calgary
PLAINTIFF/APPLICANT:	NORMTEK RADIATION SERVICES LTD.
STATUS ON APPEAL:	Appellant
DEFENDANT/RESPONDENT:	ALBERTA ENVIRONMENTAL APPEALS BOARD and SECURE ENERGY SERVICES INC. and DIRECTOR OF ALBERTA ENVIRONMENT AND PARKS
STATUS ON APPEAL:	Respondents
DOCUMENT:	**EXTRACTS OF KEY EVIDENCE**

Appeal from the Decision of
The Honourable Madam Justice Janice R. Ashcroft
Dated the 21st day of November, 2018
Filed the 21st day of November, 2018

EXTRACTS OF KEY EVIDENCE OF THE APPELLANT, NORMTEK RADIATION SERVICES LTD.

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Registrar's Stamp

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EXTRACTS OF KEY EVIDENCE OF THE APPELLANT

Tab A

NORMTEK
RADIATION SERVICES LTD

Environment and Sustainable Resource Development (ESRD)
Regulatory Approvals Center
Main Floor, 9820 – 106 St
Edmonton, Alberta
T5K 2J6

Statement of Concern

August 24, 2014

Re: Application 009-48516
Secure Energy Services Pembina and Area Class 1 Landfill
Acceptance of Naturally Occurring Radioactive Materials (NORM)

Further to the Secure Energy Services ("Secure") public notice, we have obtained information from Virginia Stockdale regarding the application and completed a review. We were advised we have all documentation and attach copies of their submission. These included the Radiological Assessment ("Radiological Assessment") without any of its appendices, the Operations Plan ("Operations Plan") without Part C, and 3 operating procedures that formed Part B. We were advised that Part C and the appendices to the Radiological Assessment did not form part of the application. The Operations Plan was not complete and numerous sections including those relating to radioactive materials were not complete. As a result, an extensive list of concerns follows. This list is not in any particular order of importance, and may not be exhaustive pending review of the missing documents aforementioned.

OPERATION PLAN CONCERNS

1. No site specific radiological studies or dose assessments were completed, and the Operations Plan did not include a radiation protection plan. Only a general NORM code of practice outlining general requirements of NORM management was included. The Operations Plan made references to policies that needed to be completed, and as such, we are not able to provide our concerns on these.
2. The Canadian NORM Guidelines recognize that the hazards associated with NORM are the same as those governed by the Canadian Nuclear Safety Commission ("CNSC") and as such the same radiation protection principles should be applied. A basic guiding principle of any facility that manages radioactive materials is to have a site specific radiation protection plan. Secure's Operations Plan did not outline, in written detail, how the facility will handle risks associated

with the radioactive materials being received. Secure did not submit a detailed document outlining the scope of operations as it relates to the radioactive materials, risk and dose assessments (to workers, the public and the environment), monitoring requirements, roles and responsibilities, closure and post closure requirements, surface contamination controls, and waste segregation and handling, nor did it include planning for unusual circumstances.

3. We are unable to comment on monitoring, as the Operations Plan does not provide a radiation protection plan for the site. It merely includes a NORM code of practice. The code of practice is a general document outlining typical NORM safety strategies. Facilities licensed to receive radioactive waste should conduct extensive research on potential exposure and incorporate plans accordingly. Section 1.6 of the Operations Plan outlines monitoring requirements for an onsite well, but does not include NORM monitoring requirements, nor does it advise of the appropriate monitoring methods (Gross Alpha Beta or gamma spectroscopy). In addition, it does not include any action levels.
4. Monitoring Low Level Radioactive Dusts (LLRD) – The Operations Plan should cover off how monitoring will be completed, the instruments to be used, procedures for analysis, locations to monitor, example of records to be provided, record keeping requirements, action levels and procedures to be followed when action levels are exceeded. None of this was included in the Operations Plan. A high level of expertise is required for monitoring of LLRD. Detection of the LLRDs includes monitoring for alpha and beta particles, which are not nuclide specific. Detailed parameters on how monitoring is completed should be provided to ensure appropriate protection of workers, the public and the environment.
5. The Operations Plan did not have a radiation protection plan that outlined who is in charge of radiation protection for the corporation or the site in question. This is a basic requirement of generally accepted radiation practises and principles as outlined by the CNSC.
6. Control of external exposures (gamma radiation) were not estimated, procedures were not developed, locations of concerns were not identified (scale house or tank farms etc.), action levels were not developed, mitigating procedures were not developed, and advice on dosimetry requirements were not provided. Overall, the Operations Plan, as submitted, would indicate the applicant does not have the necessary experience to handle high level NORM as applied for.
7. Section 1.10 of the Operations Plan states that contraventions of approval are maintained on site. Contraventions related to Alberta's only proposed commercial radioactive landfill should be reported to the ESRD within 24 hours.
8. Section 2.1 of the Operations Plan outlines it is the responsibility of the generator to classify their waste as hazardous or non-hazardous. NORM is radioactive and currently no formal regulations exist. If the Province was to accept NORM at high activity level, a specialized acceptance protocol should be developed with the applicant equally responsible to ensure no radioactive materials are accepted that have not been identified. It is imperative that a value is given for every load, even for loads below Health Canada's UDRL, to determine the total radioactivity within the landfill as outlined in the Radiological Assessment.
9. The Operations Plan has not addressed issues relating to Pb210 that are not detectable with typical field instruments. Acceptance should be similar to that of a CNSC regulated facility (Chaulk River).

10. The Operations Plan states that Secure has state of the art environmental monitoring systems and Section 2.5.2 states that each load will be monitored by fixed or hand held radiation equipment. It is our understanding that Secure does not have a fixed monitor. Fixed monitors (gate monitors) are capable of detecting gamma emitting waste from the center of a shipment. Secure's NORM Screening and Detection Procedure states that a hand held unit will be utilized to check loads. Hand held units are not capable of detecting waste from the center of the load if shielded by other non-radioactive waste. Hand held gamma detectors do not detect Pb210 contamination. The only other landfill in Canada (BC Silverberry Facility) is only licensed for low level NORM and has a gate monitor. Secure's entire safety case for radioactive materials is dependent on knowing the exact amount of radioactivity within the landfill cell and, as such, a gate monitor is essential. In fact, it is our opinion that all landfills should have gate monitors to prevent disposal of NORM. This is consistent with metal recycling facility requirements.
11. Gamma radiation readings above background typically indicate the presence of NORM. These materials require further investigation to verify the activity of the materials being surveyed. This is indicated in the Secure NORM Code of Practice. The Secure NORM Screening and Detection Procedure outlines that hand held instrument screening level are 200 nSv/hr or 150 nSv/hr above background. Background has not been provided through any assessment and is assumed at 50 nSv/hr. This is not typical of any outdoor area. A radiation dose of 150 nSv/hr, is the action level limit for members of the public and incidentally exposed workers, as outlined in the Canadian NORM guidelines (150 nSv/hr X 2000 hrs). No correlation to dose and acceptance should be considered as an acceptance criteria for a high level NORM landfill. The Radiological Assessment is dependent on the total activity in the landfill.
12. Section 2.7 of the Operations Plan states that no random sampling will occur. Random sampling allows for confirmation of incoming waste and verifies the activity within the landfill. Random sampling should occur.
13. The Operations Plan does not appropriately address leachate in as far as radioactivity is concerned. Every load exiting the facility should be analyzed if the landfill will be accepting high levels of NORM. Radium is soluble in water (leachate). Procedures should be in place to handle leachate and a disposal option verified if contamination exceeds the Canadian NORM Guidelines Unconditional Derived Release limits ("UDRL"). The BC Silverberry Facility, a class 1 landfill equivalent, has leachate disposal onsite. Salt caverns are the only facilities presently licensed to accept and handle liquids contaminated with NORM. Disposal wells can take NORM impacted waters that have not been technically enhanced. Produced water is made up of many constituents, NORM being one. Leachate water is technically enhanced due to landfill operations. The Operations Plan has not included written procedures with regard to radiological concerns for leachate water.
14. The Operations Plan does not outline controls and procedures for monitoring NORM within the storm water pond.
15. Sections 9.3.3 and 9.3.4 of the Operations Plan states that their groundwater monitoring plan needs to be updated. As such, we are unable to provide comments regarding the appropriate monitoring for radionuclides in groundwater. An appropriate monitoring plan showing radionuclide analysis should be completed, and an analysis of background provided. Other

water bodies should also be analyzed for radionuclides to verify a background. This should also be completed at different times throughout the year to determine trending factors.

16. Formal plans for prevention of internal hazards associated with the landfill operations were not provided. These would include requirements for control areas and written procedures for equipment decontamination which outline what equipment is utilized, how wash water is managed, and what type of waste is expected to be generated including expected handling protocols.
17. Swipe testing of equipment, lunch rooms, buildings and offices (including procedures for conducting tests and action levels) were not provided. These are typical of a radiation protection plan.
18. Radon gas testing procedures, including records, types of equipment, and frequencies of testing have not been provided.
19. The Operations Plan did not provide a copy of the training manual that insures appropriate training for high level NORM.
20. The Operations Plan did not outline worker exposures for transport drivers or workers while unloading shipments. High level NORM waste with activities of 70 Bq/g can have dose rates in excess of 25 μSv/hr on contact. As such, exposures from a single load can exceed 0.3 mSv/a in 12 hours.
21. The Operations Plan did not address a monitoring plan after closure.
22. The Operations Plan did not provide information for additional financial security due to NORM.
23. The Operations Plan did not identify the different methods of radionuclide identification and methods required for different monitoring that would be required at the landfill. These include, but are not limited to analyses of: gross alpha beta, alpha spectroscopy, beta spectroscopy, gamma spectroscopy and liquid scintillation.
24. The Operations Plan allows for equipment to be accepted for disposal. A surface contamination limit has not been provided. Equipment contaminated with radioactive materials have a recyclable component and should not within the landfill.

Overall, the Operations Plan was incomplete, did not address the majority of radiological concerns, and was not in a format typical of a facility that accepts radioactive materials. An appropriate radiation protection plan, consistent with that required by the CNSC, should be developed and submitted with Secure's Operations Plan. This should outline how workers, members of the public, and the environment will be affected and protected from operations. The Operations Plan did not provide any site specific assessment to confirm background. Background assessments of monitoring wells, water bodies, soils, gamma radiation and radon levels all form the basis for comparison after waste is accepted, and provide the basis for the Radiological Assessment.

RADIOLOGICAL ASSESSMENT CONCERNS

25. The Radiological Assessment, as provided by Secure, did not include the attachments and we were advised they were not included with the proposal. As such, a finalized radiological report should be obtained with all supporting documentation prior to any public notice require ments

being fulfilled. To comment on only part of a proposal is not appropriate. As a result, some of the comments outlined below may have been addressed in the attachments.

26. The Radiological Assessment outlines the maximum NORM which can be contained within a Class 1 cell. We were advised that Part C - Technical Documents of the Operations Plan was not part of the application to confirm the total waste to be disposed of on site. However, the effects of the radioactive material are determined by the total waste collected on site and not just one cell. The Radiological Assessment should outline the effects of NORM for future generations offsite as well as onsite from all waste.
27. The Radiological Assessment refers to the Smith (1996) Study, which indicates NORM in the petroleum industry has a mixture of radionuclides of 3:1. This study is 18 years old and indicates that the concentration ratio values were not definitive and they were only "assumed" at a 3:1 ratio. It is well understood that a clear ratio does not exist. This same report indicated a soil concentration of 1.1 Bq/g (30 pCi/g) would result in an exposure of 3.4mSv/a (assuming onsite residency). Even if the Radiological Assessment is not used for calculating the exposure for those residing on site, the onsite exposure should be provided in order to review the differences because long lived radionuclides are being applied for disposal.
28. The Radiological Assessment outlines NORM waste is diluted by non-NORM waste. All waste has some degree of activity. No value has been provided for the non-NORM waste. The activity of what is called non-NORM waste must be determined in order to calculate the total cell activity within the landfill. Calculating the activity within the non-NORM waste would substantially decrease the allowable limits. The assessment is not conservative in this regard.
29. Section 3.2 of the Radiological Assessment states that NORM waste is sandwiched between layers of non-contaminated soil within the cell, further diluting the NORM waste. Utilizing these layers indicates the model is not based off conservative values. The total activity of the cell would not be calculated properly once the cap erodes.
30. The Radiological Assessment outlines the total NORM waste is 133,333 tonnes and represents 25% of the total volume of waste as NORM. The NORM average soil concentration of the waste is calculated at 2.7 Bq/g based on the waste being homogenous. This represents an average activity of 8.1 Bq/g of NORM waste being received. This does not represent the 70 Bq/g level being applied for in the application. This also assumes no contribution from the non-NORM waste. In order to meet the 2.7 Bq/g soil concentration limit, controls would be required to verify the soil concentrations are met. Secure has not provided a methodology on how the soil concentration levels would be met.
31. The Radiological Assessment only considers homogenous contamination in the landfill. If high levels of radium are accepted, then pockets of waste will give rise to higher radon gas levels, higher internal exposures and higher external exposures than have been provided for in the model. The model assumes concentration of only 2.7 Bq/g. For example, a load of 70 Bq/g located under the cap can give a substantial exposure to individuals once the cap erodes. In addition, if several loads of 70 Bq/g are off loaded in the same trench, then these issues are compounded. The Resrad model does not take into consideration 70 Bq/g being accepted. The Resrad model assumes all waste at 2.7 Bq/g and, as such, is not accurate.

32. The Radiological Assessment only considered four radionuclides within the Uranium 238 and Thorium 232 decay series. Since the application is for all NORM radionuclides, the Radiological Assessment is not accurate. In fact, Uranium 238, Thorium 232, Thorium 230 will provide substantial impact on the assessment. The model year of highest exposure that is identified will be substantially extended with the acceptance of Uranium 238. This will increase the Radium 226 concentrations in the landfill as the Uranium 238 decays. In addition, other NORM decay series have not been included. We would recommend obtaining a copy of the Silverberry Landfill Radiological Report for review.
33. The Radiological Assessment only outlines potential exposures after closure. No exposure estimates during operations has been provided. Waste with activity levels of 70 Bq/g can give rise to external gamma radiation in excess of 25 μSv/hr. Exposures to waste of this nature can give rise to an exposure in excess of 0.3mSv/a in 12 hours. No worker dose estimates have been provided and no exposure control plans have been provided.
34. The Radiological Assessment indicated the use of Resrad 6.5 which models exposures of persons onsite. Resrad offsite, which is a computer model outlined for determining exposure of persons beyond the boundary of the site, appears not to be used or considered.
35. Section 4.3.2 of the Radiological Assessment – Modeled Exposure Pathways - did not include water consumption. It only outlines water dependant for livestock. A review of these parameters should be completed.
36. Section 3.2 of the Radiological Assessment discusses the radiological analysis of filter media. When analyzing filter media, the scale is not removed from the filter media and, as such, the weight of the media is included in the analysis. The actual scale, if removed from the media, would therefore be greater than the activity of the filter media and scale. For example, a filter with scale analyzed at 70 Bq/g would have the actual scale at a higher activity level than 70 Bq/g, if the weight of the filter was removed. As such, the true value of radioactive materials would be above 70 Bq/g. Both the Radiological Assessment and the Operations Plan do not provide methodologies in preventing activities of waste greater than 70 Bq/g when combined with non-radioactive materials. In addition, they do not address surface contaminated objects.
37. The Radiological Assessment did not take into account populations of the surrounding community, as it was considered too small and residences were 2.5 km away at this time. Due to the long lived nature (billions of years) of some NORM radionuclides, the Assessment should model full population adjacent to the landfill. When dealing with radioactive materials, it is considered appropriate to use conservative scenarios.
38. Section 4.1(2) of the Radiological Assessment states that background has been excluded. This background does not appear to be consistent with Health Canada's Canadian NORM Guidelines. More importantly, a site specific assessment was never conducted, outlining actual background. No specific site assessments have been carried out, including radon gas testing, soil analysis, surface water analysis, groundwater analysis or any assessment of actual background. Background can fluctuate substantially from one location to another. Section 4.4 of the Radiological Assessment states that background is crucial to the accuracy of the model. Accordingly, extensive site-specific background analyses should be conducted and utilized within that model.

39. Section 4.1 of the Radiological Assessment states that the Assessment is a screening assessment. Section 6.5 of the Radiological Assessment – Combined Variable Dose – indicates the range of future exposure was between 0.10 and 1.04 mSv/a. Since this value is greater than 0.3 mSv/a, a more detailed probabilistic radiological assessment should also be considered.
40. Section 4.3.2 of the Radiological Assessment outlines crops were not identified as an exposure pathway. The overall footprint of the site and potential for the radioactive materials to travel offsite is sufficient to require crops to be included as a potential exposure pathway. At the very least, an exposure estimate for crops bordering the facility needs to be considered.
41. Section 4.4.2 of the Radiological Assessment – Pathway Analysis - outlines that the annual radiation dose limit is dependent on the cap of the landfill. Due to the long lived nature of the radioactive materials, it should be assumed that the cap will fully erode. Erosion rates for fields are significantly less than that of artificial mounds. The BC Silverberry landfill radiological assessment assumed the cap did fully erode. In addition, bank failure could be an issue and is not addressed. The Radiological Assessment should be based off conservative values.
42. The Radiological Assessment states that the land use is to be recreational. Mounds create a place for ATV use. High level NORM could be exposed as a result. The assessment should include the cap fully eroded prior to 1600 years. In addition, the recreational use value of 54 hours per year is not conservative.
43. Section 7.2.5 of the Radiological Assessment – Ground Water Assessment - suggests ground water basically would not be affected and exposures will decrease with time. We are unable to comment on this further, as the Ground Water Monitoring Report was not included with the proposal. Further, the Radiological Assessment indicates that only a small layer was modeled to intrude. The actual size of a small layer was not defined. Ground water has been identified as the largest contributing factor to exposures. This is not consistent with other radiological models. Further studies and modeling of ground water needs to be appropriately defined. Ground water will be affected once the cap erodes, as will surface water runoff which is not addressed in the Radiological Assessment. According to the Smith 1996 Report, ground water is affected by radionuclides in soil, and it states that ground water contamination would occur after 600 years.

As mentioned previously, the Radiological Assessment did not include any attachments which may have addressed some of the above concerns. Assessments of radiological exposures should be based off of conservative analyses or assumptions. The Radiological Assessment appears to use non-conservative input values and does not include site specific background data. Further review and modeling should be conducted to verify that potential environmental impacts are fully addressed. Due to the subjective nature of input values, the Radiological Assessment should be commissioned by the ESRD if values at 70 Bq/g are to be considered.

GENERAL COMMENTS

44. NORM landfills are recognized, by leading experts in the field of radiation, as an option for low level NORM only. To provide a radiological assessment for only 4 radionuclides, yet apply for

NORM which covers numerous nuclides, would not be acceptable to under generally accepted radiation protection principles and practices.

45. Presently, high level NORM contamination is sent for geological disposal as recommend by leading experts in the field of radiation. Acceptance of high level radioactive waste should be maintained in geological repositories for the protection of the biosphere for future generations. Salt Cavern disposal accomplishes this and allows for recovery of oil from the waste. Presently, two salt caverns are approved for NORM waste with a third being looked at in Edmonton. Approval of landfilling high level NORM undermines these commercial operations and increases the potential environmental impact.
46. The writer has attended numerous international conferences on NORM, including an IAEA NORM Symposium. Presently, Canada is regarded very highly on its adaptation of the Canadian NORM Guidelines, including our options for low level NORM landfills and high level NORM salt cavern disposals. Acceptance of high level NORM into a landfill in any province would undermine Canada's leadership in this regard.
47. Federal nuclear agencies throughout the world regulate high level radioactive materials. These agencies' radiation enforcement officers have a high degree of knowledge and expertise in the field of radiation. These officers are tasked with ensuring approval holders follow regulations, operate under generally accepted radiation protection principles, maintain appropriate records and follow approved radiation protection plans. This ensures protection of workers, the public and the environment. Unfortunately, since Alberta does not have any formal radiation regulations for NORM, they do not have officers with the same level of expertise. If high levels of NORM are to be accepted, formal radiation protection regulations should be developed first. The Canadian NORM guidelines were developed, in part, to provide the basis for provincial regulators to develop more formal policies, procedures or regulations.
48. As a result of there being no formal regulations, NORM waste in Alberta is not being managed with approvals from regulators. Generators are not required to report that they are generating NORM. Consequently, NORM waste is not tracked. Industry and government, as a result, do not have a good handle on the extent of contamination in the environment. The Alberta Energy Regulator ("AER") requires waste management facilities to obtain approval if they handle NORM in the oil and gas industry on a case by case basis. No requirement for generators to advise they produce NORM exists and, as such, the number of generating locations is not known. This makes it impossible to determine if the public, workers or the environment are being protected.
49. Waste management companies are not applying for NORM approvals, as no regulations exist and no enforcement is taking place. Only one company has the requisite NORM approvals and it was licensed in 1997 (Tervita facility, formerly Normcan). There have been no additional applications since that time (17 years). Waste management companies put NORM bins on generator facilities, and then bring these waste bins back to their transfer stations, with full knowledge that they are radioactive. The actual activity levels typically are not known and, as such, appropriate transport regulations may not be followed. Companies that handle these bins (such Tervita's waste management division (formerly Hazco), and RBW Waste Management), collect the bins from generator sites and bring them, along with non-NORM waste, to their unlicensed facilities. These companies then forward the NORM bins to Tervita's licensed facility

under the assumption the materials are just in transit (which makes it questionable as to if an approval is required). Secure takes these bins and stores them at their facilities, then segregates the waste, obtains radiochemical analysis and re-packages the waste for disposal into bulk shipments (unlicensed). This process is the result of no monitoring or enforcement by any regulatory body. Formal NORM regulations, with experienced inspectors, are needed in Alberta prior to accepting high level waste into a landfill, especially if the waste management companies are to own the landfills.

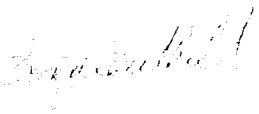
50. We have been advised that: "Class 7: Radioactive Substances cannot be accepted for Class I landfill disposal; this limitation is specifically referenced in the operating approvals for both Class I landfills operating in Alberta. This approval limitation is expected to remain in place, even in the event that a waste management facility was approved to accept NORM wastes". This is contradictory to itself. Class 7 Radioactive materials are defined as any material emitting ionizing radiation or having an atomic number greater than 92. As such, this includes NORM. Sections 3, 4, 5 and 6 of the Transportation of Dangerous Goods Regulations ("TDGR") apply to all NORM greater than the UDRL. All other sections do not apply for NORM, if the activity of the material is less than 10 X the A2 value stated in the IAEA Transport of Nuclear Substances Regulations. This is because the transport of radioactive materials takes into consideration the gamma radiation. No surface contamination is on the packages. It is the transport hazards that are looked at, not the disposal. As such, these regulations apply regardless of activity level (Section 3, 4, 5 and 6). Further, a basis of 70 Bq/g provides confusion. For example, Uranium (Nat), Thorium 228, 230 and 232 are controlled according to these regulations if activities exceed 10 Bq/g (A2 value for these radionuclides is 1.0). All other activities for nuclides in the U-238 and Th-232 decay series are 100 Bq/g (A2 value is 10). The General Nuclear Safety and Control Regulations specifically exclude NORM from their mandate, with the exception of transport over 70 Bq/g or import and export at any activity (based on total activity of shipment). As such, discrepancies exist between the two federal regulations. The TDGR regulations and IAEA regulations have dropped the reference to 70 Bq/g. It is likely the CNSC will follow suit. The AER defines NORM as a "dangerous oilfield waste" at activities above Health Canada's UDRL. All NORM is Class 7 radioactive and, as such, should be addressed this way.
51. It is our understanding the ESRD takes into consideration precedent when looking at potential disposal options. Canada presently has a commercial landfill capable of accepting NORM which only allows for 5 Bq/g radium. In addition, the CNSC, through the Low Level Waste Office, has allowed for disposal of low level legacy waste at select landfill locations throughout Canada. None of these sites have allowed levels to 70 Bq/g. Accepting high levels of NORM at 70 Bq/g only jeopardizes those living within the area of the landfill, and present significant environmental issues for future generations.
52. No landfill in the world, unless regulated by a nuclear agency, has been licensed to accept high NORM activities of 70 Bq/g. In fact, activity levels this high are typically not accepted. The US Ecology Landfill in Idaho is licensed to accept nuclear industry waste and NORM. This facility is only licensed to 18.5 Bq/g for Ra 226. It is also nuclide specific. Each nuclide has a different potential hazard. Ra 228 is licensed for disposal at 55 Bq/g at this landfill.

53. The CNSC, Health Canada, and International agencies that Canada has made agreements with all consider radioactive materials to be hazardous to human health at levels above the unrestricted release limit, but do not classify them as hazardous waste. Hazardous waste exhibits properties that are flammable, corrosive, reactive or toxic. Upon licensing for NORM, it should be made clear that radioactive waste is distinctively different from hazardous waste. This has been incorrectly referenced by the NORM Technical Report or the Interim NORM Waste Management Information Sheet. Some radioactive waste can also contain hazardous properties as co-contaminates. Radioactive elements can also be chemically toxic. The chemical toxicity of the elements in the application has not been addressed by Secure.
54. CNSC would require a full environmental impact assessment, including public consultation with the surrounding communities. Secure has only posted a one day public notice. Public consultation should be required to allow full participation of Albertans and First Nations.
55. The Secure application has not defined the boundaries from which they intend to accept NORM waste. Presently, hazardous waste is not accepted into Alberta for the purpose of disposal. No regulations exist that prevent the disposal of out-of-province radioactive waste. Alberta will become the dumping ground for radioactive waste if out-of-province NORM is accepted.
56. The too good to waste strategy states "resource conservation and waste minimization programs and initiatives will be reviewed regularly to ensure they are consistent with best practices and continual improvement. Accountability and adaptation will be key components of Alberta's waste management system". Acceptance of radioactive waste at 70 Bq/g, as applied for by Secure, is not consistent with this strategy as it does not meet best practices.
57. The difference between a class 1 landfill and class 2 is in the design, such as the use of synthetic liners, and leachate collection and detection systems. Due to the long lived nature of NORM, these design differences will have no bearing on the containment of the NORM waste because the synthetic liners and leachate collection and detection systems will have failed prior to the decay of the radioactive materials.

The Secure Operations Plan was not complete and did not address how the hazards from radioactive materials would be managed to protect the public, workers or the environment. No onsite radiological analysis of materials, determination of background, or study, in any way, was completed. The Radiological Assessment: (1) was not based off current documentation; (2) did not address issues on a conservative basis; and (3) did not use actual data from the proposed site. A lack of formal NORM regulations hinders the licensing of facilities and the development of sound management of radioactive materials in Alberta. The ERCB (now AER) acknowledged that the first step for Alberta would be the development of waste classification criteria for NORM. As such, high levels of NORM should not be authorized for disposal in Alberta until such time as these issues have been addressed. Disposal should be based off the same requirements that would be required if the facility was regulated by the CNSC. The Secure application fails to meet generally accepted principles and practices of radioactive waste management.

We thank you for taking the time to look at our concerns and look forward to hearing your comments accordingly.

Yours Truly,



Cody Cuthill
President and CEO
Normtek Radiation Services Ltd.

Tab B

Alberta Environment and Sustainable Resource Development

Operations Division
3rd Floor Provincial Building
4920 – 51 Street
Red Deer, Alberta
Canada T4N 6K8
Telephone: 403-340-7052
Fax 403-340-5022

November 25, 2014

File No.: 009-48516

Cody Cuthill
President and CEO
NormTek Radiation Services Ltd.
115, 1925 - 18th Ave N.E
Calgary, AB T2E 7T8

Dear Mr. Cuthill:

Re: Pembina Area Landfill
Acceptance of Naturally Occurring Radioactive Materials (NORM) Waste
EPEA Application No. 009-48516

Thank you for your letter dated August 24, 2014 and your clarification letter dated October 26, 2014 expressing concerns about the Pembina Area Landfill's application to accept Naturally Occurring Radioactive Materials (NORM) waste.

Your mailing address indicates that your place of residence is outside the area of environmental impact associated with this proposed project. On this basis, you will not be considered as directly affected and your submission will not be considered a statement of concern. However, you can obtain information on the status of our review of this application at any time by contacting Guangyu Yan at 780-960-8626. Any approvals issued for the landfill facility are public documents and will be provided to you upon request.

While your submission will not be considered a statement of concern, the issues you raised in your submission will be considered in our review of this application.

If you have any questions regarding the process that is being followed in our review of this application, please contact Guangyu Yan at 780-960-8626.

Yours truly,

Todd Aasen, P.Eng.
District Approvals Manager

cc: Virginia Stockdale, SECURE Energy Services vStockdale@secure-energy.com
Guangyu Yan, ESRD
RAC, ESRD

Tab C

Alberta Environment and Parks

AMENDING APPROVAL

PROVINCE OF ALBERTA

ENVIRONMENTAL PROTECTION AND ENHANCEMENT ACT
R.S.A. 2000, c.E-12, as amended.

APPROVAL NO.: 48516-01-04

APPLICATION NO.: 009-48516

EFFECTIVE DATE: July 14, 2016

EXPIRY DATE: March 31, 2019

APPROVAL HOLDER: Secure Energy Services Inc.

ACTIVITY: Construction, operation and reclamation of the Pembina Area Landfill

Consisting of a Class I and Class II Landfill, where more than 10,000 tonnes per year of hazardous waste and non-hazardous waste are disposed of.

is amended as per the attached terms and conditions.

Designated Director under the Act .....
Todd Aasen, P.Eng.

Date Signed July 14, 2016

TERMS AND CONDITIONS ATTACHED TO APPROVAL

Environmental Protection and Enhancement Act Approval No. 48516-01-00 is hereby further amended as follows:

1. **Part 1: DEFINITIONS, SECTION 1.1: DEFINITIONS**, the following clauses are added:

   1.1.2 (g.1) "bulk form" means NORM waste that is not packaged in a container;

   (ee.1) "IAEA" means the International Atomic Energy Association;

   (ee.2) "IAEA Regulations" means IAEA Regulations within the meaning of the *Packaging and Transport of Nuclear Substances Regulations, 2015* [Canada], as amended;

   (tt.1) "NORM" means Naturally Occurring Radioactive Materials;

   (tt.2) "NORM Waste" means any waste material with concentrations of NORM above the limits specified in Tables 5.1, 5.2, or 5.3 of the *Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM)*, Health Canada, 2011, as amended;

   (ooo.1) "type IP-1" means type IP-1 within the meaning of the *Packaging and Transport of Nuclear Substances Regulations, 2015* [Canada], as amended;

2. **PART 3: LANDFILL CONSTRUCTION, SECTION 3.1: GENERAL**, the following clauses are added:

   3.1.11 The approval holder shall install a gate monitor specified in the applicant's submission dated February 19, 2016 which forms part of the application, on or before December 31, 2016, or as otherwise authorized in writing by the Director.

   3.1.12 The approval holder shall notify the Director in writing within 30 days after completion of installation of the gate monitor in 3.1.11.

3. **PART 4: LANDFILL OPERTIONS, LIMITS, MONITORING AND REPORTING, SECTION 4.3: AIR**, under **AIR MONITORING AND REPORTING**, the following clause is added:

   4.3.10 The approval holder shall implement the air monitoring program as described in the Operations Plan (Revision 10, dated December 1, 2015) for NORM waste handling submitted with application #009-48516.

4. **PART 4: LANDFILL OPERATIONS, LIMITS, MONITORING AND REPORTING, SECTION 4.4: WASTE ACCEPTANCE,** the clause 4.4.1 (b) is replaced by the following:

   4.4.1 (b) the *Alberta User Guide for Waste Managers*, August 1996, as amended.

5. **PART 4: LANDFILL OPERATIONS, LIMITS, MONITORING AND REPORTING, SECTION 4.4: WASTE ACCEPTANCE,** under **SPECIAL WASTES**, the following clauses are added:

TERMS AND CONDITIONS ATTACHED TO APPROVAL

4.4.17 The approval holder is only permitted to receive and dispose of NORM waste into the Class I landfill cells.

4.4.18 The approval holder shall operate the landfill in accordance with the *Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM)*, Health Canada, 2011, as amended.

4.4.19 The Class I landfill cells shall not accept NORM waste prior to installation of the gate monitor in 3.1.11.

4.4.20 All waste loads entering the Class I landfill cells shall be scanned for NORM by the gate monitor in 3.1.11.

4.4.21 If the gate monitor in 3.1.11 is not operational, the approval holder shall:

(a) notify the Director in writing;

(b) use a handheld monitor (Ludlum Model 3-97 or RadCom MSpec or Tracerco NORM IS) to scan all waste loads entering the Class I landfill cells for NORM;

(c) replace or fix the gate monitor within 15 days after notification in (a); or

(d) as otherwise authorized in writing by the Director.

4.4.22 Prior to the acceptance of NORM waste, the approval holder shall conduct background monitoring for the parameters in TABLE 4.9-A by taking a representative grab sample from each of the listed sample locations in TABLE 4.9-A.

4.4.23 The approval holder shall notify the Director in writing at least 14 days prior to commencing acceptance of NORM waste.

4.4.24 The approval holder shall implement the following with respect to NORM waste handling, submitted with application #009-48516:

(a) In-Coming Waste Monitoring-Class 1 (Gate Screening) (LF 0014, dated June 7, 2016);

(b) NORMs Secondary Screening and Detection (handheld monitoring) (LF 0022, dated June 7, 2016);

(c) NORMs Waste Rejection (LF 0023, dated on June 7, 2016);

(d) NORMs Low Level Dust Monitoring Procedure (LF 0052, dated June 7, 2016);

TERMS AND CONDITIONS ATTACHED TO APPROVAL

(e) NORMs Monthly Area and Fence Line Dose Monitoring Program (LF 0056, dated June 7, 2016);

(f) NORMs Active Area Unloading Dose Monitoring Procedure (LF 0057, dated June 7, 2016);

(g) NORMs Acceptance and Handling Procedure (LF 0073, dated June 7, 2016);

(h) NORMs Decontamination and Hygiene Procedure (LF 0080, dated June 7, 2016);

(i) Operations Plan (Revision 10, dated December 1, 2015);

(j) NORM Radiation Protection Plan (dated October 2015);

(k) NORM Radiological Monitoring Program (dated July 2014);

4.4.25 The approval holder shall only implement revisions to the plans, programs and procedures described in 4.3.10 and 4.4.24 as authorized in writing by the Director.

4.4.26 The approval holder shall not accept NORM waste that exceeds the maximum concentration limits set out in TABLE 4.4-A.

TABLE 4.4-A: ACCEPTANCE LIMITS FOR NORM WASTE UNIFORMLY DISPERSED IN SOIL OR OTHER MEDIA

Status of Equilibrium	Maximum Concentration of Source Material	Sum of Concentrations Parent(s) and all progeny present
Natural uranium in equilibrium with progeny	<500 mg/kg / 6 Bq/g (^{238}U activity)	≤ 70 Bq/g
Natural thorium in equilibrium with progeny	<500 mg/kg / 2 Bq/g (^{232}Th activity)	or
Any mixture of Thorium and Uranium	Sum of ratios ≤ 1 *	≤10 times the activity concentration limit for exempt material values set out in the IAEA Regulations
^{226}Ra or ^{228}Ra with progeny in bulk form	18.5 Bq/g (combined radium isotopes)	
^{226}Ra or ^{228}Ra with progeny in reinforced type IP-1 containers	55 Bq/g (combined radium isotopes)	whichever is less
^{230}Th (with no progeny)	0.1 mg/kg / ≤70 Bq/g	not applicable

* Sum of ratios is calculated as described in the *Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM)*, Health Canada, 2011, as amended

4.4.27 All accepted NORM waste containing ^{226}Ra greater than 8 Bq/g shall be disposed

TERMS AND CONDITIONS ATTACHED TO APPROVAL

at least 6 meters from the outer edge of the final cover.

4.4.28 Radioisotope analysis for NORM waste shall be:

(a) recorded and kept at the facility; and

(b) made available to the Director upon request.

4.4.29 The total isotope activity at the landfill at any time shall not exceed the maximum activity limits for each of the isotopes in TABLE 4.4-B.

TABLE 4.4-B: MAXIMUM ISOTOPE ACTIVITY LEVELS PER CLASS I CELL

Isotope	Maximum Activity
Radium – 226	1080 GBq
Lead – 210	1080 GBq
Radium – 228	360 GBq
Thorium – 228	360 GBq

4.4.30 No person working at the landfill shall receive an estimated incremental annual effective dose of 1 mSv/year or greater.

6. **PART 4: LANDFILL OPERATIONS, LIMITS, MONITORING AND REPORTING, SECTION 4.9: SPECIAL REPORTING**, the following clauses are added:

NORM REPORTING

4.9.3 In addition to the requirements of 4.10.5, the approval holder shall monitor the following:

(a) leachate and leak detection liquids of Class I cells;

for NORM as required in TABLE 4.9-A.

4.9.4 In addition to the requirements of 4.10.7, 4.10.8 and 4.11.3(b), the approval holder shall monitor the following:

(a) surface water from the run-off control system of Class I area;

(b) groundwater from all monitoring wells;

(c) fence line; and

(d) work areas;

TERMS AND CONDITIONS ATTACHED TO APPROVAL

for NORM as required in TABLE 4.9-A, or as otherwise authorized in writing by the Director.

4.9.5 The approval holder shall report to the Director the results of the NORM monitoring as required in TABLE 4.9-A.

TABLE 4.9-A: NORM SAMPLING AND REPORTING REQUIREMENTS

Parameters	Frequency	Sample Type	Sample Location	Reporting
Uranium-238	Annually	Representative grab sample	Each of the following: (a) Leachate and Leak Detection (b) Surface Water; (c) Groundwater.	Annually, on or before March 31 of the year following the year in which the information was collected
Thorium-230				
Radium-226				
Lead-210				
Thorium-232				
Radium-228				
Thorium-228				
Radon gas	Quarterly	Point in time sample	Each of the following: (a) Fence line; (b) Work area.	
Low level radioactive dust				

4.9.6 In addition to 2.1.1, if the monitoring results in 4.9.3 and 4.9.4 exceed the Unconditional Derived Release Limits in the *Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM)*, 2011, as amended, the approval holder shall immediately notify the Director in writing.

4.9.7 If the monitoring results in 4.9.3 and 4.9.4 exceed the Unconditional Derived Release Limits in the *Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM)*, 2011, as amended, the approval holder shall submit a remediation plan in writing to the Director within 30 days of providing notice to the Director in accordance with 4.9.6.

4.9.8 If the remediation plan in 4.9.7 is found deficient by the Director, the approval holder shall:

(a) correct all the deficiencies as identified in writing by the Director; and

(b) submit the revised remediation plan in a time frame identified in writing by the Director.

4.9.9 The approval holder shall implement the remediation plan in 4.9.7 as authorized in writing by the Director.

4.9.10 The approval holder shall conduct a radiation dose survey of the ground

TERMS AND CONDITIONS ATTACHED TO APPROVAL

immediately above the portions of the cells that have received NORM wastes and include the results in the annual report.

7. **PART 4: LANDFILL OPERATIONS, LIMITS, MONITORING AND REPORTING, SECTION 4.10: LANDFILL MONITORING AND REPORTING**, under **ANNUAL LANDFILL OPERATION REPORT**, the following clauses are added:

   4.10.11 (m) air monitoring data on NORM waste handling; and

   (n) the total landfill isotope activity per isotope in accordance with 4.4.26.

8. **PART 5: FINAL CLOSURE, RECLAMATION AND POST-CLOSURE, SECTION 5.1: FINAL CLOSURE AND RECLAMATION**, the following clauses are added:

   5.1.2 (l) plans to conduct a radiation dose survey of the final cover immediately above the portions of the cells that have received NORM wastes.

   5.1.14(f) (viii) any portions of the landfill that exceed a radiation dose of 0.3 mSv/year.

   5.1.14 (h) a radiation dose survey of the final cover immediately above the portions of the cells that have received NORM wastes and the results.

9. **PART 5 FINAL CLOSURE, RECLAMATION AND POST-CLOSURE, SECTION 5.2: POST CLOSURE,** the following clauses are added:

   5.2.5(i) The post closure plan identified in 5.2.2 shall include isotope specific radiological monitoring including but not limited to groundwater, leachate, radon gas monitoring, surface and perimeter radiation surveys.

July 14, 2016
Date Signed

DESIGNATED DIRECTOR UNDER THE ACT
Todd Aasen, P.Eng.

Tab D

Gilbert VanNes

From: cody@normtek.com
Sent: Thursday, July 28, 2016 8:33 AM
To: Gilbert VanNes
Subject: Notice of Appeal

16-024

THE ENVIRONMENTAL APPEALS BOARD, TAKE NOTICE THAT
cody cuthill
Address: 1113 East Chestermere Dr
Town/City: Chestermere
Postal Code: T1X 1R2
Phone: 4039686626
FAX: 403-457-4704
Email: cody@normtek.com

Has chosen to be represented by :
Address :
City:
Postal Code:
Phone:
Fax:
Email:

I am appealing the decision of: Secure Energy Services Ltd
Dated issued to(name of company/person): 7/14/2016

Location of operation or activity which is subject of Alberta Environment's action (municipality, county, etc.):

On what date and how did you receive notice of Alberta Environment's action: By the applicant as a marketing call July 20 2016

Please provide any further information you may have regarding the decision appealed. The information can be found on the decision or the notice of decision from Alberta Environment and will assist us in processing your appeal:

Water Act:

Environmental Protection and Enhancement Act:
Application 009-48516 Approval 48516-01-04,

Government Organization Act:

I submit this Notice of Appeal under the: Environmental Protection and Enhancement Act, section 91

What parts of Alberta Environment's decision do you not like? (Note: If you fail to state all of your objections here, you may be prevented from raising them later in your appeal.)
See appendix 1

What are you concerned about? How is it affecting you? Why do you not like the decision made by Alberta Environment? (Note: If you fail to state all of your reasons here, you may be prevented from raising them later in your appeal.)
See appendix 1, Financially, commercially and requires us to manage radioactive materials that are not consistent with recommendations of the IAEA or that governed under the CNSC. Creates confusion within an industry already lacking radioactive waste management regulations. Does not afford the same level of environmental safety as that afforded in other provinces. See Appendix 1 concerns., See appendix 1

What would you like the Board to do to resolve your appeal? (Note: If you fail to state all the solutions to your appeal here, you may be prevented from raising them later in your appeal.)
We would ask the Board to recommend to the Minister to vary the acting directors approval for radium 226 to 5 Bq/g which is consistent with the BC Licensed Hazardous waste facility until such time as the request for amendment can be reviewed by

the AER giving consideration to the concerns addressed in this appeal or ask the Minister to reverse the acting directors approval until such time as formal policies have been implemented on radioactive waste in Alberta.

The above information is true and correct to the best of my information and belief.

This appeal was submitted by:
Normtek Radiation services Ltd
At: Calgary
On: 7/28/2016

Concerns of Secure Approval (48516-01-04) to accept radioactive materials into Pembina Area hazardous waste landfill

1) The decision of the director after filing a statement of concern has advised that both I and Normtek are not directly affected based off the fact we do not reside adjacent to the hazardous waste landfill. The adjacent lands are crown land. If the intent of the regulations were to assume only directly affect persons were those that resided next to a proposed activity they would state this. See corresponding documentation in appendix 2a and 2b.

2) Wastes are classified into three main groups (hazardous, non-hazardous or radioactive). In 2000 the Canadian Nuclear Safety Commission (CNSC) excluded radioactive waste produced by industry not associated with the nuclear fuel industry or man made sources, mandating the responsibility for management of some of Canada's radioactive waste on provincial regulators. At this time Health Canada developed the Guidelines for the Management of Naturally Occurring Radioactive Materials - NORM (CNG) with a revision in 2011 (Appendix 3). The introduction clearly outlines the guidelines were developed to provide provincial regulators with the framework to develop more detailed policies, practices or guidelines. The EPEA section 12 outlines the minister's responsibilities which include the responsibilities to develop policies and administrative procedures for the department. The EPEA and associated regulation, codes of practice and guidelines including Alberta's waste control regulations provides clear direction to a director or in this case acting director on how to manage hazardous and non-hazardous waste. However, since the current Alberta waste control regulations do not address radioactive waste and the ministry has failed to develop any radioactive waste legislation no direction has been given to the acting director on how radioactive waste are to be managed in Alberta. As such it would seem the acting director has no statutory authority to develop these procedures or approve radioactive waste disposal in Alberta and only provides for management of NORM on an ad hoc basis which the CNG intent was to prevent as outlined in the introduction section of the CNG.

3) The EPEA section 14 outlines requirements of public consultation. The minister and acting director has not engaged any public input into the acceptance of radioactive materials into Alberta's hazardous waste landfills as required under the Act. Since no regulations exist no public consultation has occurred. It is recognized and a topic of numerous radiation protection conferences that health effects or environment damage can occur when decisions concerning radioactive materials are made by professional with little to no radioactive experience. The need to engage the experience of professionals is necessary to provide protection to people and the environment. This is a classic case of this occurring in the approval process.

4) On March 29, 2014 the statutory authority to approve waste management facilities in Alberta was given to the Alberta Energy Regulator (AER). As such the acting director for Alberta Environment and Parks has no authority to approve an application to accept radioactive

materials into a hazardous waste management facility. In addition the majority of waste accepted by the applicant is oilfield waste as advised by the applicants operating plan (appendix 4). The AER has experience with oilfield waste, has defined NORM as a dangerous oilfield waste and has approved a facility in Alberta for decontamination of NORM. An oilfield waste management facility is required to obtain an approval from them and not AEP.

5) The landfill is not a dry cell landfill as advised in the operating plan and as such precipitation is allowed to flow through the landfill allowing treatment of the hazardous waste to decrease the contaminates. This has not been addressed in the approval as water allows radioactive materials to migrate and is not consistent with radioactive long term waste facilities of similar activities.

6) A committee was developed by the AER (Technical Committee on the management of NORM waste) mandated to look at current practices in North America. Unfortunately the mandate was flawed as Canada's radiation practices and waste regulations are based off the IAEA recommendations. The CNG outline the recommendations of the IAEA form the bases of our regulations. In addition the committee was made of professionals with experience in managing hazardous waste but no individuals with experience and education in radioactive waste. Even in light of these issues the committee was unable to agree on limits for landfills. After obtaining advise from the AER lawyers the committee was dismantles and the report not made an official AER document (committee could not agree on landfill activities to accept). Representation from AEP wanted 70 Bq/g limit for hazardous waste landfill's and 5 Bq/g for class 11 landfills. IAEA only recommends radioactive materials above the countries exemption limit into hazardous waste landfills. The underlining decision for a hazardous waste landfill being 70 Bq/g as this is a transport limit. However there is a fundamental difference on a limit for transport as radioactive materials are a cumulative issue. A truck load can only contain so much radioactivity during transport and as such poses a certain risk during transport where as a disposal site will contain numerous loads. In addition the decision to exclude NORM from the transport regulations was developed to provide a balance from the radiological protection and inconvenience of regulating large quantities of low activity materials as noted below in section 107.4 of the IAEA Safety Guide (TS-G-1.1) Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Materials.

> 107.4. The scope of the Regulations includes consideration of those natural materials or ores which form part of the nuclear fuel cycle or which will be processed in order to use their radioactive properties. The Regulations do not apply to other ores which may contain naturally occurring radionuclides, but whose usefulness does not lie in the fissile, fertile or radioactive properties of those nuclides, provided that the activity concentration does not exceed 10 times the exempt activity concentration values. In addition, the Regulations do not apply to natural materials and ores containing naturally occurring radionuclides which have been processed (up to 10 times the exempt activity concentration values) where the physical and/or chemical processing was not for the purpose of extracting radionuclides, e.g. washed sands and tailings from alumina refining. Were this not the case, the Regulations would have to be applied to enormous quantities of material that present a very low hazard. However, there are ores in nature where the activity concentration is much higher than the exemption values. The regular transport of these ores may require consideration of radiation protection measures. Hence, a factor of 10 times the exemption values for activity concentration was chosen as providing an appropriate balance between the radiological protection

concerns and the practical inconvenience of regulating large quantities of material with low activity concentrations of naturally occurring radionuclides.

7) AEP developed an Interim NORM waste Management sheet (Appendix 7) prior to the recommendations of the AER chaired Technical Committee on NORM Waste. Their representation on the committee was of the opinion landfills should accept high levels of NORM waste for Class 1 and lower levels for class 11 ultimately providing little regulations in reality as 70 Bq/g accounts for 95% of oilfield waste. In fact the recommendation of the committee was landfills should be the last option only to be used "where no other practical or feasible recovery or disposal option is available". The approval does not meet this recommendation as it promotes and allows high level long lived radionuclides to be diverted from the two geological disposal sites for oilfield wastes that meet recommendations of the IAEA and presently exit in Canada (Slat Cavern is Saskatchewan). The AER chaired Technical Committee o

8) The minister and acting director have failed to engage government agencies of other jurisdiction (section 12 of EPEA). The BCMOE has approved a hazardous waste landfill for NORM at levels that meet recommendations of the International Atomic Energy Agency (IAEA) and a long term low level radioactive waste management facility is being built in Ontario for materials identified with similar radioactive limits for NORM from legacy sites in the town of Port Hope which meets the requirements for disposal of higher activities of long lived radioactive materials that are the subject matter of this approval.

9) The approved landfill doe snot provide for the same level of environmental protection as radioactive materials governed under the CNSC for materials of similar activities. The Port Hope Landfill has much greater design criteria and monitoring requirements including post closure monitoring of over 100 years. In addition the Port Hope Landfill will be government of Canada owned ensure safety of the public for future generations where as this is not the case for a privately owned landfill.

10) The CNG outlines the same level of radiation protection applies to those radioactive materials under the control of the CNSC and those under provincial regulations. This would include radioactive waste management practices. The CNSC outlines on its website the following:

Low-level radioactive waste

Low-level radioactive waste contains material that is more radioactive than clearance levels and exemption quantities allow. This type of waste loses most or all of its radioactivity within 300 years.

Intermediate-level radioactive waste

Waste that has been exposed to alpha radiation, or that contains long-lived radionuclides in concentrations that require isolation and containment for periods beyond several hundred years, is classified as intermediate-level radioactive waste.

Long-term management of low- and intermediate-level waste

A long-term management strategy is required for low- and intermediate-level waste containing long-lived radioisotopes.

The approval does not meet the requirements of long term management as defined by the CNSC or IAEA.

11) The government of Canada through the CNSC has recognized that the IAEA and the international Commission on Radiological Protection (ICRP) consists of experts in the field of radiation. The CNSC has on behalf of the Government of Canada made international agreements with these agencies and adopted their standards and form the basis of Canada's radioactive materials regulations. The IAEA classification of radioactive waste GSG-1 outline the following:

(3) Very low level waste (VLLW): Waste that does not necessarily meet the criteria of EW, but that does not need a high level of containment and isolation and, therefore, is suitable for disposal in near surface landfill type facilities with limited regulatory control. Such landfill type facilities may also contain other hazardous waste. Typical waste in this class includes soil and rubble with low levels of activity concentration. Concentrations of longer lived radionuclides in VLLW are generally very limited.

(4) Low level waste (LLW): Waste that is above clearance levels, but with limited amounts of long lived radionuclides. Such waste requires robust isolation and containment for periods of up to a few hundred years and is suitable for disposal in engineered near surface facilities. This class covers a very broad range of waste. LLW may include short lived radionuclides at higher levels of activity concentration, and also long lived radionuclides, but only at relatively low levels of activity concentration.

The IAEA further outlines the activities that would be considered appropriate for a hazardous waste landfill and those that would be appropriate to dispose of in a long term waste management facility such as the one being built in Ontario. waste which are considered VLLW versus those which are LLW. This was completed through procedings of thier 6th syposium on

NORM held in Morroco. I personally attended this syposium. In the NORM 6 Symposium the following was stated in the proceedings:

"MANAGEMENT OF NORM RESIDUES DESIGNATED AS WASTE various presentations referred to the treatment, storage and disposal of NORM residues for which recycling and use was not a feasible option and which were therefore designated as waste. Many such residues existed as legacy situations from former industrial activities. The situation in Central Asia regarding former uranium production sites was highlighted as a major challenge in this regard, requiring coordinated international effort to assist the countries concerned in planning and carrying out the necessary remediation work. With regard to the establishment of good practices for the management of NORM waste, it was emphasized on several occasions that a risk based approach to the disposal of NORM waste was essential, that non-radiological hazards nearly always had to be taken into account and that a situation specific approach had to be adopted, even though the general principles and safety standards involved were common to all situations. It was interesting to note that, for the symposium as a whole, considerably more attention was given to the recycling and use of residues than to their disposal as waste. This appears to be the first time that this has happened in this series of symposia and reflects an important shift in philosophy away from the more traditional approach in which most NORM residues were automatically looked upon as waste.

Several types of NORM wastes were mentioned in the presentations, including:

(a) Tailings and other waste from the processing of uranium ore;

(b) Tailings, slag and chemical processing wastes associated with the production of thorium and rare earths;

(c) Radium-rich scale from the oil and gas industry;

(d) Sludge from water treatment facilities.

A reasonably clear picture emerged from the symposium regarding the most commonly used (and accepted) options for disposal of NORM waste, which can be summarized as follows:

(a) For large volumes of relatively low activity waste, such as mine tailings, the only two practicable options available were for it to be isolated in above ground, custom built containments such as tailings dams or to be diluted with non-radioactive soil or sand and returned into the remediated land form. The latter option is accepted practice for mineral sand tailings.

(b) Low and intermediate volumes of relatively high activity NORM waste such as pipe scale from the oil and gas industry and process residue from the extraction of rare earths and thorium were usually disposed of in one of three ways:

(i) By emplacement in underground radioactive waste repositories such as that described in a presentation from Norway;

(ii) By emplacement in shallow ground, engineered (usually concrete) structures such as those described in a paper from India.

(iii) In the case of pipe scale from the oil and gas industry, by reinjection into the formation using a process known as 'slurry fracture injection'.

(c) Moderate volumes of NORM waste with low activity concentrations (but above the applicable exemption or clearance level) were increasingly being authorized for disposal in conventional disposal facilities for industrial or hazardous waste, such as landfill sites, sometimes with some additional, relatively simple protection measures being applied to cater for the radionuclide content. In all cases reported, the upper bound on the radionuclide activity concentration was being set at 10 times the exemption or clearance level (the actual or proposed value of which varied between countries — 1 Bq/g in Sweden and the Netherlands and 0.5 Bq/g in Norway). Thus the actual or proposed upper bound on activity concentration for this form of disposal was either 5 or 10 Bq/g.

8.5. Disposal of NORM residues as waste

(a) A reasonably clear picture is now emerging on the options available for disposal of NORM residues as waste.

(b) The choice of disposal option is often specific to a particular industry. For instance, the oil and gas industry makes use of 'slurry fracture injection' into the geological formation to dispose of high activity pipe scale, while the mineral sands industry dilutes its mineral processing tailings with low activity sand or soil and returns it to the mining void.

(b) Increasing use is being made of disposal in conventional landfill facilities established for industrial or hazardous waste, sometimes with some additional radiation protection measures being applied. Acceptance criteria for landfill disposal, expressed in terms of maximum radionuclide activity concentration, have been established in several countries, with values ranging from 5 to10 Bq/g"

The upper limit suggested as acceptable by the IAEA is 10 times the exemption level for a hazardous waste landfill facility. Canada's exemption level has been set by the CNG at 0.3 Bq/g which would suggest 3 Bq/g as an activity. The director has approved up to 70 Bq/g which it is not consistent with recommendations of the IAEA of which Canada's radiation regulations is based upon nor meet internationally accepted practices nor similar to that of Canadas only other hazardous waste landfill located in BC.

12) The CNG outline the same radiation protection standards which apply to CNSC regulated materials should apply to provincially regulated materials. Since the activities of materials approved for disposal are similar to activities allowed at the Ontario Port Hope long term facility the same design criteria monitoring and post monitoring should apply. The Port Hope facility is

substantially different in this regard and as such the director has failed to meet the requirements of the CNG. Either the activities should be lowered to levels of that of the BC hazardous waste and NORM waste landfill or the design and monitoring criteria increased to that of Port Hope CNSC landfill.

13) The director has failed to obtain their own radiological survey or address the issues of the radiological survey including in growth of radionuclides as outlines in appendix 5. In addition the assessment only covers one cell and not the entire facility.

14) The director has failed to ensure an environmental assessment has taken place which addresses radioactive materials. For the Port Hope Long Term Waste Management facility accepting similar materials it was determined an EA was require under section 5 and 7 of the CEAA. It was determined a comprehensive EA was not required but a screening report was by the responsible authority (Appendix 8). Since the landfill predominately accepts oil and gas waste, has never had a gate monitor and no regulations currently exist for radioactive materials in Alberta it is likely that the landfill has received radioactive waste by mistake. No assessment on the activity of waste present has been provided and as such the total activity within the cell cannot be determined.

15) No determination of activity of the off site lands (baseline analysis) have been provided. These are used to verify if operations have an adverse effect on off-site locations. If you complete an off-site analysis in the future what are you comparing it to?

16) The approval outlines activities of waste for only some of the NORM nuclides that are proposed. For example Lead210 which partitions from Radon gas is not included however a total activity in the cell is. In addition total activities to be contained within the landfill have been derived and only account for some of the isotopes approved. For example U238 is not included.

17) The activities allowed in total for the landfill are accumulative in the approval and exceed that of the radiological assessment which was combined. This will result in a much higher dose for future generations than predicted from the landfill in the RESRAD model. In addition the model has not addressed many radionuclide partitioning issues associated with different industries that concentrate NORM. The model should include analysis or discussion of partitioning based off industry if all industry waste is to be accepted.

18) The radiological assessment modeled only Radium and was based off homogeneous waste. The acceptance allows for non-homogenous waste and as such is not accurate. RESARD can model non-homogenous waste. In addition, the radiological assessment did not outline in growth of radionuclides.

19) The approval does not excluded Surface Contaminated metal that can be decontaminated allowing for recycling of the metal. This is not consistent with hazardous waste recyclable and

should be outlined for radioactive waste recyclables. Hazardous waste is separate from radioactive waste.

20) The disposal approval allows for disposal of radioactive materials in excess if table 5,2 of the CNG. This allows disposal of materials greater than 10,000 Bq but does not identify the radionuclides in question. This prevents determination of the radionuclide specific requirements outlined in the approval.

21) The approval allows for acceptance of Surface Contaminated Objects (SCO) Table 5.3 of the CNG. The approval also requires the verification of total activity within the cell, however no determination as to what levels of surface activity correspond to 70 Bq/g for each isotope nor is there a methodology put in place that allows how much activity is located on the object. This can vary from one object to another. Usually contaminated objects cannot have radiochemistry completed to determine an activity per gram as required under the approval. If you do not determine the total activity and isotopes on the object how can you report the total activity that was accepted?

22) The approval outlines detection methods for non-conforming waste in accordance with the operations plan. These only address high energy gamma emitting isotopes such as radium. The gate monitor and hand held instruments will not detect lower energy gamma emitting energies such as Lead210 and as such the approval does not address detection methods for all isotopes approved for acceptance. No or regulations provincially exist on detector use, type, or size exist. Different isotopes can require different detection instruments.

23) The operations plan utilizes terminology of 2 times background which was used in the western Canadian NORM Guidelines when the unrestricted release limits were 10 Bq/g. The CNG decreased this to 0.3 Bq/g and as such is not an approved detection in the CNG. Typically waste which exceeds background indicates NORM accumulations that require further investigation to verify if the activity exceeds the CNG limits. Again if you allow radioactive materials that are greater than background levels and do not require analysis of activity until the gamma radiation exceeds two times background you cannot verify the total activity within the landfill as required by the approval.

24) The approval outlines higher radium concentrations can be accepted in a reinforced IP-1 container. This terminology is not used in any radioactive waste disposal or transport legislations in Canada. What is the definition of reinforced (Duct Tape?). How do you reinforce a drum? Any package will deteriorate at a much faster pace than the half life of radium especially as this is a wet landfill as outlined by the applicant. Utilization of packages only should occur in above ground long term storage facilities where the package can be repackaged as it deteriorates. There is no technical merit to allowing higher levels of radioactive materials in different packages from a disposal perspective.

25) No procedures on gate monitor have been provided as to how it is required to be operated and what detection level it would be set at. Not all gate monitors are equal and no set standard has been developed as no regulations exist.

26) Alberta Waste Control Regulations prevent import of hazardous waste for the purpose of disposal however since no legislation exists for radioactive waste no provisions have been applied. This allows for importation for the purpose of disposal of radioactive waste into Alberta. In fact the majority of NORM waste exists in North East BC due to the quantity of uranium found within their reservoirs. A good understanding of the amount activities generated and location of waste has never been determined by Alberta as recommended in the Technical Committee report. This is due to the lack of regulations. The approval only allows the applicant to be able to import from the highest activity area for financial gain.

27) The approval outlines monitoring requirements and that applicant must inform the AEP if activities exceed the CNG and not that of baseline samples which would indicate an issue of containment. Radionuclides from a disposal facility can occur in low limits and accumulate to higher limits far from the facility. Much higher monitoring limits requirements are to be implemented at the Port Hope long term management facility for similar activity levels.

28) The applicant advises the leak detection system between the primary liner (80mm) and secondary liner (60mm) collects water indicating it leaks. No detection below the secondary 60mm liner exists.

29) The approval has given due regard to typical hazardous waste under the hazardous waste regulations, however it has not given regard to the chemical toxicity of radioactive waste not governed under the hazardous waste regulations. Putting radioactive hazards aside, the hazardous waste regulations address the chemical toxicity of Uranium and Lead only. The approval has not given regard to the toxicity of Thorium isotopes, Radium Isotopes or Polonium. In fact polonium and ingrowth nuclide of Lead 210 has not be considered or addressed at all.

30) A request for the approved operations plan was requested from the director on July 22, 2016 however they have refused and advised to obtain from the applicant. Due to the limited time frame to provide an appeal we cannot comment further on these documents as they have not been provided.

31) It is my understanding the activities of radionuclides have been based off the acceptance criteria of a US radioactive landfill limits that is under the control of the US nuclear agency with regulations and enforcement under strict controls. This level of safety has not been afforded. In Canada these waste would be considered Intermediate Level Radioactive Waste as outlined by the CNSC and require disposal at a long term radioactive waste management facility and not an existing hazardous waste landfill.

32) The overlying issue is the safe management of radioactive materials. The approval has not given due consultation with those experienced in matters concerning radioactive waste nor those with the educational background. Existing hazardous waste landfills level of radioactive waste safety is minimal in that it is for waste that can be disposed of and just monitored. This is the intent of the facility through its operation plan. Higher concentration waste requires a higher level of safety such as that afforded from low level radioactive waste management facilities or the at of geological disposal that Canada presently has.

33) I have dedicated my life's work to the management of radioactive waste. I have been requested to be a keynote speaker at numerous international conferences which include Scotland, England, United States and Brazil (no compensation even for expenses). I was requested to be and still am to a member of Health Canada's NORM working group committee tasked to review the CNG and even wrote a transport document presently under review (no compensation). To be considered not directly affected is just plain wrong.

34) In summary the AEP has approved an oil field waste stream that should be under statutory control of the AER, ignored the recommendations of the AER (statutory authority) chaired Technical Committee on NORM Waste, failed to classify radioactive waste being accepted (CNSC advise these are intermediate low level waste) and ignored the IAEA recommendations that for the basis of Canada's regulations. The AEP has based it decision based off an interim document completed by non-radiation professionals as they felt radioactive materials excluded from the requirements of transport are fine for disposal. The Minister should require formal policies on radioactive materials be developed which take into consideration experts in the field and appropriate disposal practices recommended by the IAEA from which Canada has made international agreements and recognizes contain leading experts in the field of radiation. The Minister should vary the decision of the acting director to exclude long lived radioactive materials from landfills at 5 Bq/g consistent with that of the BC NORM waste Landfill and internationally accepted principals or reverse the directors decision until such time as the appropriate agencies completes the approval with due consideration to the topics of concern in this appeal.

Tab E

ALBERTA
ENVIRONMENTAL APPEALS BOARD

August 11, 2016

Via E-Mail

Mr. Cody Cuthill
1113 East Chestermere Drive
Chestermere, AB T1X 1R2

Mr. Greg Dickie
Mr. Greg Smith
Secure Energy Services Inc.
#3600 Bow Valley Square 2
205 - 5 Avenue SW
Calgary, AB T2P 2V7

Ms. Michelle Williamson
Ms. Meagan Bryson
Alberta Justice and Solicitor General
Environmental Law Section
8th Floor, Oxbridge Place
9820 – 106 Street
Edmonton, AB T5K 2J6

Dear Ladies and Gentlemen:

Re: Secure Energy Services Inc./EPEA Amending Approval No. 48516-01-04
Our File No.: EAB 16-024

The Board acknowledges receipt of the attached e-mails and letters dated August 9 and 10, 2016 from Mr. Cuthill.

The Board will first address the request for an extension for the filing of written submissions on whether Mr. Cuthill is directly affected. The schedule has been revised as follows:

1. Mr. Cuthill is to file an initial written submission and any supporting materials by 4:30 pm on **August 26, 2016**;
2. Ms. Williamson and Mr. Dickie are to file response written submissions and any supporting materials by 4:30 pm on **September 9, 2016**; and
3. Mr. Cuthill is to file a rebuttal written submission and any supporting materials by 4:30 pm on **September 23, 2016**.

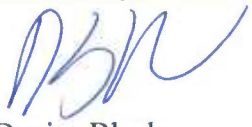
With respect to the Director's Record, it is the Board's standard practice to not ask for the Director's Record when addressing the motion of whether an appellant is directly affected. Ms. Williamson is free to provide the Record, however, the Board will not order the production at this time.

.../2

The issues raised by Mr. Cuthill are substantive questions that can only be heard in a hearing of the appeal, if one is held. The Board must first address the directly affected status of Mr. Cuthill to determine if there is a valid appeal. The parties should also note that the Board does not have jurisdiction under the *Canadian Environmental Assessment Act*. The Board's jurisdiction is solely under the *Environmental Protection and Enhancement Act*.

Please do not hesitate to contact the Board if you have any questions. We can be reached toll-free by first dialing 310-0000 followed by 780-427-6569 for Valerie Myrmo, Registrar of Appeals, and 780-427-7002 for Denise Black, Board Secretary. We can also be contacted via e-mail at valerie.myrmo@gov.ab.ca and denise.black@gov.ab.ca.

Yours truly,



Denise Black
Board Secretary

Att.

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Tab F

NORMTEK
RADIATION SERVICES LTD

Albert Environmental Appeals Board
306 Peace Hills Trust Tower
10011 – 109th Street
Edmonton, Alberta,
TSJ 3S8

August 26th, 2016

Re: Appeals Board File No. 14-024
Secure Energy Services EPEA Amending Approval No. 48516-01-04

Further to your letters of Aug 9th and Aug 11th 2016. Normtek specializes in providing radioactive materials consulting services and equipment decontamination services to clients in need of determining the appropriate management of radioactive materials that meet radiation best practices and internationally accepted principles and practices from which Canada's radiation protection regulations are based. The Secure Pembina landfill does not provide these services but rather provides for disposal of waste. Alberta Environment has failed to develop any formal policies, procedures or radioactive legislation even though jurisdictional control was given to them 16 years ago.

Canada has signed international agreements with the International Atomic Energy Agency (IAEA) and International Commission on Radiological Protection (ICRP) and accepted that these organizations contain the leading experts in the field of radiation and their recommendations form the basis for environmentally sound practices for the protection against ionizing radiation and the management of radioactive waste. The Canadian NORM Guidelines (CNG) was developed in part to provide provincial and territorial regulators with the basis to develop more formal policies and procedures. Section 2.2 of the CNG (Appendix A) outlines the basis for the guidelines. These guidelines also outline the hazards from radioactive materials under provincial jurisdiction and those controlled by the CNSC require the same level of control as confirmed by the director (Appendix T).

The CNSC classifies long lived radionuclides (those with half lives over 300 years) as intermediate level radioactive waste. The IAEA SSR-5 disposal of radioactive materials (Appendix D) and ICRP Radiological Protection in Geological Disposal (Appendix C) outline requirements for near surface and geological disposal of radioactive waste. The CNSC handed jurisdictional control of radioactive materials produced by industry to provincial regulators in October 2000 in accordance with the joint convention in which they signed with these International organizations. The passing down of regulatory control by the CNSC does not give provincial governments authority to neglect or dismiss the requirements of the IAEA and ICRP but rather requires them to follow these safety

standards and best practices. In the SSR-5 application of the safety standards section this is clearly outlined which states:

> "International conventions contain requirements similar to those in the IAEA safety standards and make them binding on contracting parties. The IAEA safety standards, supplemented by international conventions, industry standards and detailed national requirements, establish a consistent basis for protecting people and the environment."

It is not the intent to provide all the documents outlining radiation protection best practices as this is not practical do because of the shear volume of documents produced by the ICRP and IAEA. All IAEA and ICRP documents outline Canada's radiation protection best practices. We have however included some that are pertinent to this approval. To date, Alberta has not produced any formal regulations on radioactive waste and as such the NORM industry has developed to meet the requirements of the IAEA and ICRP publications. The Industry standard practice for handling radioactive materials in Canada is to classify and segregate radioactive waste with activities less than 70 Bq/g activity for short lived radionuclides and 5 Bq/g for long lived radionuclides (Ra 226) from radioactive waste with concentrations exceeding these limits. This in turn allows for disposal of low activity long lived waste at a Hazardous waste landfill in BC that complies with international accepted principles and practices and the disposal of higher activity long lived radionuclides in geological formations. Two decontamination facilities have been licensed in Western Canada (Normtek's in BC and Tervita's in Alberta) that specialize in management of the higher activity waste including decontamination to allow for disposal of the long lived radionuclides in geological formations. Two geological disposal facilities have been licensed in Saskatchewan for these materials, both of which are salt caverns.

Albertans, both now and in the future, Normtek, its shareholders and employee's (myself included) are directly and adversely affected both by harm to the environment we use and economically by the directors decision to accept high activity radioactive waste that does not comply with industry standard practices or that of the international community.

After filing a statement of concern (Appendix P) the director advised we were not directly affected as we did not reside near the landfill (Appendix K). Other legislation also dealing with "Directly Affected" outline you do not have to reside next to a project to be considered directly affected. For example Section 55.2 of the National Energy Board outlines that "directly affected" includes commercial, property or other financial interest (including employment). We note decision's by the Board also do not require residency as a means to exclude standing (Appendix L - Gadd decision and Appendix Q - Byram decision). Normtek, its shareholders and employees are not just potentially affected (Gadd Paragraph 67) economically but rather beyond a reasonable doubt, Normtek will be severally impacted. In addition, the environment will be directly affected and that

of the potential use of the environment (Byram Paragraph 44) directly affects Normtek, its shareholders and employees (myself included). We provide the following as substantiation on the matter of directly and adversely affected both economically and environmentally.

1) Normtek, its shareholders and employees (myself included) are financially affected at the most sever level as it will likely have no choice but to lay off its employees and shut down its operations as a result of the director's approval for Secures PAL hazardous waste landfill to accept high activity levels of long lived radionuclides on contaminated equipment and produced water filters. Over 99% of equipment and produced water filters would now be approved for direct disposal to Secure's hazardous waste landfill by the director rather than the more environmentally responsible option of decontamination and geological disposal that presently exists. This is because the approval allows the applicant to accept surface contaminated objects in excess of table 5.3 of the Canadian NORM Guidelines (CNG) and high activity long lived radionuclides. Normtek in 2014 completed 27equipment and produced water decontamination projects with only 1 having activity limits in excess of that approved by the director. In 2015, Normtek completed 51 projects of this nature with only 2 having activity limits in excess of the approved limits and as of July 31st 2016, Normtek completed 47 projects of this nature with 3 having activity limits in excess of the approved limits. A reasonable and prudent person can easily conclude these projects would no longer be required as owners of the waste will send the waste direct to landfill, eliminating the costs of decontamination. This in turn not consistent with the EPEA section 2 (i) as it allows polluters to not pay for their actions but rather provides a cheap option for disposal of waste that does not meet industry standard practices or radiation principles and practices for disposal of high activity long lived radioactive waste. In contrast Secure will have economic benefit from the closure or receiving of contaminated equipment that now no longer will be decontaminated and as such it is reasonable to assume this is at Normtek expense since there are only two facilities licensed in Western Canada to accept NORM contaminated equipment. Accepting high activity concentrated long lived radioactive waste will harm the environment. This is not a question of if, but rather a question of degree.

2) In addition, the investment Normtek has spent in developing decontamination methods creates a financial impact to Normtek as this equipment will no longer be utilized. Normtek has spent hundreds of thousands of dollars designing custom proprietary decontamination equipment including a hydro-press for washing produced water filters and a vacuum water recycle ultra high pressure decontamination unit for decontaminating metal for recycling, re-use and reduction of waste with activities in excess of the limits recommended for hazardous waste landfill disposal by the International Atomic Energy Agency (IAEA) and International Commission on Radiological Protection (ICRP) and as such the intent of the CNG. Normtek's economic impact is directly related to environmental impact as well. The reason for decontaminating equipment is to remove the high activity long lived radionuclides so as to meet geological disposal options that are available presently in Canada (two salt caverns licensed for these materials in Saskatchewan). The IAEA and

ICRP recommends only low concentrations of long lived radionuclides are acceptable for disposal into a hazardous waste landfill and the appropriate disposal option for high activity long lived radionuclides is geological disposal (Appendix G Classification of Radioactive Waste and appendix F Radiation Protection and the Management of Radioactive Waste in the Oil and Gas Industry). The director has failed to classify the waste being accepted for landfill disposal that affects not only a financial interest but also an environmental one. It is reasonable to assume that substantial environmental effects will occur if long lived radionuclides of high activity are disposed of in a landfill that experts dictate should not occur. In contrast if high activity long lived radionuclides would not cause an adverse effect on the environment then experts in the field and the recommendations of the international authorities would not develop recommendations for geological disposal of these materials.

3) Normtek's consulting services are severely affected by the director's decision to not follow industry standard practices and radiation protection best practices for radioactive waste disposal. As a result an economic affect will occur beyond a reasonable doubt. Normtek has completed 31 consulting projects including radioactive waste management consulting in 2014. In 2015 we completed 123 and in 2016 as at July 31 we have completed 73 all of which had activity levels that did not exceed the activity levels the director has approved. Normtek has also completed radiochemical analysis on 310 samples and only 5 have exceeded the activity levels as approved. In essence the director has approved 0ver 99% of all oilfield waste to be disposed of in Secures hazardous waste landfill. The majority of which is out of province. Since these projects involved providing waste categorization and advise on industry standard practices and recommendations of the ICRP and IAEA, Normtek's shareholders and employees (myself included) will no longer be required (at least from a waste disposal perspective) and the environment will be affected as the disposal scheme does not meet these radiation best practices or recommendations. Normtek's shareholders and employees (myself included) owe a duty to protection of the environment Section 2(f) of the EPEA. This duty is performed through our consulting services in providing sound advice on radioactive waste management and disposal that meets recommended principles and practices of radioactive waste management. Since the director has approved a facility that does not meet these recommendations as outlined in the attached documents (ICRP and IAEA) we are directly and adversely affected by the decision to provide these consulting services. This effect is financial and environmental. It is inappropriate to advise clients that the IAEA recommends geological disposal of high activity long lived radionuclides but don't worry Alberta has elected to bypass this requirement. We can let future generations worry about that. Future generations should not be subject to the actions of today especially when disposal of high activity radioactive waste is presently available in Canada. This is in contradiction to the EPEA section 2 (a) and 2 (b).

4) The CNG outlines the principles of Justification, Optimization and limitations and outline that The ICRP recognizes that everyone is subject to a significant background radiation exposure. However,

even smaller-than-background doses from occupational practices are unjustifiable if there is no associated benefit, or they can be readily avoided (Section 2.3). Presently Canada is lucky to have a system in place that allows for high concentrations of long lived radioactive waste. The exposures to future generations from landfill disposal versus geological disposal will result in an environmental effect to future generations and to those working in and around the landfill including Normtek employees. (Normtek employees (myself included) will have to enter the landfill to deliver waste for clients and will be affected by use of the surrounding lands and resources). There is no net benefit except financial gain on the part of Secure to dispose of high activity long lived radioactive materials when one already exists for these materials. The decision of the directors does not meet basic radiation protection principles and has an affect on the health and safety of the environment and Albertans of which Normtek has special interests as our business is protecting the health and safety of the environment and Albertans.

5) In October of 2000 the Canadian Nuclear Safety Commission excluded radioactive materials from their mandate that do not pertain to the nuclear fuel cycle or man made sources putting the jurisdiction over handling, use and control to provincial regulators. The Canadian NORM Guidelines outline the basic principles for provincial regulators to develop more formal policies, procedures and regulations and are clear they are based off the recommendations of the IAEA and ICRP. I am considered by my peers to be an expert in the field of provincially regulated radioactive materials. I am a member of Health Canada's, Canadian NORM Guidelines, NORM working Group Committee (See page iv CNG appendix A) charged with reviewing and updating the guidelines. My history dates back to Alberta's first oil well identified to contain radioactive materials of which I decontaminated. I have been involved in licensing both decontamination facilities in Western Canada and the only other hazardous waste landfill in Canada licensed to accept provincially regulated radioactive waste in BC. I have dedicated my life's work to providing consulting services and development of more formal policies procedures and regulations (not only in Alberta but Canada as a whole) that meet the intent of the Canadian NORM Guidelines intent and radiation protection principles and practices as outlined by the ICRP and IAEA. I have attended international conferences and been asked to be a key note speaker (as a result of my expertise) at numerous international conference (US, England, Scotland, South America) to advise how Canada manages provincially regulated radioactive waste in relation to generally accepted radiation best practices and procedures. Since the approval does not meet the intent of the Canadian NORM Guidelines or internationally accepted principles and practices for radioactive waste management of which the guidelines are based I am directly and adversely affected by the decision of the director to continue this work. Canada is presently looked upon in the international stage to follow the recommendations of the IAEA and ICRP and have been commended on it Canadian NORM Guidelines. For Alberta to discredit this reputation by not following the appropriate ICRP and IAEA standards to which our federal government has signed international treaties and committed to comply would be in contrast to Section 2 (a) of the EPEA. In addition, the director's decision inhibits me from pursuing the

developing of radioactive waste legislation or more formal policies and procedures that meet radiation best practices as the approval does not meet these policies an procedures of best practice. This is in contradiction to EPEA Section 2 (d)(e)(f) and (g).

6) A reasonable and prudent person would assume they could start and operate a business that provides decontamination services for equipment and produced water filters to meet the intent of the CNG, radiation best practices, current practices and international recommendations and to manage waste from those services to meet the international agreements Canada has signed. The environment, Normtek shareholders and employees (myself included) are directly and adversely affected by the director decision to outright disregard current practices, radiation best practices and recommendations of experts in the field by allowing disposal of high activity long lived radioactive waste and eliminating the need for decontamination.

7) The Canadian NORM Guidelines outline the basic principles for provincial regulators to develop more formal policies, procedures and regulations. It is well recognized by the CNSC, Canadian Radiation Protection Association and leading experts in the field of radiation as discussed in numerous conferences around the world that mistakes are made when non radiation professionals make decisions on radioactive waste. This is a classic case. The approving authority (AEP) is not a competent authority on radioactive waste, did not follow radiation best practices, did not follow the CNG, did not follow recommendations of the IAEA and ICRP (to which all of Canada's radiation protection and radioactive waste regulations are the basis), were not the statutory authority to approve the project (this falls under the jurisdiction of the Alberta Energy Regulator), did not conduct an environmental impact assessment as per the Environmental Protection and Enhancement Act and did not advise the Canadian Environmental Assessment Agency as required under the Canada - Alberta Agreement on Environmental Assessment Cooperation. Our concerns were brought to the director's (Appendix P - statement of concern and Appendix S letter to ESRD). The director has failed to ensure environmental protection is afforded under the EPEA section 2. The director has approved intermediate level radioactive waste into a hazardous waste landfill that would require long term management well beyond the post closure timeframe of a hazardous waste landfill. They have confirmed the same radioactive measure for radioactive materials apply to provincially regulated materials (Appendix T) however have not taken the same degree of review, public input, safety analysis and design considerations as the Port Hope landfill (Appendix W) that is to accept only low level radioactive materials (Appendix I). The degree of safety analysis completed by the director is commensurate to that of acceptance of low concentrations of long lived radioactive waste into a hazardous waste facility and not that of high concentrations. As a result the Environment will be affected from the approval to accept intermediate level radioactive waste into a landfill that has not been designed to accept intermediate level waste and does not have the institutional controls for managing the long term effects of long lived radionuclides approved (See IAEA and ICRP documents). The director has failed to understand the difference between a long

term near surface waste management facility and that of a hazardous waste landfill. The have approved high concentrations of long lived radionuclides requiring isolation from the environment for thousands of years at levels recommended for geological disposal and accepted at long term waste management facilities if no geological disposal could be provided. This directly affects all Albertans now and in the future including Normtek's shareholders and employees (myself included) from the right to use, hunt, fish or enjoy the lands surrounding the approved facility and the use of the lands which the applicant has advised will be recreational at some time in the future. In addition, Normtek's main client base is the oil and gas industry. The Secure landfill is located in an active oil and gas play. Since only Two companies presently exist that have regulatory approval for decontaminating radioactive equipment in western Canada and Normtek employees have more combined experience in handling provincially regulated radioactive waste than any other company in Canada it is highly probable and likely work activities (assuming Normtek survives) will be required in the area. Employees will use the surrounding lands for both work and recreational purposes and have a potential to be effected by the release of the radionuclides. The radiological assessment outlined two pathways of significance were outlined as ingestion of meat and fish. The Department of Fisheries and Oceans were not consulted yet this was the dominate exposure pathway. It is not a matter of if the environment will be affect as it is well known radioactive waste will affect the environment but rather it is the degree the waste will affect the environment. Since little effort was afforded in the review on design, limiting concentrations of long lived radionuclides, implementing stringent monitoring requirements, implementing institutional controls over land use and providing longer post monitoring periods of hundreds of years for the radionuclides applied for (Radiation Best Practice) and implementing an environmental impact assessment that would define the parameters that used in a radiological assessment, the degree of environmental has a potential to be very significant.

8) Under EPEA radiation is defined as a substance. Radioactive wastes are not hazardous wastes under the associated policies and regulations of the EPEA as they are not corrosive, ignitable, reactive or toxic. They are radioactive! The Minister also has not developed more formal policies, procedures or regulations concerning radiative materials as required under section 14 of the EPEA even though the Alberta government was made aware of the issue 16 years ago. As a result the decision of the director will affect the Environment, Normtek shareholders and employees (myself included) as well as all Albertan now and in the future. It is not appropriate or in the spirit of the EPEA to accept radioactive waste when no regulations, policies or guidance is provided under the EPEA and or its associated regulations or acts. Neither the hazardous waste regulations or non-hazardous waste regulations apply to radioactive materials, again they are radioactive. The ministry and director has failed to follow any radiation best practices from which Canada's radioactive waste legislation arises and which the Federal government has made international commitments on behave of Canada. IAEA GSR-1 (appendix B) and IAEA Safety Series 34 Radiation Protection and the management of

radioactive waste in the oil and gas industry (Appendix F). For example IAEA Safety Series 34 states;

> *"It is important that the regulatory body achieve a consistent regulatory approach for protection against the hazards associated with NORM wastes in line with international waste management principles [3] and the BSS [2]. Regulatory bodies unfamiliar with control over radioactive wastes in the oil and gas industry need to develop a technical and administrative framework in order to address appropriately the radiation protection and waste management issues specific to the industry. "*

Under section 14 of the EPEA the minister has not engaged public input for radioactive waste which has no regulations under the EPEA Section 14 (1) and is contradictory to EPEA section 2 (g). The director has refused to conduct or receive public input on radioactive waste regulations, codes of practices, did not conduct an environmental impact assessment (EIA) as per the EPEA and did not advise the Canadian Environmental Assessment Agency as required under the Canada - Alberta Agreement on Environmental Assessment Cooperation. This directly affects all Albertans, now and in the future and especially those Albertans engaged in activities or businesses that support the management of radioactive waste within the intent of the EPEA.

9) The safety of radioactive waste disposal into a hazardous waste landfill entails many considerations, two of which is the activity of the waste into the hazardous waste landfill and the total activity contained within the hazardous waste landfill. The director has only looked at the latter. Total activity allows for analysis of the exposures and the activity concentrations of long lived radionuclides determines the robustness of controls and the need for long term management of the facility potentially extending beyond a hundred years. The director has only looked at the total activity in a landfill as a safety analysis and not the issues surrounding concentrations limits of long lived radionuclides (intermediate waste) that require additional institutional controls, such as robust containment systems, monitoring for hundreds of years and institutional controls to prevent land use that are associated with intermediate level radioactive waste (Appendix C, D and G). The directors failure to conduct and EIA prevented the radiological assessment form defining the appropriate site specific parameters to be used in the radiological assessment such as radon gas concentrations at the site, existing radionuclide content in soils at the site, existing radioactivity of surface and ground water and existing radioactivity of waste within the hazardous waste landfill. These all affect the output of the radiological assessment. The assessment was based of a total activity within the cell but failed to define the existing activity already in the landfill. Since waste received at the landfill is comprised of over 80% oil and gas waste it is highly probable the landfill has NORM waste already contained within the landfill. This is because no regulations exist for radioactive materials and no requirements were in place ensuring NORM waste was not received (Gate Monitors). The director

has approved high level activity waste up to 70,000 atoms emitting ionizing radiation every second for every kg of radioactive waste received. The CNSC classifies radioactive waste as follows:

Low-level radioactive waste

Low-level radioactive waste contains material that is more radioactive than clearance levels and exemption quantities allow. This type of waste loses most or all of its radioactivity within 300 years.

It includes contaminated equipment from the operation of nuclear power plants (like protective shoe covers and clothing, rags, mops, equipment and tools).

Low-level radioactive waste does not usually require heavy shielding during handling and interim storage. Shielding refers to a barrier (like a concrete wall or protective clothing) between stored waste and nuclear workers.

The owners of low-level radioactive waste are responsible for managing the waste they produce. This usually takes place onsite, within its own facility.

Other than low-level waste originating from nuclear power plants, low-level radioactive waste that requires long-term management may be returned to the manufacturer.

It may also be transferred to an authorized waste management operator, such as the waste management facility operated by Canadian Nuclear Laboratories at its Chalk River Laboratories, on a fee-for-service basis.

Very short-lived low-level radioactive waste (such as that from hospitals, universities and industry) generally contains only small amounts of radioactive materials with short half-lives. This means that radioactivity decays away in hours or days.

Waste in this category is safely held until the radioactivity has decayed to levels authorized by the CNSC. It can then be disposed of by conventional means (in local landfill or sewer systems).

Intermediate-level radioactive waste

Waste that has been exposed to alpha radiation, or that contains long-lived radionuclides in concentrations that require isolation and containment for periods beyond several hundred years, is classified as intermediate-level radioactive waste.

The IAEA also outlines these same parameters (Appendix G) and outlines the types of disposal facilities suitable for each classification. The director has approved intermediate level waste for disposal in a hazardous waste landfill that does not meet the requirements or radiation best practices of either the CNSC or the IAEA or ICRP. Our experts say no. What is acceptable in a hazardous waste landfill is Very Low level waste as defined by the IAEA is as follows:

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(3) Very low level waste (VLLW): Waste that does not necessarily meet the criteria of EW, but that does not need a high level of containment and isolation and, therefore, is suitable for disposal in near surface landfill type facilities with limited regulatory control. Such landfill type facilities may also contain other hazardous waste. Typical waste in this class includes soil and rubble with low levels of activity concentration. Concentrations of longer lived radionuclides in VLLW are generally very limited.

The IAEA has further defined through its NORM VII symposium. The following regarding hazardous waste landfills were outlined:

"A reasonably clear picture emerged from the symposium regarding the most commonly used (and accepted) options for disposal of NORM waste, which can be summarized as follows:

(a) For large volumes of relatively low activity waste, such as mine tailings, the only two practicable options available were for it to be isolated in aboveground, custom built containments such as tailings dams or to be diluted with non-radioactive soil or sand and returned into the remediated land form. The latter option is accepted practice for mineral sand tailings.

(b) Low and intermediate volumes of relatively high activity NORM waste such as pipe scale from the oil and gas industry and process residue from the extraction of rare earths and thorium were usually disposed of in one of three ways:

(i) By emplacement in underground radioactive waste repositories such as that described in a presentation from Norway;

(ii) By emplacement in shallow ground, engineered (usually concrete) structures such as those described in a paper from India.

(iii) In the case of pipe scale from the oil and gas industry, by reinjection into the formation using a process known as 'slurry fracture injection'.

(c) Moderate volumes of NORM waste with low activity concentrations (but above the applicable exemption or clearance level) were increasingly being authorized for disposal in conventional disposal facilities for industrial or hazardous waste, such as landfill sites, sometimes with some additional, relatively simple protection measures being applied to cater for the radionuclide content. In all cases reported, the upper bound on the radionuclide activity concentration was being set at 10 times the exemption or clearance level (the actual or proposed value of which varied between countries — 1 Bq/g in Sweden and the Netherlands and 0.5 Bq/g in Norway). Thus the actual or proposed upper bound on activity concentration for this form of disposal was either 5 or 10 Bq/g."

Canada's exemption limit for Ra226 is 0.3 Bq/g and as such taking consideration of the IAEA and member countries best practice the upper bound for Ra 226 would be 3 Bq/g (10 Times exemption limit) and not the 55 Bq/g as approved by the director. The director's decision to not follow radiation best practices and allow disposal of intermediate level waste in a hazardous waste landfill will harm the environment as approved by the director with limit institutional controls. If this were not the case International recommendations for geological disposal would not exist. This would be in contradiction to the EPEA Section 2 (a). It is also in contradiction to the EPEA 2(b) as generators would elect to take the cheaper landfill option as opposed to geological disposal presently provided

to generators in Saskatchewan. In addition it prevents other waste management facilities from licensing geological disposal as it would not be economically as viable as direct disposal. This is in contradiction to EPEA section 2(i) as it allows for a cheaper disposal option than that recommended as environmental safe by the IAEA and ICRP. This is also in contradiction to the EPEA section 2 (c) as it has high potential to affect the resources and the environment (according to IAEA and ICRP) around the hazardous waste landfill for use today and by future generations. This is in contradiction to EPEA Section 2 (d) as it will prevent or retard the development of policies and procedures as they will not be needed as the majority of oilfield waste will just be disposed of. This is in contradiction to EPEA Section 2 (e) as the government clearly is not taking a leadership role if they do not abide by recommended practices for radioactive waste disposal and adversely affects Normtek shareholders and employees (myself included) economically as it allows for materials to be directly disposed and since the IAEA and ICRP indicate acceptance of waste at this level will potentially affect Normtek's shareholders and employees (myself included) from working or using the natural resources in the area including the landfill once turned into recreational use. It is clear from the IAEA and ICRP that radiative waste with high activity long lived radionuclides are a detriment to the environment and require geological disposal as a result.

10) The director has utilized Packaging and Transport of Nuclear Substances Regulations (PTNSR) as a means of determining limits for hazardous waste landfill acceptance. There is no technical merit to this from a radiological point of view and is not a radioactive waste management best practice. The director has attempted to define radioactive materials as hazardous or non-hazardous at levels requiring the shipment of waste under the Transport of Dangerous Goods Regulations. Hazardous wastes are those wastes that show certain properties such as ignitability, reactivity, corrosivity or toxicity but does not include radioactive. Wastes are hazardous, non-hazardous or radioactive. The transport of radioactive waste provides a complete set of different radiological hazardous and safety considerations than those requiring disposal. The IAEA advisory materials for transport state:

> *"the Regulations do not apply to natural materials and ores containing naturally occurring radionuclides which have been processed (up to 10 times the exempt activity concentration values) where the physical and/or chemical processing was not for the purpose of extracting radionuclides, e.g. washed sands and tailings from alumina refining. Were this not the case, the Regulations would have to be applied to enormous quantities of material that present a very low hazard. However, there are ores in nature where the activity concentration is much higher than the exemption values. The regular transport of these ores may require consideration of radiation protection measures. Hence, a factor of 10 times the exemption values for activity concentration was chosen as providing an appropriate balance between the radiological protection concerns and the practical inconvenience of regulating large quantities of material with low activity concentrations of naturally occurring radionuclides."*

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Only small quantities can be transported in a conveyance and the hazards are much different than that where numerous loads would be disposed. In addition the safety during transport does not need to take into considerations the long term management of long lived radionuclides. If the transport regulations were to be used for disposal the ICRP and IAEA would have recommended these limits. This would set a precedent that was not environmentally sound from a radiation protection point of view and is contradictory to EPEA section2 (e) and the recommendations of an AER chaired NORM technical group that was developed by the Alberta Government that could not agree on levels to be allowed in a landfill. The final recommendations of this committee were that a classification system needs to be established to allow radioactive waste disposal in Alberta. This document is not readily available as the AER solicitors did not approve it as an official document due to the inability of its membership (which was not comprised of radiation protection professionals) to agree on landfill limits. In addition it only looked at North American Practices and our radiation best practices are international. Appendix M outlines a letter from the Environmental law Center concerning the draft. The director did not follow the recommendation directly affecting the environment, Normtek's shareholders and employees (myself included) as well as all Albertans.

11) The approval holder has failed to properly classify NORM waste in accordance with the AER. It is worth noting the applicant in his operations plan outlines NORM as not a dangerous oilfield waste by the AER even though Greg Dickie and the writer have had discussions on this matter. The AER directive 58 (whom has statutory jurisdiction over this approval) clearly show differently as follows:

EUB Waste Name [Waste Code]	Oilfield Class	Common Transport Class	Common Criteria	Common/Acceptable Practices	Comments
Naturally Occurring Radioactive Materials - NORMs [NORM]	Dangerous Oilfield Waste	- Class 7	toxicity	- General disposal guidelines as given in the Alberta Labour Guidelines *Guidelines for the Handling of Naturally Occurring Radioactive Materials (NORM) in Western Canada*	- See Part F, Section 31.0 for specific disposal procedures - General guidelines for the handling and disposal of NORM waste have been developed by the Western Canada NORM Committee. *Guidelines for the Handling of Naturally Occurring Radioactive Materials (NORM) in Western Canada* are available from Alberta Labour

All radioactive materials are defined as class 7 as outlined by the CNG that defines radioactive as those materials in excess of tables 5.1,52 and 5.3. The operations plan goes further to advise manifests are not required. The CNG and AER documents outline all NORM shipments require a manifests. In the AER chaired - Technical group report they outline the need to determine the extent, quantity and type of NORM in Alberta (Appendix R). Manifesting is the only option present before them. The director's decision to approve the operating plan that contradicts current regulations only services to create more confusion in the industry which has no regulations. It appears this in not the EPEA section 2(d) and (j). It would appear Secure has purposely mislead and down played the long term hazards of high activity radioactive waste to obtain licensing approval.

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12) The director's approval is based off a total activity within a landfill based off a radiological assessment (Appendix R) that does not take into considerations concerns over modelling NORM (Appendix E,N and O). In particular there is improper classification of NORM. The director has advised (Appendix T) that they reviewed the CNSC Regulatory Guide G-320 (Appendix U) however the review of the radiological assessment and approval show they have not followed the regulatory guide recommendations on reviewing the assessment. The director has only showed he has followed a safety assessment consistent with a hazardous waste landfill that accepts only low concentrations of long lived radionuclides and not that required by a facility to accept high concentrations of long lived radionuclides. The model did not address the present leaking primary liner. The model showed ingestion of meat was on the rise at the end date of the assessment period yet the model does allow for extension of times. The model does not appear to take into account ingrowth of Pb210 from Ra226. The model only modelled one cell and not all cells that will be built as such the total volume of radioactivity will be substantially different than that modelled. The model did not model all isotopes being accepted (Th230, U-238 or Po210). The model outlined the waste would be homogenous and it is not. The model did not take into consideration the NON-NORM radioactivity of waste nor did the director take this into consideration on determining total radioactivity to be reported by the applicant. The model did not take into considerations that of upheaval of land, glaciation, intrusion or depression (due to acceptance of vessels that have substantial air space). The recreational use was only 52 hour in a year. The model did not take into consideration eating of berries mushrooms or other food items (we are looking 2600 years into the future). The radiological assessment only included a few basic site specific parameters. The model outlined NORM at a ratio of 1 part Ra226 to 1 part Ra228 to .33 Parts Ra228 to .33 parts Th228 hence the activity concentration of 1080GBq Ra226 to 1080GBq Pb210 to 360GBq Ra228 to 360Gbq Th228 and references Smith (Appendix O) for its reasoning. In this document it outlines further work is needed to verify these assumptions. Appendix J outlines a recent sample analysis that does not meet these general assumption. In addition the landfill allows for NORM from all Industries which would be classified differently. The directors based his total cell activity on the maximum exposure from the radiological assessment that has a high potential of error. The report outlines the dose to future generations of 0.26 mSv/a with an uncertainty of 1.04 mSv/a. A value that has a high potential to exceed the CNG requirements. The approval allows during the operational phase for a maximum cell activity limit of 1080 GBq Ra 226, 1080 GBq Pb210, 360 GBq Ra 228 and 360 GBq Th228. This does not take into consideration ingrowth. For example if the limit for Ra 226 is reached from oil and gas operations associated with produced water and the limit of Pb210 is reached from waste associated with ethane and propane streams, at some point in time the limit of Pb210 will be exceeded. This is because Ra 226 will decay and produce additional Pb210 nuclides. It will eventually reach a state of equilibrium with its parent and increase the activity of Lead 210 within the cell. The same holds true for Ra 228 and Th228. The director has failed to implement a constraint on the upper value (1080 GBq and 360 GBq) as recommended as

good radiation protection practices. The assessment is commensurate of a hazardous waste landfill to accept only low activity concentrations of long lived radionuclides and not that of a near surface facility to accept intermediate level radioactive waste. As a result it is probable and likely that exposures will be higher than those allowed in the CNG and outlined in the radiological assessment. As a result the health and safety of environmental, public and NormTek shareholders and employees (myself included) is probable and likely to occur in contravention to the EPEA Section 2(c).

13) The director's approval allows for high activity concentrations of solids in Bq/g for certain isotopes however it does not provide a limit on surface contaminated objects. Surface Contaminated Objects (SCO) limits are based off a limit in Bq/cm2 (table 5.3 of the CNG and do not identify the radionuclides. Determination of the radionuclide limits cannot be addressed as many SCO objects do not have enough materials for radiochemical analysis. As such, this will provide for substantial inaccurate reporting limits and ultimately higher concentrations than are accepted. In addition, since the director has approved disposal of equipment (surface contaminated objects) no recycling will occur of the metal which is also against standard practices for environmental stewardship in as outlined in numerous document including the Alberta's Too Good to Waste document (Appendix H). This is in contradiction to the EPEA and associated regulations as the metal can be recycled, would reduce volumes of waste disposed or can be re-used. Companies will dispose of tubulars rather than clean for re-use. In addition it goes beyond the recommendations of the ICRP and IAEA for disposal of long lived radionuclides that outline considerations to prevent future generations from intruding into a long term management facility need be taken into account.

14) The director has provided for acceptance of all NORM isotopes however has not completed an assessment on some and has not provide activity limits for some. The approval provides for acceptance of NORM waste but does not provide limits for Th228. It provides acceptance of Ra 228 in equilibrium with its progeny, however Th228 is not to be assumed in equilibrium as per table 6.2 of the CNG nor is it found to be in equilibrium within NORM waste (Appendix J). Th230 is approved at concentration less than 70 Bq/g however 10 Times the A2 value is only 10 Bq/g (table 6.1 of the CNG). The operations plan says it will not take any PTNSR but the approval allows for this. It appears the director has based disposal of Th230 based off chemical or toxicity parameters and not that of radioactivity. The director has based all other isotopes off the transport regulations but excludes this isotope? As such the total activity of incoming waste could be 140 Bq/g. 70 Bq/g Th230 and 70 Bq/g for other NORM isotopes. In addition, the radiological assessment did not cover this radioactive isotope (Th230). Issuing an approval on an Ad-Hoc basis will increase the likely hood of environmental damage and exposures to future generations, the potential for environmental and exposures to workers and public entering the landfill (Normtek included) during the operational phase and inhibit appropriate development of regulations as it sets a precedent for other landfill operators to follow that do not meet the recommendations of ICRP, IAEA and CNG. This is not consistent withe the EPEA Section 2(a)(b)(c)(d)and (e).

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15) The director has failed to provide analysis protocols such as are afforded under hazardous waste regulations as no regulations or policies have been in-acted for radioactive waste. For example produced water filters typically are analyzed by gamma spectroscopy and the filter media is included in the weight of the sample (difficult to remove radioactive component from the media). As such, a sample will provide an activity at a rate much lower than the true activity. A filter showing an activity of 55 Bq/g Ra226 will actually have much higher activities as the weight of the filter was included in the analysis. In the landfill the filters will decompose and the higher radioactivity will remain. The landfill has now accepted activities higher than allowed. Is the appropriate analysis technique to dissolve the filter media? This results in further potential environmental impact. In addition different isotopes require different types of radiochemical analysis such as alpha spectroscopy versus gamma spectroscopy. An understanding of the waste stream is required otherwise errors will occur resulting in landfill total activities not being reported.

16) The Director has approved higher activity of waste in re-enforced IP-1 containers. This has no technical merit from a radioactive disposal aspect as the container will deteriorate well in advance of the radionuclides. What is a reinforced IP 1 container (Duct tape the lid)? No regulations exist that address this terminology.

17) The director has also approved operating plans that allow for activities above the CNG unrestricted release limits that would not be included in total cell activity calculations increasing the likely hood of environmental impact. We have not included these operating plans or the approval as we understand they will be submitted by the director. If the board feels we should submit please advise. These plans include a gate monitor which allows for an alarm level of 0.005 to 1 µSv/hr, however does not identify at what incremental dose above background the monitor is to define for this alarm. Any gamma radiation readings from isotopes that generate detectable gamma radiation above normal background readings indicate that radioactive materials have been concentrated within the waste. Typical background readings in Canada are between 0.06 µSv/hr and 0.12 µSv/hr. In addition this is backed up by the secondary screening procedure that utilizes a threshold of 0.15 µSv/hr (150 nSv/hr) above background as a method to determine if NORM impacted. Materials are norm impacted if above background. The terminology of 0.15 µSv/hr is related to an external exposure due to gamma radiation to personnel and has no correlation to waste other than it is an indicator of concentration of gamma emitting isotopes. The entire safety case is based off a landfill total activity. Total activity is calculated based off radiochemical analysis. The operations plan outlines that no confirmatory samples will be obtained. This is the only waste stream which provides potential serious effects to future generations and the environment yet the director has approved a scheme that does not provide a level of safety recommended under radiation best practices. As such large quantities of radioactive waste will be accepted and not quantified into cell activity calculations and an increase in exposure to future generations not accounted for. In addition

the air monitoring is required quarterly. Although this may be acceptable practice for low concentrations of long lived radioactive waste it can severely affect the drivers of which can be Normtek personnel during off loading procedures and decontamination or our trucks. Air monitoring on a random quarterly basis does not even ensure sampling takes place during off loading of high activity NORM. This is contradictory to OH&S regulations that require monitoring if the employer subjects a worker to a hazardous substance. The monitoring procedures in the operations plan for acceptance of waste only take into account gamma emitting isotopes and not all isotopes to be accepted such as Pb210 and Ra 228. For example Pb210 contaminated equipment will not set off the gate monitor as it does not have a gamma energy signature that is detectable with the equipment being used. Pb210 contaminated equipment is common in gas production and does not contain gamma emitting radionuclides. No methodology has been provided to ensure detection and ultimately the correct total cell concentrations that the approval is based resulting in environmental impacts. In addition their is no quantification for total radionuclide content within waste not identified to be below the CNG unrestricted derived release limit in the total cell activity. All waste has some degree of radioactivity. The result of the approved procedures from the director have a high probability and potential to cause environmental damage in quantities in excess of limits imposed under the ICRP and CNG requirements and accepted by the director as being appropriate. The approved operating plan is only commensurate of a facility to accept low concentrations of long lived radionuclides and not that of a facility to accept high concentrations on long lived radionuclides.

18) The director has allowed for an action level from monitoring of radionuclides that only requires notification of activities if they exceed the CNG unrestricted derived release limits. These limits were designed so as not create an environmental impact or exposures to the public from a single source and not from a source of high activity affecting release off site. In fact a continuous release of radionuclides will result in environmental damage as the radionuclides and concentrate further from the high activity source and affect species over time such as fish, animals and plant life including that of man. This is also addressed in appendix M as a concern. The net result is a direct and adverse affect to the environment and those that use it.

19) It is important to not create bad public perception when dealing with radioactive materials. Making a decision to allow radioactive waste disposal in Alberta without public consultation is not in compliance with radiation best practices or the spirit of the EPEA and its associated regulations especially when no regulations presently exist for radioactive materials. This is in contradiction to EPEA Section 2(j) and was pointed out in appendix M as a concern to the AER technical group.

20) The Secure amendment is about accepting NORM waste of which the majority is generated in BC and is such about accepting out of province waste so Secure can have a competitive advantage over Normtek to dispose of radiologically impacted materials rather than decontaminate and dispose of

them in an environmentally sound manner acceptable by international practices. Normtek employees completed a survey of 37 facilities for one generator in NEBC, 33 of their facilities had NORM. This does not hold true for Alberta. There are limited companies that provide this service. The collapse of Normtek will severely impair those generators wishing to handle their waste in accordance with IAEA and ICRP recommended practices and severely impair the development of more formal regulations (part of Normtek's mandate).

21) Secure has many facilities throughout western Canada. Their intent is also to provide a low cost solution to the waste they generate. They accept produced water from generators and as a result of the incompatible waters of the different generators, Ra 226 and Ra 288 precipitate out of the waters. Secure is the generator. None of Secure facilities are presently licensed to accept NORM. They also utilize filters prior to the injection of the produced waters and as such generate produced water filter waste that is NORM impacted. The approval to accept high activity long lived radionuclides into a hazardous waste facility that does not meet internationally accepted principles is their intent. This is so they can provide themselves with a low cost option (at the detriment to the environment). This is contradictory to EPEA Section 2(i) polluters pays and affects Normtek's business as a result.

22) The AEP as the approving authority had no statutory authority to approve the application. As such, they have no authority to advise I am not directly or adversely affected. The statutory authority is the AER (Secure's main waste stream being accepted to this landfill is oilfield waste). They are aware the AER has experience in NORM and has itemized it as a Dangerous Oilfield Waste within Directive 58, yet pursued their application through the AEP whom has no experience in licensing facilities or the experience in dealing with oilfield waste or radioactive waste. Directive 58 does not classify NORM as hazardous or non hazardous based off transport regulations, they realize it is radioactive (See Item 11).

23) The director has failed to consult industry experts in the field of radioactive waste management and has failed to consult other jurisdictions such as the BC Ministry of Environment who has licensed a hazardous waste landfill at level that meet internationally accepted principles and practices to determine the effects they will have on those other jurisdictions. This is contrary to the EPEA Section 2 (h). The majority of NORM impacted waste originates in BC. This is the hottest area of Canada. It is Secure's intent to obtain waste and equipment with high concentrations of long lived radionuclides from BC for disposal. Secure is aware the greatest volume of NORM waste is generated in BC.

24) The EPEA under the Alberta Waste Control Regulations has outlined no hazardous waste shall be imported into Alberta for the purpose of disposal. The director has no regulations for radioactive waste and is promoting the import of radioactive waste for the purpose of disposal. All without any public input or radioactive waste legislation. The intent of the applicant is to import BC waste for

disposal since the majority of NORM waste is generated in BC. BC follows the Internationally Accepted Principles and Practices of Radioactive Waste Management and as such this is contradictory to EPEA Section 2(g). In addition this approval opens the door to accept CNSC regulated waste. Under the General Nuclear Safety and Control Regulations the CNSC has the ability to exclude materials from their regulatory control. This has been preccedented in an application to exclude low level uranium contaminated soils from a former uranium extraction facility where the waste was disposed of at the BC NORM hazardous waste landfill. The CNSC excluded these materials from their mandate as they met the acceptance criteria of the BC NORM Landfill. The Low Level radioactive Waste Management Office is looking to do the same. If the CNSC excludes these materials which have the same radionuclides they become NORM under provincial jurisdiction.

25) NORM waste poses a chronic exposure issue and the basic principles are to maintain exposures As Low As Reasonably Achievable (ALARA). Acceptance of high activity waste into a hazardous waste landfill that has the potential to affect future generations when suitable geological disposal is available would be contradictory to this principle. Another principle of radioactive waste is justification. It also is not justified to accept a disposal option that has a potential to affect future generations when suitable geological options are available and considered more appropriate for long lived radionuclides of high activity concentrations (CNG, IAEA and ICRP).

26) The decision to accept high concentrations of long lived radioactive materials into Alberta's hazardous waste facilities is an affect on all Albertans and has a potential to be a severe environmental impact on future generations. A hazardous waste landfill is built, designed and controlled for far shorter time periods than a near surface facility for higher level wastes or geological disposal of high concentrations of waste. It is not responsible to do this when a geological option exists already (justification). All Albertans are affected by this decision including myself. Normtek Shareholders, employees (myself included) are affected to a higher degree not just economically but also in non-economic terms. We provide industry at no cost advise on safety related issues such as policy development to ensure they meet recommendations of the IAEA, ICRP and Occupational Health and Safety Regulations (see appendix V). This is completed in conjunction with EPEA Section 2(f). The application will affect us as it will probably and highly likely drive us out of business. This would be a negative affect on the environment since no other company presently does this. In fact our Radiation safety program or at least portions of it can be found in most generators policies and procedures including Secure whom based theirs off ours.

In summary the director's failure to develop radioactive waste regulations, policies or procedures prior to the approval of radioactive waste disposal, failure to classify the radioactive waste for disposal, failure to conduct an EIA commensurate of high activity long lived radioactive waste,

failure to consult Albertans to verify if they want to be Canada's disposal ground for high activity long lived radioactive waste, failure to ensure an appropriate level of review of the safety analysis to accept high activity long lived radioactive waste prior to approving a disposal scheme for radioactive materials consistent with similar waste approved for disposal by the CNSC for the waste to be disposed, failure to meet radiation best practices to which Canada has committed including but not limited to justification and failure to ensure the safety of future Albertan's by implementing any safety margins within his approval constitute gross negligence on the part of the director in performing his duties under the EPEA and associated regulations as validated in this letter.

The approval clearly will cause environmental damage as outlined by IAEA and ICRP by accepting high concentrations of long lived radionuclides into a hazardous waste landfill. It is not a matter of will or will not. It is a mater of how much. All Albertans are directly affected by the director's approval and Normtek's shareholders and employees (myself included). Normtek's shareholders and employee's have the same interest as all Albertan' however our interests are also unique as only a limited number of companies specialize in Normtek's business and as such the affects are individual in nature as they will not be able to perform their services that prevent the environmental damage from occurring. This in turn will cause adverse effects to the environment for all Albertans and future generations and immediate economic effects to Normtek's shareholders and employees (myself included). We respectfully ask the Board to consider ourselves to have standing so these issues can be resolved.

We look forward to your decision and answers to questions outlined in this letter. Should you have any questions or concerns please do not hesitate to contact the writer.

Yours truly,

Cody Cuthill
President and CEO
Normtek Radiation Services Ltd.

Tab G

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VIA EMAIL

September 9, 2016

Alberta Environmental Appeals Board
306 Peace Hills Trust Tower
10011 - 109 Street
Edmonton, AB T5J 3S8

Attention: Denise Black, Board Secretary

Dear Ms. Black:

Re: EAB 16-024
NormTek Radiation Services Ltd. v. Secure Energy Services Inc.
EPEA Amending Approval No. 48516-01-04 (the "Amending Approval")
Standing Submissions of Secure Energy Services Inc. ("Secure")

1. Further to the Environmental Appeals Board's (the "EAB" or "Board") letter dated August 11, 2016 establishing the schedule for consideration of the preliminary issue of whether the Appellant, Mr. Cody Cuthill ("Mr. Cuthill") on behalf of NormTek Radiation Services Ltd. ("NormTek"), is directly affected by the Director's decision to issue the Amending Approval, we provide the following submissions on behalf of Secure in response to the submissions filed by NormTek on August 24, 2016 (the "NormTek Submission").[1]

1. INTRODUCTION

2. The Director issued the Amending Approval to Secure on July 14, 2016, which permitted Secure to accept naturally occurring radioactive material ("NORM") within certain specified maximum concentration limits ("NORM waste") and subject to specific monitoring, sampling, reporting and handling conditions at its existing Class I Hazardous Waste landfill in the Pembina Area near Drayton Valley (the "Facility"). In response to the issuance of the Amending Approval, NormTek filed a Notice of Appeal with the Board on July 28, 2016 (the "Appeal").

3. Mr. Cuthill and his business, NormTek, are well known to Secure. NormTek operates a NORM waste decontamination facility in neighbouring BC. Further, Mr.

[1] The NormTek Submission was dated August 26, 2016, but was filed with the Board on August 24, 2016.

Cuthill's brother (Tab Cuthill)[2] is an employee of Secure, and Secure has even historically retained the consulting services of NormTek to provide a NORM survey at Secure's Dawson Creek Facility in November of 2013, and NORM awareness training to Secure personnel in January 2014.

4. As outlined in further detail below, Secure submits that NormTek has failed to establish that it is directly affected by the Director's granting of the Amending Approval. NormTek's interests are purely commercial and Secure submits that Mr. Cuthill is making improper use of the *Environmental Protection and Enhancement Act*, RSA 2000, c E-12 (the "EPEA") and this Board's process to seek insulation from fair competition. NormTek has failed to demonstrate that Secure's acceptance of NORM waste in accordance with the terms and conditions of the Amending Approval will harm a natural resource that is used by NormTek, or will harm NormTek's use of a natural resource. There is simply no connection between the alleged economic effects on NormTek and any effects on the environment. Accordingly, NormTek is without standing to bring the Appeal and it should be dismissed.

5. Finally, it bears noting at the outset that the vast majority of the submissions made in the NormTek Submission relate to the substantive merits of the Appeal, not the standing issue presently before the Board, and should therefore be disregarded. While it is not necessary or proper to address the substantive merits of the Appeal at this stage, Secure respectfully submits that NormTek has mischaracterized a number of key issues and advanced interpretations of various Canadian and International NORM guidelines that cannot be sustained. Despite being unrelated to standing, Secure is compelled to provide the following brief responses to some of the misleading statements made in the NormTek submission:

- NormTek's assertion that AEP has approved the acceptance of "intermediate level radioactive waste"[3] into the Facility is false and misleading. Under the Amending Approval, Secure is only permitted to accept naturally occurring isotopes, non-Transportation of Dangerous Goods regulated waste and non-Canadian Nuclear Safety Commission ("CNSC") regulated waste, all of which falls within the "very low level" NORM waste category and is appropriate for landfill disposal in accordance with the Canadian Norm Guidelines and international standards and best practices. The International Commission on Radiological Protection ("ICRP") report *Radiological Protection in Geological Disposal* that is referenced at p. 1 and Appendix C of the NormTek Submission is not related to NORM waste and has no application to NORM waste to be accepted under the Amending Approval. The International Atomic Energy Agency ("IAEA") Technical Report *Management of NORM Residues TE-1712* **[Appendix 2]** is a more suitable international guideline for NORM disposal. As

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[2] Tab Cuthill is a Professional Engineer and Radiation Safety Officer employed by Secure as its Director of NORM Services & Waste Management. Tab was a long standing member of the NORM Waste Management Technical Committee, comprising government and industry representatives, which completed a Technical Report on Management of Naturally Occurring Radioactive Material (NORM) in Waste (July 2009) **[Appendix 1, p. 1]**.

[3] NormTek Submission at p. 6, under point (7).

noted in Figure 7 therein, NORM is classified as "very low level waste" and suitable for regular landfill disposal.

- Secure submits that 5 Bq/g for Ra226 is not industry standard practice for landfill disposal of NORM waste as suggested by NormTek. This is not a limit that adheres to any specific international or industry standard. The first landfill for disposal of NORM waste licensed in Canada (i.e. Tervita's Silverberry landfill in Fort St. John, BC) was permitted for a maximum 5 Bq/g Ra226 concentration based solely on (i) the recommendations in respect Class II landfills from the NORM Waste Management Technical Committee (the "NORM Committee") established by the Energy Resources Conservation Board in 1997 and comprised of government and industry representatives from across Western Canada; and (ii) because the class/type of landfill at issue was thought by both the project proponent and the BC Ministry of Environment to be more appropriately aligned with the Class II designation such that the Class II Ra226 limit of 5 Bq/g rather than the Class I Ra226 limit of 70 Bq/g recommended in the NORM Committee report[4] was chosen. Notably, landfills do not have the same classification system in BC as in Alberta, and therefore the Class I and Class II limits recommended in the NORM Committee report did not transfer over perfectly to the BC system. Significantly, though, it should be noted that the Tervita Silverberry landfill in Fort St. John, BC is neither designed nor operated to the same specifications as a Class I landfill in Alberta such as Secure's Facility. Secure has this knowledge in respect of the Tervita Silverberry landfill as both Tab Cuthill and Greg Dickie (currently employed by Secure) worked for the proponent of that project at the time and were involved in obtaining the approvals for that facility. Simply stated, comparing the Tervita Silverberry landfill to Secure's Class I Facility as NormTek has done throughout its Submission is an inappropriate apples to oranges comparison.

- Many of NormTek's statements in respect of the Salt Caverns in Saskatchewan are misleading. While there are two NORM approved salt caverns in Canada, these caverns do not meet the definition, permitting or design requirements of a geological disposal facility for medium and high level radioactive waste. These facilities are strictly approved for NORM with concentration levels limited to 70 Bq/g for one and 300 Bq/g for the other. There are no real geological disposal options for NORM waste in Canada. The Salt Caverns that are licensed for acceptance of NORM waste only accept sludges and liquids - not solid NORM waste suitable for landfill such as that to be accepted at the Facility.

- The Minister has no obligation under s. 14 of the EPEA to pass specific regulations addressing NORM waste. Such matters are simply within the Minister's discretion under s. 14(4). Furthermore, AEP has developed the *Interim Waste Management Information Sheet: Management of NORM Waste in Alberta* **[Appendix 3]**, and the Amending Approval is consistent with the guidelines set out therein.

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[4] See Appendix 1 at pp. 58-59.

- AEP, and not the Alberta Energy Regulator, is the regulatory authority with jurisdiction under the present circumstances as the NORM waste to be accepted under the Amending Approval is not limited to NORM arising from oilfield waste.

- Finally, the suggestion at the bottom of p. 12 of the NormTek Submission that Secure "purposely mislead (sic) and down played the long term hazards of high activity radioactive waste to obtain licensing approval" is an unfounded and specious accusation. The AER's *Directive 58: Oilfield Waste Management Requirements for the Upstream Petroleum Industry* has no application to the NORM waste accepted in accordance with the Amending Approval.

2. BACKGROUND

6. Secure's conversations with Alberta Environment and Parks ("AEP") in respect of the potential acceptance of NORM waste at the Facility began in December of 2012. After working internally for nearly two years, Secure had a pre-application meeting with AEP on May 1, 2014, formally filed its application in support of the Amending Approval in July of 2014 (EPEA Application No. 009-48516)(the "Application"), and the public notice of the Application in the Drayton Valley Western Review on July 29, 2014.

7. In support of the Application, Secure retained the services of Dennis Novitsky in September 2013 to complete a radiological assessment addressing the requested amendment to accept NORM waste (the "Radiological Assessment"). Notably, Mr. Novitsky is an accepted expert in the area of NORM waste and radiological assessment, and was the technical advisor and expert consultant to the NORM Committee established by the Energy Resources Conservation Board in 1997 and comprised of government and industry representatives. Mr. Novitsky's report to that committee provided the foundation for the *Technical Report on the Management of Naturally Occurring Radioactive Material (NORM) in Waste* (July 2009).[5] Mr. Novitsky is also the same expert who prepared the radiological assessment for the Tervita Silverberry Landfill for disposal of NORM waste in Fort St. John, BC that is referenced throughout the NormTek submission.

8. While Secure accepts that Mr. Cuthill is knowledgeable in the area of NORM waste, Secure submits that he is not an expert in radiological assessment and his comments[6] in respect of the radiological assessment filed in support of Secure's Application are without merit or support and should be disregarded.[7] It is also interesting to note that NormTek had expressed interest in preparing the radiological assessment on behalf of Secure, but was not awarded the contract as it did not have the necessary in-house qualifications to conduct the work.

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[5] See Appendix 1 at p. 1.
[6] NormTek Submission at p. 8, under point (9) and p. 13, under point (12)..
[7] Moreover, contrary to NormTek's assertions, both total activity and concentration levels have been addressed in the radiological assessment, which is detailed and comprehensive.

9. NormTek filed letters with AEP dated August 24, 2014 and October 26, 2014 setting out, at length, its concerns in respect of the Application. By way of letter dated November 25, 2014, AEP advised NormTek that the letters would not be considered a statement of concern given that NormTek was "outside the area of environmental impact associated with the proposed project." AEP, however, made it clear that the issues raised in NormTek's letters would be considered in AEP's review of the Application. Notably, AEP's questions were developed by comparing the Application to the *Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM)*, 2011 **[Appendix 4]**.

10. Secure provided its responses to the first round of SIRs on June 30, 2015 and met with AEP on August 5, 2015 to discuss its responses, at which meeting AEP requested additional information in respect of 8 of the original 21 questions. Secure filed additional information in response to the 8 questions on Sept 25, 2015, and filed even further supporting information on December 4, 2015. On April 15, 2016, AEP sent Secure a draft EPEA approval for Secure's comment. Secure provided its comments on April 20, 2018 and, thereafter, engaged in numerous email exchanges with AEP to finalize the terms of the Amending Approval. The final Amending Approval was issued to Secure on July 14, 2016, two years after having filed the Application. On July 19, 2016, AEP sent NormTek a letter advising of the issuance of the Amendment.

11. While the process followed by AEP in assessing Secure's Application and developing appropriate terms and conditions for the Amending Approval is not relevant to the issue of whether NormTek is directly affected by the Amending Approval, the Board should not be left with the impression that AEP's process was anything other than an extremely robust and rigorous. Furthermore, to the extent that any of NormTek's unsupported assertions in respect of the adequacy of the process, the competence of the Director, or the sufficiency of the terms and conditions of the Amending Approval in protecting the environment have caught the attention of the Board, it should not be forgotten that NormTek's concerns were before, and were considered by, AEP prior to the issuance of the Amending Approval.

3. NORMTEK IS NOT "DIRECTLY AFFECTED"

a. The Test for Standing

12. Section 91(1) of the EPEA establishes those persons who are entitled to submit a notice of appeal to the Board under various circumstances. Of relevance in the present case is s. 91(1)(a), which provides:

> **91(1)** A notice of appeal may be submitted to the Board by the following persons in the following circumstances:
>
> (a) where the Director issues an approval, makes an amendment, addition or deletion pursuant to an application under section

> 70(1)(a) or makes an amendment, addition or deletion pursuant to section 70(3)(a), a notice of appeal may be submitted
>
> (i) by the approval holder or by any person who previously submitted a statement of concern in accordance with section 73 and *is directly affected by the Director's decision*, in a case where notice of the application or proposed changes was provided under section 72(1) or (2), or
>
> ...
>
> [Emphasis added]

13. Section 95(5)(a)(i) of the EPEA is complimentary to the above provision, providing that the Board may dismiss a notice of appeal if, in the case of a notice of appeal submitted under s. 91(1)(a)(i), the Board is of the opinion that the person submitting the notice of appeal is not directly affected by the decision. Secure submits that it is on this basis that the Board should dismiss the NormTek Appeal.

14. Both the Alberta Court of Queen's Bench and the Board have had occasion to consider the issue of what an Appellant must demonstrate to establish that it is directly affected by a decision of the Director. In *Court v. Alberta (Director, Bow Region Regional Services, Alberta Environment)*, 2003 ABQB 456 **[Appendix 5]**, McIntyre J. provided the following guiding principles regarding standing before the EAB:

> First, the issue of standing is a preliminary issue to be decided before the merits are decided. See *Re: Bildson*, [1998] A.E.A.B. No. 33 at para. 4. ...
>
> Second, the appellant must prove, on a balance of probabilities, that he or she is personally directly affected by the approval being appealed. The appellant need not prove that the personal effects are unique or different from those of any other Albertan or even from those of any other user of the area in question. See Bildson at paras. 21-24. ...
>
> Third, in proving on a balance of probabilities, that he or she will be harmed or impaired by the approved project, the appellant must show that the approved project will harm a natural resource that the appellant uses or will harm the appellant's use of a natural resource. The greater the proximity between the location of the appellant's use and the approved project, the more likely the appellant will be able to make the requisite factual showing. See *Bildson* at para. 33:
>
> > What is 'extremely significant' is that the appellant must show that the approved project will harm a natural resource (e.g. air, water, wildlife) which the appellant uses, or that the project will harm the appellant's use of a natural resource. The greater the proximity between the location of the appellant's use of the natural resource at issue and the approved project, the more likely the appellant will be able to make the requisite factual showing. Obviously, if an appellant has a legal right or entitlement to lands adjacent to the project, that legal interest would usually be compelling evidence of proximity. However, having a legal right that is injured by a project is not the only way in which an appellant can show proximity between its use of resources and the project in question.

Fourth, the appellant need not prove, by a preponderance of evidence, that he or she will in fact be harmed or impaired by the approved project. The appellant need only prove a potential or reasonable probability for harm. See *Mizera* at para. 26. In *Bildson* at para. 39, the Board stated:

> [T]he 'preponderance of evidence' standard applies to the appellant's burden of proving standing. However, for standing purposes, an appellant need not prove, by a preponderance of evidence, that he will in fact be harmed by the project in question. Rather, the Board has stated that an appellant need only prove a 'potential' or 'reasonable probability' for harm. The Board believes that the Department's submission to the [A]EUB, together with Mr. Bildson's own letters to the [A]EUB and to the Department, make a prima facie showing of a potential harm to the area's wildlife and water resources, both of which Mr. Bildson uses extensively. Neither the Director nor Smoky River Coal sufficiently rebutted Mr. Bildson's factual proof.

In *Re: Vetsch*, [1996] A.E.A.B.D. No. 10 at para. 20, the Board ruled:

> While the burden is on the appellant, and while the standard accepted by the Board is a balance of probabilities, the Board may accept that the standard of proof varies depending on whether it is a preliminary meeting to determine jurisdiction or a full hearing on the merits once jurisdiction exists. If it is the former, and where proof of causation is not possible due to lack of information and proof to a level of scientific certainty must be made, this leads to at least two inequities: first that appellants may have to prove their standing twice (at the preliminary meeting stage and again at the hearing) and second, that in those cases (such as the present) where an Approval has been issued for the first time without an operating history, it cannot be open to individual appellants to argue causation because there can be no injury where a plant has never operated.
>
> [Emphasis added]

15. Based on the foregoing, Mr. Cuthill must prove on the balance of probabilities that he or NormTek is personally directly affected by the Amending Approval. In order to do so, Mr. Cuthill must prove that there is a reasonable probability that he or his business will be harmed or impaired by the Amending Approval. In so doing, he must show that the Amending Approval will harm a natural resource that he actually uses or will harm his actual use of a natural resource.

b. Economic Interest as the Basis for Standing

16. The Board has accepted that having a legal right or entitlement to land adjacent to the project is not the only way in which an appellant can show proximity between its use of resources and the project in question. Accordingly, Mr. Cuthill is

quite right that he need not demonstrate that he resides next to Secure's Facility.[8] He must, nevertheless, demonstrate that there is some proximal connection between his use of a natural resource that will be harmed by the amendments to the approval in respect of Secure's existing Facility. Moreover, Mr. Cuthill cannot base his standing "on a general interest or desire to prevent any environmental harms" resulting from the Amending Approval, but must instead show that those environmental harms directly affect him.[9]

17. In *Bildson v. Acting Director of North Eastern Slopes Region, Alberta Environmental Protection, re Smoky River Coal Limited* ("*Bildson*")[10] **[Appendix 6]**, the Board accepted that impacts to a "pecuniary stake"[11] (in that case, an eco-tourism business) may be sufficient to support standing;[12] provided however, that the appellant must show that the approved project will harm a natural resource which the appellant uses or that the project would harm the appellant's use of a natural resource.[13] In *Bildson*, the appellant met this test by tendering evidence demonstrating that his eco-tourism business involved taking clients out to the back country to watch wildlife, fish, collect shed caribou antlers, and to enjoy the natural scenery on the Caw Ridge directly adjacent to the mine that was subject to the approval being appealed. The appellant demonstrated that the wildlife and water quality may be injured by the mine, which would diminish his use of the area's resources for his personal and business purposes.[14] The Board found that the appellant had made a *prima facie* showing of a potential harm to the area's wildlife and water resources, both of which the appellant used extensively.[15]

18. Similarly, in *Gadd v. Director, Central Region, Regional Services, Alberta Environment re: Cardinal River Coals Ltd.* (8 October 2004), Appeal Nos. 03-150, 03-151 and 03-152-ID1 (A.E.A.B.) ("*Gadd*") **[Appendix 7]**, impacts to an economic interest was accepted as the basis for demonstrating that the appellant was directly affected by a private haul road connecting two mining projects where the appellant provided detailed evidence that he currently made use of the area around the proposed haul road to provide wilderness tours.[16] The Board found a "sufficiently direct link between the effect of the approvals under appeal and the personal interests" based on the evidence that the appellant took groups of individuals in tours around the mines at least six times annually.[17]

19. More similar to the circumstances in the present case is the Board's decision in *Byram Industrial Services Ltd. v. Director, Central Region, Regional Services, Alberta*

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[8] NormTek Submission, bottom of p. 2.
[9] *Bildson v. Acting Director of North Eastern Slopes Region, Alberta Environmental Protection, re Smoky River Coal Limited,* Appeal No. 98-230-D at para. 21.
[10] *Ibid.*
[11] i.e. economic interest.
[12] *Bildson* at para. 28.
[13] *Ibid.* at para. 33.
[14] *Ibid.* at paras. 17, 24 and 36.
[15] *Ibid.* at para. 39.
[16] *Gadd* at paras. 18-20.
[17] *Ibid.* at paras. 70-71.

Environment re: Wasteworks Inc. (28 April 2005), Appeal No. 04-057-D (A.E.A.B.) ("*Byram*") **[Appendix 8]**, where the Board dismissed as speculative a competitor's claim that it may lose revenue because of the approval of another Class II landfill within 50 kms of the appellant's existing facility in circumstances of alleged over capacity for such services.

20. In *Byram,* the Board noted that its "role is to determine if a proposed project will have an environmental effect, and whether the appellant has provided sufficient evidence to demonstrate it will be directly affected or its use of the environment will be affected by the proposed project."[18] Further, its "role is not to ascertain the saturation point of a specific market."[19] The Board acknowledged that while it was possible that some customers would go to the new facility, this did not mean that the appellant would suffer economic hardship as a result. The Board noted that it is competition in the market that will determine how many operations can succeed.[20] In terms of adequacy of evidence, the Board noted that where relying on economic effects to demonstrate a direct affect, the appellant must provide more than anecdotal evidence and the Board must have more than mere speculation and hypothetical scenarios to rely on.[21]

c. NormTek Has Not Met the Test for Standing

(i) NormTek's Submissions on "Directly Affected"

21. Despite being 19 pages in length, and several hundred pages including the Appendices, the NormTek Submission provides very little information in support of the issue of whether and how NormTek is allegedly directly affected by the Amending Approval. NormTek provides only the following unsupported and vague assertions:

> Albertans, both now and in the future, NormTek, its shareholders and employee's (sic) (myself included) are directly and adversely both by the harm to the environment we use and economically by the directors (sic) decision to accept high activity radioactive waste that does not comply with industry standard practices or that of the international community.[22]
>
> ...
>
> NormTek, its shareholders and employees (myself included) are financially affected at the most sever (sic) level as it will likely have no choice but to lay off its employees and shut down its operations as a result of the director's approval for Secures (sic) PAL hazardous waste landfill to accept high activity levels of long lived radionuclides on contaminated equipment and produced water filters. Over 99% of equipment and produced water filters would now be approved for direct disposal to Secure's hazardous waste landfill by the director rather than the more environmentally responsible

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[18] *Byram* at para. 44.
[19] *Ibid.* at 45.
[20] *Ibid.*
[21] *Ibid.* at para. 55.
[22] NormTek Submission at p. 2.

option of decontamination and geological disposal that presently exists. This is because the approval allows the applicant to accept surface contaminated objects in excess of table 5.3 of the Canadian NORM Guidelines (CNG) and high activity long lived radionuclides.[23]

...

In addition, the investment NormTek has spent in developing decontamination methods creates a financial impact to NormTek as this equipment will no longer be utilized.[24]

...

NormTek's consulting services are severely affected by the director's decision to not follow industry standard practices and radiation protection best practices for radioactive waste disposal...NormTek's shareholders and employees (myself included) owe a duty to protection of the environment Section 2(f) of the EPEA. This duty is performed through our consulting services in providing sound advice on radioactive waste management and disposal that meets recommended principles and practices of radioactive [25]

...

The exposure to future generations from landfill disposal versus geological disposal will result in an environmental effect to future generations and to those working in and around the landfill including NormTek employees. (NormTek employees (myself included) will have to enter the landfill to deliver waste for clients and will be affected by use of the surrounding lands and resources).[26]

...

The director has failed to understand the difference between a long term near surface waste management facility and that of a hazardous waste landfill. The (sic) have approved high concentrations of long lived radionuclides requiring isolation from the environment for thousands of years at levels recommended for geological disposal and accepted at long term was management facilities if no geological disposal could be provided. This directly affects all Albertans now an in the future including NormTek's shareholders and employees (myself included) from the right to use, hunt, fish or enjoy the lands surrounding the approved facility and the use of lands which the applicant has advised will be recreational at some time in the future...[27]

[Emphasis added]

22. Secure's specific responses to the above assertions are set out below. Secure submits that NormTek has failed to demonstrate that it is directly affected on the following two bases: (i) the economic impacts NormTek alleges are speculative and unsubstantiated by any economic analysis; and, even if it could demonstrate economic impacts, (ii) NormTek has not demonstrated any connection between such impacts and any environmental harm to a natural resource that it uses or its use of a natural resource.

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[23] *Ibid.* at p. 3.
[24] *Ibid.*
[25] *Ibid.* at p. 4.
[26] *Ibid.* at p. 5.
[27] *Ibid.* at p. 7.

(ii) Alleged Economic Impacts Speculative and Unsubstantiated

23. As set out above in the Introduction, Secure submits that the Amending Approval does not permit the acceptance of high activity radioactive waste that does not comply with industry standard practices or those of the international community, as alleged by NormTek. Accordingly, the entire foundation for NormTek's suggestion that its business merits protection from competition is erroneous. Even if there was merit to NormTek's claims, NormTek has only provided bald assertions that its business will lose revenue or that its proprietary decontamination equipment will no longer have value. As Secure understands NormTek's business (inclusive of prior services provided by NormTek to Secure), a significant aspect of NormTek's business is derived from consulting services and there is simply no support for the notion that such services, on their own, will be diminished by virtue of the Amending Approval.

24. It is Secure's view that additional NORM disposal options will help build awareness in industry and help all NORM service providers that assist clients with NORM waste management increase their business opportunities. NormTek may indeed benefit from this approval as NORM awareness and compliance capabilities will ultimately improve. As horizontal drilling in shale formation increases (as expected) so too will the generation of NORMs, which will in fact increase the need for consulting and other NORM-related services. Simply stated, NormTek has provided no evidence to demonstrate that the consulting services it currently provides would be diminished by the introduction of another disposal option for NORM waste.

25. As NormTek explains its business (being the focal point of this Appeal), NORM waste is first decontaminated and then sent either to a Class II landfill in BC or for "geological disposal" in Saskatchewan. In other words, no options are currently available in the province of Alberta. Notably, no evidence has been provided in support of the costs associated with NormTek's process. Additionally, Secure submits that it should not be accepted as fact that this process is "the more environmentally responsible option".[28] Secure submits that the NormTek process actually increases waste volumes by adding fresh potable water to the NORM impacted materials (NormTek uses potable water from Fort St. John, BC, a fresh water source). This now contaminated water must either be re-filtered at other waste management facilities, or transported long distances across three provinces to southeast Saskatchewan for salt cavern disposal. The fresh water is turned into a radioactive waste and is permanently removed from the surface water cycle and no longer available for human use. Additionally, the solid filter waste ends up in a landfill regardless, and the filters are not washed to below unrestricted release levels. Rather, the filter waste remains NORM impacted and requires disposal at a licensed NORM landfill. This handling process adds significantly to the radiological risks of workers and transport risks from potential road accidents. It also adds to total waste volumes and makes an unnecessary and irresponsible use of potable water.

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[28] NormTek Submission at p. 3.

26. NormTek has provided no evidence in respect of how many employees it has or why they would need to be laid off. Furthermore, as regards its assertions that it will suffer a financial impact because its decontamination methods and equipment will "no longer be utilized", it should be noted that NormTek's own evidence supports the conclusion that such work and equipment will still be necessary as not all NORMs will meet the acceptance criteria under the Amending Approval. Moreover, industry will continue to need the decontamination cleaning of reusable and recyclable NORM impacted equipment, any suggestions otherwise are entirely speculative. The Amending Approval provides an additional disposal option for solid NORM waste that cannot be reused or recycled. It is Secure's view that much of this NORM waste is currently ending up in Class II landfills that do not even monitor or screen for NORM or radioactive waste. Finally, there may also be circumstances where the location of the NORM waste makes transportation to Secure's Facility less economic than disposal at either the Tervita Landfill in Fort St. John, BC or the Salt Caverns in Saskatchewan, neither of which are anywhere proximate to the Facility.

(iii) No Harm to a Natural Resource Used by NormTek

27. With respect, NormTek has demonstrated nothing more than a general interest in environmental protection. There is simply no evidence that NormTek or any of its employees has ever made any use whatsoever of any natural resources adjacent to or in proximity of the Facility. A hypothetical potential future use of the area for hunting or recreation is simply not adequate to demonstrate any connection between alleged effects on the environment and any economic impacts on NormTek. Unlike in *Bildson* and *Gadd*, the Amending Approval does not have the potential to impact the environment upon which Mr. Cuthill relies upon for his livelihood. The continued viability of NormTek's business is in no way dependent on the protection of the environment around the existing Secure Facility.

28. Further, there is no reason why any NormTek employees would have to "enter the landfill to deliver waste for clients". Firstly, NormTek has not historically been engaged in the transport business and its employees have not been engaged in delivering NORM waste to the Facility. There is simply no need for Secure's customers or their consultants to enter the Facility. NormTek is not a current customer of the Facility and any suggestion that it may become one in the future is entirely speculative. Moreover, third parties delivering NORM waste to the Facility do not enter the actual landfill and there are strict delivery and handling requirements under the Amending Approval. No third parties or transporters enter the Class I waste cells. Instead, a tipping pad is used at the edge of the Class I cells.

29. As Secure's personnel have daily exposure to NORM waste, its safety procedures must meet occupational health and safety standards for daily exposure (these steps are designed for potential exposure over the term of a full work day/full work week/full work year). These same safety procedures must be followed by anyone attending at the Facility. This means that there is already a significant safety margin for anyone who is only present at the Facility for the short time required to unload a truck.

30. Finally, even if hypothetically NormTek did become a customer delivering to the Facility in the future, it is unclear how the circumstances surrounding the unloading of the NORM waste at the Facility would be materially different from the circumstances when the truck is initially loaded with the NORM waste. Furthermore, it is entirely disingenuous for someone who has, for many years, engaged in the decontamination of NORM impacted equipment to suggest that they may be impacted from the mere delivery of NORM waste to a landfill. The suggestion that Mr. Cuthill or any of NormTek's employees may suffer adverse impacts from delivery of NORM waste is without merit and should be rejected.

4. CONCLUSION AND RELIEF REQUESTED

31. The Appellant has failed to demonstrate the necessary proximity between the Amending Approval and any effects it may have on him personally or on NormTek. NormTek has not shown that Secure's operations under the Amending Approval will harm a natural resource that is used by NormTek or any of its employees, or will harm the use of a natural resource by NormTek or any of its employees. In other words, NormTek has failed to meet its burden to demonstrate the required connection between the alleged economic effects and any effects on the environment. Furthermore, the alleged economic effects are speculative and unsubstantiated by any economic analysis or evidence. In substance, NormTek is making use of the EPEA and this Board's process to seek insulation from fair competition. Secure submits that it is not within the EAB's mandate to regulate competition or to insulate parties from fair competition through the issuance of approvals under EPEA.[29]

32. For all the above reasons, Secure submits that neither Cody Cuthill personally, nor his company NormTek, is a person directly affected by the Director's issuance of the Amending Approval. Accordingly, Secure requests that the Appeal be dismissed pursuant to s. 95(1)(a) of the EPEA.

All of which is respectfully submitted.

Yours truly,

STIKEMAN ELLIOTT LLP

Allison M. Sears

cc: Messrs. Greg Dickie and Greg Smith, Secure Energy Services Inc.
Mr. Cody Cuthill, NormTek Radiation Services Ltd.
Ms. Michelle Williamson, Alberta Justice and Solicitor General, Environmental Law Section
Mr. Gilbert Van Nes, Alberta Environmental Appeals Board

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[29] *Byram* at para. 49.

Tab H

IN THE MATTER OF
SECURE ENERGY SERVICES INC./
***ENVIRONMENTAL PROTECTION AND ENHANCEMENT ACT* (EPEA) AMENDING**
APPROVAL NO. 48516-01-04

AND IN THE MATTER OF
ENVIRONMENTAL APPEALS BOARD
EAB Appeal No. 16-024

PRELIMINARY MOTIONS RESPONSE SUBMISSION
OF THE **DIRECTOR** OF
ALBERTA ENVIRONMENT and PARKS,
RED DEER/NORTH SASKATCHEWAN REGION

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Executive Summary

The Director submits that the Appellant is NormTek Radiation Services Ltd as is reflected in the Notice of Appeal and Submissions of the Appellant.

The Director further submits that the Appellant is not directly affected by the Amending Approval and has no standing before the Environmental Appeals Board on this matter.

Background

1. The Director issued EPEA Amending Approval No. 48516-01-04 to Secure Energy Services Inc. on July 14, 2014 (the Amending Approval).

2. The Amending Approval authorized the Approval Holder, Secure Energy Services Inc., to receive and dispose of NORM waste at its existing Class I Landfill known as the Pembina Area Landfill.

3. According to the Amending Approval, NORM waste is "any waste material with concentration of NORM (Naturally Occurring Radioactive Materials) above the limits specified in Tables 5.1, 5.2, or 5.3 of the *Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM),* Health Canada, 2011, as amended;"

4. The Appellant, Normtek Radiation Services Ltd, as represented by its President and CEO Cody Cuthill filed an appeal with the Environmental Appeals Board on July 28, 2016.

5. The Approval Holder as Respondent raised a preliminary issue regarding the standing of the Appellant on August 5, 2016.

6. On August 11, 2016 the Environmental Appeals Board confirmed written submission would be received on whether the Appellant is directly affected.

7. The Appellant's submission was filed on August 26, 2016.

8. The Respondent Director and Approval Holder's, as Respondents, submission are both due on September 9, 2016.

9. This is the Response Submission of the Director.

Relevant Facts

10. In addition to the services described by the Appellant in its various submissions (which the Director has no reason to dispute), the Appellant provides NORM

Decontamination Services and Waste Management Services. The Appellant operates a Decontamination Facility in Fort St. John, BC that decontaminates NORM impacted equipment. It acquires NORM impacted equipment from industries within Alberta, and elsewhere, that process natural resources and transports it to its Decontamination Facility in Fort St. John's for processing.

Source: www.NORMTek.com

11. The Appellant is a federal corporation registered in Alberta as an extra provincial corporation. According to its website, its Decontamination Facility is located at 9676 Swanson Street, Fort St. John, BC. Its corporate address is 115, 1925 – 18th Ave N.E. Calgary, AB.

Tab 1- Corporation/Non-Profit Search

12. The Appellant submitted a Statement of Concern to the Director on August 24, 2014.

Tab 2

13. By letter dated September 26, 2014 the Appellant was asked to explain how it is directly affected by the (then) proposed amendment.

Tab 3

14. The Appellant submitted its explanation to the Director of how it is directly affected on October 26, 2014.

Tab 4
And also Appendix 2(a) of the Notice of Appeal

15. The Director found the Appellant NOT directly affected and rejected the Appellant's Statement of Concern but also indicated to the Appellant that its issues would be considered. The issues raised by the Appellant in its Statement of Concern and more were thoroughly considered and reviewed by the Director throughout the processing of the application for this Amending Approval.

Tab 5

16. The Appellant attempted to appeal the Director's decision to the Environmental Appeals Board but the Board rejected the appeal as being premature.

Tab 6

Jurisprudence regarding Directly Affected

17. Before the Board can accept a notice of appeal as valid, the Appellant must prove that it is directly affected. Pursuant to s. 91(1)(a) of *EPEA*, only a person who is

directly affected by a decision of the Director – here the issuance of the Amending Approval – has the right to file a notice of appeal with the Board. The directly affected test is the same whether the appeal is made under the *Water Act* or the *EPEA* as is the onus; the Appellant must discharge the burden of proof that it is both personally and directly affected by the Amending Approval.

Court v. *Alberta (Director, Bow Region, Regional Services, Alberta Environment)* (2003), 1 C.E.L.R. (3d) 134 at paragraphs 67 to 71, 2 Admin. L.R. (4d) 71 (Alta. Q.B.) ("Court").

18. The phrase "directly affected" is not expressly defined in the *EPEA*. However, the EAB has considered the meaning of the phrase in many previous appeals, as have the courts.

19. The test has two elements: the decision must a) have an effect on the person; and b) that effect must be direct. In *Kostuch*, the Board held "...the word 'directly' requires the Appellant to establish, where possible to do so, a direct personal or private interest (economic, environmental, or otherwise) that will be impacted or proximately caused by the Approval in question."

Kostuch v. *Alberta (Director, Air and Water Approvals Division, Environmental Protection)* (1995), 17 C.E.L.R. (N.S.) 246 at paragraph 28 (Alta. Env. App. Bd.), (*sub nom. Martha Kostuch* v. *Director, Air and Water Approvals Division, Alberta Environmental Protection)* (23 August 1995), Appeal No. 94-017 (A.E.A.B.) ("*Kostuch*").

20. The Board's discussion of this approach in *Kostuch* is instructive:

> Two ideas emerge from this analysis about standing. First, the possibility that any given interest will suffice to confer standing diminishes as the causal connection between an approval and the effect on that interest becomes more remote. The first issue is a question of fact, i.e., the extent of the causal connection between the approval and how much it affects a person's interests. This is an important point; the Act requires that individual appellants demonstrate a personal interest that is directly impacted by the approval granted. This would require a discernible interest, i.e., some interest other than the abstract interest of all Albertans in generalized goals of environmental protection. 'Directly' means the person claiming to be 'affected' must show causation of the harm to her particular interest by the approval challenged on appeal. As a general rule, there must be an unbroken connection between one and the other.
>
> Second, a person will be more readily found to be 'directly affected' if the interest in question relates to one of the policies underlying the Act. This second issue raises a question of law, i.e., whether the person's interest is supported by the statute in question. The Act requires an appropriate balance between a broad range of interests, primarily environmental and economic.

Kostuch v. *Alberta (Director, Air and Water Approvals Division, Environmental Protection)* (1995), 17 C.E.L.R. (N.S.) 246 at paragraphs 34 and 35 (Alta. Env. App. Bd.), (*sub nom. Martha Kostuch v. Director, Air and Water Approvals Division, Alberta Environmental Protection*) (23 August 1995), Appeal No. 94-017 (A.E.A.B.). These passages are cited with approval in *Kostuch* v. *Alberta (Director, Air and Water Approvals Division, Environmental Protection)* (1997), 21 C.E.L.R. (N.S.) 257 at paragraph 25 (Alta. Q.B.).

21. In order to be directly affected, a person must have a substantial interest in the outcome of the Director's decision that surpasses the common interest of all residents who are affected by the approval. In addition, the person must also show that the action of the Director will cause a direct effect on that interest and that it will be actual or imminent, not speculative.

Ross v. *Director, Environmental Protection* (24 May 1994), Appeal No. 94-003 (A.E.A.B.) ("Ross").

Kostuch v. *Alberta (Director, Air and Water Approvals Division, Environmental Protection)* (1995), 17 C.E.L.R. (N.S.) 246 at paragraph 39 (Alta. Env. App. Bd.), (*sub nom. Martha Kostuch v. Director, Air and Water Approvals Division, Alberta Environmental Protection*) (23 August 1995), Appeal No. 94-017 (A.E.A.B.).

22. In the *Court* decision, Justice McIntyre reviewed and summarized the approach taken by the Board concerning the principles of standing in its previous decisions:

> [67] First, the issue of standing is a preliminary issue to be decided before the merits are decided. ...
>
> [69] Second, the **appellant must prove, on a balance of probabilities, that he or she is personally directly affected by the approval being appealed**. The appellant need not prove that the personal effects are unique or different from those of any other Albertan or even from those of any other user of the area in question. ...
>
> [70] Third, in proving, on a balance of probabilities, that he or she will be harmed or impaired by the approved project, the **appellant must show that the approved project will harm a natural resource that the appellant uses or will harm the appellant's use of a natural resource**. The greater the proximity between the location of the appellant's use and the approved project, the more likely the appellant will be able to make the requisite factual showing. See Bildson at para. 33:
>
> > What is "extremely significant" is that the appellant must show that the approved project will harm a natural resource (e.g. air, water, wildlife) which the appellant uses, or that the project will harm the appellant's use of a natural resource. The greater the proximity between the location of the appellant's use of the natural resource at issue and the approved project, the more likely the appellant will be able to make the requisite factual showing. Obviously, if an

> appellant has a legal right or entitlement to land adjacent to the project, that legal interest would usually be compelling evidence of proximity. However, having a legal right that is injured by a project is not the only way in which an appellant can show a proximity between its use of resources and the project in question.
>
> [71] Fourth, the appellant need not prove, by a preponderance of evidence, that he or she will in fact be harmed or impaired by the approved project. The **appellant need only prove a potential or reasonable probability of harm**. ...
>
> [75] To achieve standing under the *Act*, an appellant is required to demonstrate, on a *prima facie* basis, that he or she is "directly affected" by the approved project, that is, that there is a potential or reasonable probability that he or she will be harmed by the approved project. Of course, at the end of the day, the Board, in its wisdom, may decide that it does not accept the *prima facie* case put forward by the appellant. By definition, *prima facie* cases can be rebutted. (*emphasis added)*

23. In a series of recent decisions, the Board quoted *Court* at length and followed its approach:

> [66] What the Board looks at when assessing the directly affected status of an appellant is how the appellant will be individually and personally affected, and the more ways in which the appellant is affected, the greater the possibility of finding the person directly affected. **The Board also looks at how the person uses the area, how the project will affect the environment, and how the effect on the environment will affect the person's use of the area.** The closer that these two elements are connected (their proximity), the more likely the person is directly affected. The onus is on the Appellant to present a prima facie case that he is directly affected.
>
> [67] The Court of Queen's Bench in *Court* stated that an appellant only needs to show that there is a potential for an effect on their interests. This potential effect must still be within reason and plausible for the Board to consider it sufficient to grant standing.
>
> [68] The effect does not have to be unique in kind or magnitude. However, the affect the Board is looking for needs to be more than an affect on the public at large (it must be personal and individual in nature), and the interest which the appellant is asserting as being affected must be something more than the generalized interest that all Albertans have in protecting the environment. Under the *Water Act* and EPEA, the Legislature chose to restrict the right of appeal to those who are directly affected by the Director's decision. If the Legislature had intended for any

> member of the public to be allowed to appeal, it could have used the phrase "any person" in describing who has the right to appeal. It did not; it chose to restrict the right of appeal to a more limited class.
>
> [69] The Board has always held that a person must show how a personal interest will be affected by the approval, and it is of assistance to the Board if the type of interest which the appellant claims to be affected is supported by the statutes, such as being included in the purpose sections of the acts (EPEA and the Water Act). The interests included in the acts include, among other interests, the integrity of the environment, human health, economic growth, sustainable development, and management of water resources. (emphasis added)

Gadd v. *Director, Central Region, Regional Services, Alberta Environment* re: Cardinal River Coals Ltd. (8 October 2004) Appeals Nos. 03-150, 03-151 & 03-152-ID1; also see *Jericho et al.* v. *Director, Southern Region, Regional Services, Alberta Environment, re: St. Mary River Irrigation District* (4 November 2004), Appeal Nos. 03-145 & 03-154-D, at paras. 94 - 96; *Nault and Mitchell* v. *Director, Southern Region, Regional Services, Alberta Environment re: Town of Canmore* (29 November 2004), Appeal Nos. 04-019 & 04-020-ID1, at paras. 92 –95)

24. When considering economic interests, the Board has identified the need to tie the interest to an environmental interest both as a matter of fact and law. In summary, the economic interest must be the direct result of a reasonable potential harm to the use of a natural resource. Where the interest is primarily economic in nature, the Board has not granted standing. Failure by an Appellant to establish that the economic consequence is the direct result of harm to a natural resource that it uses or relies upon will preclude the Board from granting standing.

Enron Canada power Corporation v Director, Northern East Slopes Region, Regional Services, Alberta Environment, re: TransAlta Utilities Corporation (June 26, 2002) Appeal No. 01-081-D.

Analysis

25. A good summary of the basis for the Appellant's claim for standing is contained on page 2 of its August 26, 2016 submission:

> "Albertan's, ...Normtek, its shareholders and employee's (myself included) are directly and adversely affected both by harm to the environment we use and economically by the directors (*sic*) decision to accept high activity[1] radioactive waste that does not comply with the industry standard practices or that of the international community."

[1] Note that the use of the adjectives "high activity" is most unfortunate as it is not accurate or consistent with much of the rest of the Appellant's submission. The NORM waste authorized by the Amending Approval is NOT considered "high activity" radioactive waste.

26. The vast majority of the Appellant's concerns are environmental in nature and of those the vast majority reflect concerns for all Albertans present and future. Few reflect any probable direct causal affects to the Appellant but for potentially the following:

- Exposure to radiation from the landfill disposal of NORM will affect future generations and those working in and around the landfill. Normtek employees (myself included) will have to enter the landfill to deliver waste for clients and will be affected by use of the surrounding lands and resources. (para 4)

- Exposure to radiation from the landfill disposal of NORM waste will affect "...all Albertans now and in the future including Normtek's shareholders and employees (myself included) from the right to use hunt, fish or enjoy the lands surrounding the approved facility and the use of the lands [which] will be recreational at some time in the future." Also, Normtek employees will likely work in the area and will be exposed to radiation. (para 7)

- The Operations Plan allows for large quantities of radioactive waste be accepted and not quantified, resulting in an increase in exposure to future generations as well as to drivers, including Normtek personnel during off loading procedures and decontamination of the trucks.(para 17)

27. The Appellant's assertions about economic affects are not tied to the environment but to the fact that the Approval Holder is permitted to engage in an activity that competes with some of the business of Normtek. In a nutshell, the Appellant's main concern is that the Amending Approval will eliminate the demand for his Decontamination Facility services.

28. In particular, the Director submits that the Appellant's alleged economic interest claims are as follows:

- Employees will be laid off when NORM impacted equipment is disposed of by the Approval Holder rather than from decontamination and disposal by the Appellant (para 1). In essence, the Amending Approval will eliminate the need for the Appellant's decontamination services.

- In addition to the loss of business and laying off employees, the Appellant will suffer additional losses from designing custom proprietary decontamination equipment. (para 2)

- The Appellant's consulting services focusing on best practices for radioactive waste disposal will no longer be required causing economic loss. (para 3)

- The Appellant's CEO's reputation is negatively impacted by Alberta adopting different standards than what the Appellant asserts he relies upon when consulting, speaking, advising, etc. (para 5)

- The Amending Approval "changes the rules of the game" and that its business was established based upon a set of practices that, allegedly, disallow disposal of NORM wastes in a landfill or eliminates the need for decontamination. (para 6)

- The Director's decision to allow Ra226 at 55 Bq/g will enable generators to take the cheaper landfill option than decontamination or geological disposal (salt caverns) and will affect Normtek shareholder and employees (myself included) from working or using the natural resources in the area. (para 9)

- The Director failed to establish a classification system for radioactive waste disposal in Alberta which affects the environment, Normtek's shareholders and employees (myself included) as well as all Albertans. (para 10)

- The Appellant's business is affected because the Approval Holder accepts produced water from generators at other locations around the province and in turn produce NORM waste themselves for which they had no licence to accept, until now.(para 21)

- The Amending Approval will drive the Appellant out of business as services it provides are no longer needed such as advice to industry on safety related issues such as policy development to align with international and other standards.(para 26)

29. The Appellant cannot claim standing based on geographic proximity. The Appellant acknowledges it has no land holdings within the "immediate location of the project".

30. The Director can see only one potential environmental effect related to proximity to the project included in the Appellant's submission; that is the potential affect to employees who are alleged to:

a) Reside at hotels in the area
b) Eat at restaurants in the area

(from its October 26, 2014 SOC clarification letter, Appendix 2a of the Notice of Appeal)

And:

c) Will enter the landfill to deliver waste for clients
d) Use the surrounding lands for work and recreational purposes

(from the Appellant's submission dated August 26, 2016)

31. However, these assertions are too speculative, hypothetical or unsubstantiated to confer standing. There is no evidence that the Appellant does business with the Approval Holder to date so no reason to expect his employees to be on site. Nor is there evidence of specific locations in the vicinity of the landfill which the Appellant's employees go to for business, how frequently, or for how long, etc. Even if such information were provided, it would need to be significant enough to justify a reasonable probability of there being a causal connection between the Amending Approval, and resultant affects.

32. The majority of the Appellant's assertions also lack evidence of specific effects that are any different than would be experienced by the public at large. In fact, the vast majority of the Appellant's concern are for impacts to "all Albertans" or "future generations". This is not a sufficient basis upon which to grant standing.

33. The Appellant cannot claim standing based upon harm to a natural resource that impacts its economic interests. The Amending Approval authorizes the receipt and disposal of NORM waste. NORM is naturally occurring in the environment and is produced by the processing of certain natural resources. It is the substance that the Appellant's business relies upon. The production of this substance by the natural resource industry in Alberta is not impacted by this Amending Approval. Generator's will continue to generate NORM and they will continue to need to find ways to get it off their site. The Appellant's reliance upon this substance at its source is not impacted by the Amending Approval. Contrary to the assertion of the Appellant, the Amending Approval disposal of this substance IS in direct competition with the Appellant's Decontamination business but this is not sufficient grounds to grant standing to the Appellant.

34. Furthermore, the Appellant's assertions of potential economic impacts are speculative and hypothetical. For example, there is no evidence that the need for decontamination or consulting services will be eliminated, nor whether the landfill disposal option is cheaper,

Summary

35. The Appellant is not directly affected. The Appellant in this case is in no better position regarding direct affect than Ms. Kostuch was. Her case was dismissed by the Board. It is difficult to see the causal connection between the Amending Approval and any reasonable or probable harm that may be bestowed upon the Appellant.

36. The Appellant cannot show that the Amending Approval will harm a natural resource that it uses or will harm its use of a natural resource, aside from a purely economic point of view. The Appellant is not a neighbor; its activities are not proximate. Its primary concerns are no different than those of the general public. The alleged activities of the Appellant that are proximate are either speculative or unsubstantiated and hypothetical.

37. The Director requests that the appeal be dismissed for lack of standing.

All of which is respectfully submitted this 9th day of September, 2016 by:

ALBERTA JUSTICE

Per: _____

Michelle Williamson
Barrister and Solicitor
Alberta Justice and Solicitor General
Environmental Law Section

Tab I

ALBERTA
ENVIRONMENTAL APPEALS BOARD

October 13, 2016

Via E-Mail

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Dear Ladies and Gentlemen:

Re: Secure Energy Services Inc./EPEA Amending Approval No. 48516-01-04
Our File No.: EAB 16-024

The Board has reviewed the written submissions in relation to whether Mr. Cuthill is directly affected by the Amending Approval issued to Secure Energy Inc., and has decided to dismiss the appeal as NormTek Radiation Services Ltd. is not directly affected by the Amending Approval. As the appeal has been dismissed, no stay will be granted.

The Board's reasons will be provided in due course. The Board's reasons will address the request for a stay and the concerns raised by the parties about the submissions.

Please do not hesitate to contact the Board if you have any questions. We can be reached toll-free by first dialing 310-0000 followed by 780-427-6569 for Valerie Myrmo, Registrar of Appeals, and 780-427-7002 for Denise Black, Board Secretary. We can also be contacted via e-mail at valerie.myrmo@gov.ab.ca and denise.black@gov.ab.ca.

Yours truly,

Valerie Myrmo
Registrar of Appeals

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