Appendix C

Comments from Cedar Environmental, Charles Judd, President

September 21, 2007

Dane Finerfrock, Director
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Dear Dane Finerfrock:

I am pleased to submit comments on Energy Solutions proposed license renewal. It was very difficult to review the license renewal because there was no order to the thousands of pages of information that needed to be reviewed. This makes it almost impossible to understand what is really going on with the facility. For example, if you look at all the different documents you will find that there are many different designs presented for the cover of the embankments. Some reports used a 7 foot radon barrier, some a 2 foot radon barrier. Some reports used a 6" filter zone and others used a 24" filter zone. Several different companies provided studies on the cover but they were using different designs. It is obvious that there needs to be some consistency in the design of the facility between the different reports.

I strongly suggest that the cover design be scrapped and that Energy Solutions revert back to the original design for the cover which included a 7' radon barrier. There is no other design that has shown to be affective. This is shown by the fact that there was faulty data on the cover design cell and that there is no way to show that the new design works. It is also shown by the differential settlement data which shows extreme differential settlement and then a disclaimer by Energy Solutions that their data is faulty.

I also strongly suggest that the surety be reviewed closely before license renewal because my calculations show that Energy Solutions is at least $32 million short of the amounts necessary to protect the State. The State should be protected in this area as much as possible.

I also suggest that the process for waste placement be changed to previous methods. There is obviously a concern about differential settlement and the new methods are not ones that will help. The soil to debris ratio should be at least 3:1, there should be no "canyons" in the cell during construction, there should be no debris in the outer 3 feet of the waste and there should be no debris in the top 50% of the embankment. These are all original requirements that have been changed to save money for the applicant, however at the same time they have created much more risk to environment and the public.

I have attached a list of comments for your review. In the past 12 months I have submitted other comments that I was told should wait until public comment. With this submission I request that all of these comments also be included as a part of my public comment.

It is clear that this license renewal cannot be completed until significant updates and changes have been made by the applicant. I would hope that the public would be able to again comment on the updates and changes before the license renewal is finalized.

Sincerely,

Charles A. Judd

SECTION 1

1. It is clear that the June 14, 2007 SER is already outdated and does not include all of the review necessary to determine if the facility is "ensuring that all applicable regulatory requirements are currently being satisfied". Most of the information reviewed is from 2005 and before. Since that time there have been many changes to the facility including a whole new direction in the volumes and types of waste accepted, the ownership and philosophy of the company, the design of the facility and other such major items. At the least, the SER needs to be updated to include all of the pertinent information. During the remainder of these comments the reader will see many instances where the information reviewed is not up to date.

2. It is clear that the June 14, 2007 SER is already outdated and does not include all of the review necessary to determine if the facility is "ensuring that all applicable regulatory requirements will likely continue to be satisfied". Most of the information reviewed is from 2005 and before. In many situations the Applicant admits that they are either violating or close to violating certain requirements. Into the future the applicant has not provided the information necessary to ensure that the regulations will be met in the future. For example, there has been no way to verify if the new cover design works as discussed in Section 6.4 (this is years after it was first approved), there has been differential settlement in their previous embankment of over 1.18 feet over 100 feet (in 6 years) with the limit being 2 feet over in 1000 years. Instead of trying to limit differential settlement in the new embankment there has been a relaxation of the requirements in the new cells. During the remainder of these comments the reader will see many instances where the performance of the facility will most likely fail in the future. With the current information available it is most likely that the facility will fail in the future.

SECTION 1.2

3. This section states that "The Division's LRA review observations confirm that the assumptions and projections that formed the basis for previous regulatory decisions are being realized. " This statement cannot be completely correct because of many situations where the projections and assumptions are not being realized, such as: a) the cover test pad has not performed as assumed, b) the waste projections are significantly different than previously recorded, c) waste placement is done differently than in the past,4) there is no rock source currently available that meets the gradation and a rock score of 50 and many other items that have changed which greatly affect the basis or the regulatory decision making process.

4. This section states that "The LRA relies upon previously developed and submitted reports and evaluations, with little attention to demonstrating that current conditions are acceptable and satisfy applicable regulations". Even though this statement is true, it is very troubling. It seems that the very purpose of license renewal is to update items to their current situation not to rely on old submittals and reports. It is very evident that current conditions are not acceptable and the current conditions of the facility should be considered when renewing a license of such importance. The review should be updated to include current conditions.

5. This section reports that the review includes a concentrated effort in the area of "LLRW Financial Assurances". In fact it seems that there was very little review in this area, instead this review seems to have been left up to the Division only. In fact the SER states only that the financial requirements "have been **or will be met**". Questions were raised to the Division about the 2006 Surety and there are many huge concerns with the 2007 Surety. None of these issues have been addressed and yet the response seems to be that at some point "they will be met". The requirements of the Surety need to be met now, before the license is renewed. It is clear that the Division would not report that the requirement for waste leaving the site will be met in the future, but not now. Why would some requirements be allowed to meet in the future, but not now?

SECTION 2

6. This section is very clear that this review does not include any review of the 11e.(2) license. This is understood, however Energy*Solutions* continues to promote the thought that they have the authority to dispose of Class A wastes in the 11e.(2) cell. The SER needs to be clear that the only places where Class A waste can be disposed of is in the Class A cell and the Class A North cells. For the purpose of this review that would mean that these are the only cells approved or even contemplated. With this in mind the capacity at the site should be listed as about 2 million cubic yards. It is very important that an accurate capacity of the site is known since there are many generators trying to use the site and a need to leave some capacity for proper closure of the site.

SECTION 2.2

7. As discussed in the remainder of this response, there are several significant items that demonstrate that the applicant is not conducting all activities under programs that would protect the health and safety of the facility workers, the general public and the environment. The proposed license itself states that the applicant is failing in the cover test pad verification and in proper human resource management issues. These are issues that the license says the applicant is supposed to answer in the future but these issues should be answered now before the license is renewed.

8. The applicant has not provided financial assurance sufficient to fund the safe closure of the facility, as well as the long term monitoring and maintenance of the facility. On what grounds does the State believe that there are sufficient funds? Below is a summary of concerns with the current surety. Cedar Mountain also submitted a list of concerns to the State several months ago which listed concerns with the 2006 surety. All of these concerns need to be addressed and corrected before it is stated that there are sufficient funds.

Problems with 2007 Surety –

The Surety is in place to "protect the State of Utah from having to provide funding for the closure of Energy*Solutions* LLRW disposal facility". To do this there are many factors that need to be considered.

It makes sense that the State would want to be somewhat conservative in the calculations so that the citizens of Utah do not have to foot the bill at the end of the project. The surety requires that any extra monies will be given back to Energy*Solutions*, so it makes sense to have a little bit extra instead of a lot less money in the account.

For the 2007 review it is important to calculate all of the steps necessary to close the site anytime up until August 2008. The first thing to calculate is the type of cell that would need to be constructed to close the site properly. As License Condition limits the open cell area within the Class A and Class A North disposal embankments where the waste disposal/placement has or may occur. Looking at this requirement and Figure A which is Energy*Solutions* area of temporary cover you can see the areas that have been opened for placement of waste or areas where waste placement may occur. The yellow line shows the limits of where waste would need to be placed to close the facility.

This is at least how big the footprint must be if you consider the following: 1) You need to keep at least 300,000 cubic yards space for site cleanup (much more for proper placement of debris: see other comments about the 1:1 ratio change); a better estimate would 500,000 so that there is more soil with debris 2) between now and august 2008 you could receive up to 300,000 cubic yards of waste3) you need 100,000 cubic yards for wastes that are in storage, 4) debris cannot be placed in the top foot or bottom foot (this depth is way to small when you consider that the embankment could settle 4 feet; see other comments) 5) debris should not be place in the top half of any embankment (see other comments), 6) large components and cwf should be placed in bottom lifts, 7) there is limited amount of space in the Class A cell: less than 700,000 cubic yards as of today.

You must also consider that it is not possible to build a final cell that has concave edges. The final cell will need to be square or rectangle. Odd corners would create issues with runoff from the top of the cell. The cell may even have to be bigger than what is suggested here, but using these numbers the cover space needed would need to be

Class A	2260 x 1410 = 3,186,600 s.f.
Class A North	1100 x 600 = 660,000 s.f.
Total Open Now	3,846,600 s.f.

To be conservative it would be best to use at least 4,000,000 square feet of cover system for the waste itself and then add more quantities for the ditches and other perimeter features.

There is also a list of areas where there are obvious lower numbers than what is included in the current surety. For example:

1. The amount of soil required to be cleaned up around the two rollovers is way to low. The amount of soil that will be removed will be much deeper than 6" in these areas. The rollover was cleaned up once before after the Vitro project and the depth of excavation was often 8 feet, not 6 inches. Add $150,000.

2. Portions of the new administration building may need to be disposed of after years of operation. Add $150,000.

3. The rail line outside of the controlled area should not be assumed to be clean. Rail cars have been on the tracks when they have leaked. This area should be considered a potential area of contamination. Some must be added to clean tracks. Add $50,000.

4. The area north of the new rollover but outside the controlled area has been contaminated with windblown materials. This area has been disturbed and contamination is further disbursed but will need to be cleaned. This type of windblown contamination should be accounted for at different places around the outside of the controlled area. Add $200,000.

5. There are piles of materials on the inside and around the outside of the section 32 that will need to be restored to natural grades. Energy*Solutions* must restore the grade to natural grade all around the site. Costs should be included to move these piles. Add $50,000.

6. The depths of clean up will be much more than 6" in many areas. This is known from the clean up of the Vitro project in the same area. Contamination often penetrates lower than 6" and is also "pumped" into the lower soils by equipment running over the soil. It is also hard to only clean up to 6" with most equipment. Extra soils are almost always taken when heavy equipment is used. Add $250,000.

7. It is absolutely unacceptable to consider that equipment can be size reduced by 50%. There is no way to size reduce or cut up a locomotive. In fact the amount of space that is taken up by all of this equipment will most likely be more than actual volume of the equipment. There should be no size reduction for equipment. Equipment cannot be sized reduced very easily and a CLSM pour with most equipment will be hard to complete. The cost for disposing of equipment is too low. Where in the embankment can you place this type of material when it is some of the last material to be placed? Double CLSM for this item, Add $1,300,000.

8. A 4% inflation factor should be put on all costs after the time all the waste is placed because of the requirement that the cell must sit for 3 years before the cover can be placed. The State would have to wait two years before it can place the final cover over clean up wastes. Add $600,000.

9. The potential for surcharging is much more than a strip 500 feet long. The area along the canyon in the Class A cell plus all of the areas along edges of the CWF and large component areas are 1000's of feet of transition between waste types. This area should be increased significantly. Add $500,000.

10. Monies need to be included to cover costs of future corrective actions. There have already been many instances where corrective actions have been needed. These include times when ridges are indentified in the cover which will redirect water flow; groundwater samples have shown elevated levels on contaminants, windblown materials, ineffective test pads, etc. History has

shown a large number of these corrective action situations already. It is reasonable to assume that these types of corrective actions will continue into the future and will need to be paid for by someone. Add $2,000,000.

11. Costs should be included to fill the huge holes in Section 29 since the applicant has yet to show that they will have no affect on the site, long term. Add $700,000.

12. The costs to cut up the rollovers are extremely low. The costs to make these materials acceptable for size reducing and disposal will be extensive. Add $200,000.

13. The clay material used for radon barrier is getting hard to find. To obtain this material the applicant will need to have longer haul distances. Add $500,000.

14. The applicant has a permit for only 10,000 cubic yards of rock. This rock will cost about $3 more per cubic yard to haul because it is about a 30 mile round trip. This rock may not meet the requirements of the license anyway. The BLM has said it will not be allowing new pits in the area. Other people needing rock in the area have been considering Wendover. To haul this rock will cost at least $15 more per cubic yard. Add $10,000,000.

15. The open area that would need to be closed as of today is at least 4,000,000 square feet instead of 3,650,000. All of the cover items would need to be increased by 10%. Add $1,000,000.

16. The current cover system has not been approved. The test pad is showing that the proposed cover may not work. With all the problems with differential settlement, biointrusion, failed test pads, possible frost affects, etc the State should at least assume that the radon barrier in the cover should be 4 feet instead of 2 feet. A 7 foot radon barrier is the one that is used by other facilities and for the LARW. For surety purposed the radon barrier depth should be doubled until an approved, properly functioning cover can be developed. Add $3,000,000.

These items add up to an additional $20,650,000 which brings that Direct Costs to approximately $47,000,000. Indirect costs are approximately 51%, bringing the total to approximately $70,500,000. Items 400-502 add approximately $7,000,000. It is roughly estimated that the total surety should be $77,000,000 instead of the amount in the current surety which is 45,000,000.

A more realistic value for the surety shows that Energy*Solutions* should add $32 million to the amounts currently in the LARW surety.

9 – The type of material that is accepted at Energy*Solutions* is significantly different than the wastes that were accepted five years ago. The amounts and types of waste should be spelled more clearly before any of the work begins in licensing such a facility. Energy*Solutions* has taken up to 25

million cubic feet of waste in one year, the majority of which would be considered soil. Energy*Solutions* current proposal is for a facility that would only take 5,000,000 cubic feet a year, which would be large amounts of debris, containerized waste, and large components. Energy*Solutions* should provide a break down of estimated types of waste and the quantities of these types of wastes that will be accepted over the next five years. The major problem is with the percent of debris vs soil that is being accepted.

10. It is understood that Energy*Solutions* is currently seeking an exemption from the NRC to accept large components into the site that have not previously been allowed at the site. The effects of this exemption on how these wastes would perform in the cell should be considered in this license renewal.

11. At this point in time, closure of the site is imminent. With this in mind, a better description of the cleanup waste that will be needed should be included in all the studies. Energy*Solutions* has suggested they have over 100,000 cubic yards of debris that will need to be disposed plus maybe that much again in stored waste debris. This waste cannot be placed in side slopes and in small areas. A large area in the bottom part of the embankment should be reserved for these types of waste. The effects of how this waste will perform in the embankment should be included.

12. In accordance with Utah Code Annotated 19-3-105, the licensee may not receive Class B or C Waste. This requirement is in question because Energy*Solutions* has been rumored to tell customers that by different types of manifesting and combining waste streams that some types of B & C wastes can be accepted at the facility. This type of "downblending" is not acceptable. Safeguards need to be included in the license that would prohibit the altering of B & C wastes off site, therefore deeming them acceptable to the site. In other words, B & C wastes need to stay out of the facility and safeguards need to be in place to make sure they do not end up in the facility.

13. In the actual license, 9-E states that Class A waste can only be disposed of in the Class A and Class A North disposal cells, and in the Mixed Waste cell. At the present time, Energy*Solutions* is advertising to customers that they can dispose of waste in the 11-e2 cell, which is against their license. Safeguards need to be taken to assure that these wastes are not allowed to be disposed of in the 11-e2 cell, and Energy*Solutions* should be prohibited from advertising and selling cell space in the 11-e2 cell for waste to be accepted. Before waste could be placed in the 11e.(2) area a license amendment would need to be approved. It is clear that in order to be in accordance with this license there would need to be a separation between the 11e.(2) cell and the new Class A cell. This type of separation needs to be clearly stated in this license.

14. The open cell area requirements, that is spelled out in Item 11, are in violation at the present time. The amount of area that would need cover if the site were to close right now would be approximately 4,000,000 square feet. A new license should not be allowed until the company is in accordance with this condition. Item 11 needs to be rewritten to include language that will protect the State of Utah from surety overruns. At the present time, Energy*Solutions* has at least 400,000 cubic yards of waste that would need to be disposed of if the site were to close.

15. Settlement data from the previously closed LARW cell indicate that settlement has occurred already, with as much as 1.2 feet. Estimated settlements from reports show that this settlement could be up to 2 to 4 feet. Obviously, if this type of settlement is taking place, then a debris free zone surrounding the waste needs to be more than one foot. If the debris free zone is less than one foot it is likely that debris will puncture through the debris free zone and could damage the radon barrier or other materials. It is suggested that the debris free zone be at least 3 feet around all of the waste.

16. Settlement in the Class A cell and the Class A North cell will definitely be more dramatic than the LARW cell already closed. This is because of the amount of debris in the embankment, the type of waste in the embankment, the use of a canyon type disposal where no waste is placed in the middle of the embankment until very late in embankment construction, and other such factors. Therefore, more settlement will occur in the new cell and precautions should be taken to make sure that there aren't more problems than are already there. A new plan needs to be developed to adjust for the huge amounts of differential settlement that will occur in the two open cells.

17. In the previous LARW cell, waste with debris was not allowed in the top 40% of the embankment. Even with this restriction, settlement on the embankment has been fairly severe. Requirements should be put in place to limit debris placement in the bottom half of the embankment to limit differential settlement.

18. Condition 15 requires that before treatment of either Low Level or Mixed Waste is done calculations must be done to determine that the treated or processed waste is neither Class B nor Class C waste. Energy*Solutions* advertises that they process and treat the majority of low level debris including compactions, shedding, and other type of volume reduction. Are calculations performed for each waste stream that is shredded or volume reduced in any manner?

19. Energy*Solutions* advertises that it can take certain free liquids. How is this possible if they are only to allow for disposal free standing and non-corrosive as reasonably achievable? If people understand that they have liquids, they should change that fact before they are shipped to Energy*Solutions*.

20. Is a list of all liquids that have been received at the site in the last 2 years available for the public to view?

21. Are there situations where Energy*Solutions* is shipping waste to itself? If that is the case, certain procedures should be in place to verify that the shipping records are reviewed by an independent person before they are prepared and sent to Energy*Solutions*. All shipments should be reviewed by an independent official before wastes are sent from Energy Solutions to Energy Solutions. This is especially important when Energy Solutions has been discussing downblending.

SECTION 3.00

22. The SER has done a good job of identifying the major issues that need to be identified and resolved. However, it is clear that the issues have not been resolved in a satisfactory manner. For example, the first issue is the characteristics and design of the embankment including the clay liner, waste emplacement, back fill, and the buffer zone and cover system. Obviously this is a big concern with the applicant. What is interesting is the design of the embankment has changed at least two or three times since the initial submittal of the applicant's renewal process. The only embankment design that has been approved properly is one where there is seven feet of radon barrier covered by a proper rock erosion barrier. Since that time, the applicant has changed the depth of the radon barrier several times, changed the filter zone in 2006 to a 24 inch thick type, has changed the shape of the embankment to a super cell and then back to the original design, has changed the depth of the radon barrier down to 2 feet, has tried to demonstrate a cover test pad which has failed, has changed the way it is placing material in a manner that the differential settlement will do significant damage to the cover, and has done many other things to alter the cover design and performance. What is necessary at this time is for the state of Utah to step back and do a comprehensive review of a design that can be implemented properly. Many of the studies as far as seismic activities, settlement activities, site slope, infiltration, and help modeling were all done with different designs. Obviously, it's not acceptable to have these studies done on designs that are not going to be implemented into the facility. In summary, a specific and final design needs to be developed and implemented after all the proper studies have been done in all the appropriate areas to assure that this cover system is going to work. At the present time, there is really no approved cover design other than a 7 foot radon barrier with a rock erosion barrier. This design only works if the waste is placed in the proper manner including proper compaction and a proper amount of soil with debris so that there is no differential settlement. It would also be necessary to have an embankment that doesn't have canyons or large drop offs in the way that the waste is placed. In summary, the 7' radon barrier should be the one used for right now, including in the surety calculations, until a new design is fully approved. This would mean that the test pad results would need to be rectified. It may be years before this is done; but in the mean time the 7' radon barrier should be implemented.

23. Since the time of the original submittal by the applicant the characteristics of the waste to be received, handled, and in place have changed drastically. The volumes have dropped off drastically and the types of waste have turned more to the types of waste that come from nuclear power plants including large components that previously not acceptable to the facility. At the present time, there is an exemption with the NRC which would allow new types of large components to come to the facility. A new summary of the types and volumes waste needs to be developed and used as the input into all of the design work for the license.

24. Another item of concern for the SER was the physical performance of the embankment including effects of cover design on projected differential settlement and consolidation, annual infiltration rates, and effective transit times for water and contaminants to migrate within and under the waste embankment. All of these issues here are the issues that are not resolved because there is not an effective cover design that has been approved and has been verified through a test pad. The differential

settlement is the huge concern in as much as the original LARW cell already has differential settlement concerns even though the way that the waste was placed in that embankment was much more conservative than the new Class A cell. The new Class A cell is constructed with a 1:1 ratio of debris to soil, it is constructed with canyons, it is constructed with large amounts of oversized debris, and large amounts of CLSM. These kinds of things have made it so the cover design is faulty. The annual infiltration rates, the transit times, and other things are not modeled properly because they do not consider the damage that will be done to the cover and liner due to differential settlement, biointrusion, frost damage and other such factors.

25. Section 3 suggests that there were several unrelated licensing actions that had been requested and granted that were not considered in part of this license renewal. What is concerning about this is that one of the issues that is not really considered in this review is the Class A North disposal embankment, when in reality that is the only embankment that is going to be used for this type of renewal because within the next year or so the Class A cell will be filled and the remaining waste will need to go in the Class A North disposal embankment because there is no other place to put the waste. So, the fact that they are not considering Class A North disposal embankment makes this license renewal application almost moot. This license review needs to be redone and the Class A North embankment needs to be the main focus of the review.

SECTION 4.

26. The interviews that were completed for this license renewal were done in April 2005. Though this data is valuable, it is necessary to do new interviews now that is two and half years later. During the previous interviews, the company was in a transition phase between old management and new management and the real direction of the company and the philosophy of the company would have been from the previous ownership. Interviews should be done now to update the position of the employees that are in the field and the philosophies that are being incorporated.

27. On page 13, it talks about how the applicant had not given updated projections to the increased wastes receipts. This again shows the need for new information. The problem in 2005 was that there was more waste coming in than was expected and now the problem in reality is just the opposite, where there is much less waste than was expected; and the waste stream is more of a debris, equipment, metal debris type waste stream instead of the larger scale volumes of soil and debris. Therefore, updates again need to be made both for the types of waste, the volumes of waste, the kinds of waste that are coming in and the philosophy of the company and the direction it is going. These updates would be very valuable in assuring that the license renewal is done properly.

28. Item 10 on page 13 discusses how wastes are having to be excavated and replaced because they are being placed before the proper analysis have been received on

the wastes. This kind of handling is troublesome in that wastes would often be mixed with other wastes and that lab results are not in place before wastes are being placed. It is not clear whether this unsafe practice in now resolved.

29. Page 20 discusses the ownership of the company and states that the applicant's new ownership is a large corporation with operations across the country. It also states that as a corporation the applicant announced in 2007 that it was going to make a public offering of stock. These two facts are not insignificant in license renewal. There are many issues that would need to be considered with this new type of ownership at the facility.

1. What would happen if this large corporation came into financial trouble in other areas of its operation? Is it possible for someone who is owed money by another part of the company to have access to the assets in the Surety?
2. Is it possible for the violations and concerns of the company in other areas to overflow into the operations here?
3. What is the protocol for waste being shipped from Energy*Solutions* to Energy*Solutions* where there are no outside inspections done; does this not lead to a situation where the integrity of the shipment could be in question?
4. How does Energy*Solutions* pay processing fees to the state of Utah as required by the Utah State Tax Code when it processing its own waste? It should be that Energy*Solutions* has to pay a certain amount for processed waste, regardless of whom the shipper is or if the waste is processed on site.
5. How much should Energy*Solutions* be charged on the processing fee for waste that is generates on site, then processes and disposes of it in the cell? If they do not charge themselves any value for the waste processed, theoretically this would be a way where Energy*Solutions* could generate, process, and dispose of waste and avoid the taxes due to the state of Utah.
6. Would the State be liable to shareholders of stock if they misrepresented something that led stock holders to belief things that were not true?

30. On page 23, the SER states that the principal construction materials are the naturally low permeability clay taken between the ground surface and the unconfined aquifer. This statement is true, however it is not noted that this low permeability is running out at the site. In fact, the ability to mine this low permeability clay is diminishing quickly. The low permeability clay is only found in certain strata of the earth, and that small amount of clay is not enough at close locations to finish the radon barrier; especially in light of the fact that a thicker radon barrier might be necessary to finish the cover. More sources of this low permeability need to be found and the travel distances to find this clay and its accessibility need to be determined before license renewal is complete.

31. Page 23 also states that the rock **riprap** and filter material is taken from pits located within 10 miles of the facility. At this time, Energy*Solutions* has access to no rock that is within

10 miles of the facility and they have failed to identify this to the state of Utah. The only rock that Energy*Solutions* has access to is approximately 17 miles away, and they only have access to 10,000 cubic yards. This makes it impossible to close the facility according to requirements at this time. It is not acceptable to renew a license to an applicant that does not have the ability to close the facility.

32. Page 26 of the SER discusses the groundwater hydrology in the area and discusses the unsaturated and saturated zone characteristics. What is not considered is the underground river that has been identified by Energy*Solutions*. During Cedar Mountain's application for waste disposal in Section 29, Energy*Solutions* suggested that there was an underground river running in the area that had not been addressed. This supposed underground river has not been addressed in this SER and the limits of this underground river and how this issue shall be resolved should be addressed before license renewal can be complete.

33. On page 28, it states that the provisions of R-3-13-25-7-2 identify 11 required functions that the principal design features must perform. Out of those design features the current design fails to meet minimum requirements in the following areas: Minimizing infiltration of water, ensuring integrity of the cover for disposal units, ensuring the structural stability of backfill wastes and covers, minimizing contact of waste with standing water, providing disposal site drainage, ensuring disposal site closure and stabilization, and eliminating to the extent practicable long-term disposal site maintenance. There are several reasons for the failure to meet these requirements that are discussed in other comments, but in general terms the major concern is that the cover provided over the embankment is not satisfactory. It has not passed the test pad requirements, the applicant does not have rock available, and the cover will crack due to differential settlement and be penetrated by biointrusion. The liner under the facility also will fail due to the way the wastes are being placed in the cell.

34. Page 34 gives a description of the material used in evaluating the liner. The most recent settlement data from the applicant is not included, which shows that there is significant differential settlement in the entire LARW embankment which will in turn correlate to differential settlement in the liner system.

35. Page 35 states that the settlement calculations presented in the AGRA Report of 2001 indicate that the liner foundation will not adversely affect the cover. However, this data is all based on a different design and a different type of waste placement that is currently being used by Energy*Solutions*.

36. Page 36 begins a discussion upon the placement of waste in the embankment. This area is one of great concern in the integrity of the embankment performance. Over the past 5 years there have been, one by one, significant

changes in the ways that wastes are placed which have made it so the embankment will not perform to required standards. Any one of these changes on its own might have caused the embankment to fail, but by changing many aspects of waste placement, the embankment is almost certain to fail. Certain factors need to be considered as a whole in trying to determine the best way to place wastes so that the embankment doesn't fail. The following things need to be considered:

1. The previous LARW cell is already showing signs of increased differential settlement to the point that even with the conservative approaches taken in the LARW, the embankment cover performance is in question.
2. The new design of the radon barrier depth is only 2 feet, which creates a situation where any failures in the cover are magnified because the radon barrier is so thin.
3. The debris ratio has been changed from 10:1 to 3:1, and now 1:1. This creates an extreme situation where even though placement and compaction is done properly, over 1,000 year there can be additional settlement from void spaces, from bridging of debris, from the decomposition, and other such things that will cause additional differential settlement. In the current Class A cell waste has been placed in tall columns and a huge canyon was left in the middle of the embankment which causes extreme differential settlement since some of the wastes have been in place for years before wastes are placed right next to those wastes. This huge difference in embankment depth creates large differential settlement problems. Another change is placing debris throughout the lifts instead of only the bottom portion of the embankment. For the LARW cell debris was placed mainly in the bottom half of the embankment and not in the top part. By placing waste in the top part of the embankment there is an increased amount of settlement that can occur due to void spaces, nesting, bridging, and other things that debris and decomposing debris can do over a 1,000 year time frame.
4. Only having a 1 foot debris-free layer between the waste and the liners and cover creates a situation where debris can puncture through and affect the liner or the cover. This debris-free zone should be at least 2 feet, and preferably 3 feet.
5. The overall amount of debris in the Class A cell is significantly more than that of the LARW cell, again creating a situation for more potential settlement.
6. The type of debris being placed now is much more diverse than what was placed in the LARW cell including large components, CLSM pour, and other types of large structures within the embankment.
7. The allowing of drums, boxes, and hicks to have up to 15% of the container volume full of voids creates a great opportunity for additional settlement.

When you consider all of these different changes in the way that waste is placed in the cell, it is obvious there is significantly more potential for failure in the embankment, which translates into failure of the cover and the liner.

Page 39 states that in order to minimize potential differential settlement decomposable materials will not be accumulated into large piles for placement. No definition is given as to

what is considered a large pile; however it is clear that any decomposable material will cause problems with the embankment when it decomposes.

37. The placement of large components surrounded by CLSM in the embankment is a very different approach to waste placement. The weight of this type of a structure inside of the embankment needs to be studied long-term and monitoring needs to be done to see how this type of a structure would react during bath tubbing, increased moisture conditions, earthquakes, and other situations such as that.

38. Page 42 discusses the fact that new data on settlement shows that the differential settlement has only been .75 in 50 feet which is equivalent to a .015 calculation in 100 feet. The design allowable limit is .02. This settlement is already close to the limit and it has only been in less than 6 years. There are 994 years left for the remaining 25% of differential settlement. With all the different types of waste placement this concern is very justified and new methods need to be in place to ensure that the cover is not destroyed.

39. Page 32 discusses the idea that the liner will be at a level elevation of 4,265.0. This might seem like an achievable result, but it is not because with the settlement and the weighting of the embankment the clay liner will vary in elevations as much as 3 feet and the concern is that this differential settlement in the clay liner at different times will create a breach in the liner.

40. Page 46 gives a description of the supposed cover system that is to be placed, however the cover system has not been proven to work.

1. We know that the test cover pad is not functioning properly and we do not have data to show that this cover is performing.
2. There is no rock to cover the embankment as described.
3. The studies that have been done over the past 5 years, have all been done on different types of covers and have not been done exclusively on one cover design.
4. There are possibly even transitions of different types of cover materials in the middle of an embankment.
5. The design changes on an annual basis and no consistent design has been in place. In 2005 there was one design, in 2006 there was another design, and now there is a third design which makes it hard for anyone to understand exactly which system is being reviewed and which one will work.

41. It is strongly suggested that until an approved upon consistent design is presented by the applicant that the applicant be required to stay with the original design which is the most conservative and the most likely to be successful on any embankment. That design calls for 7 feet of radon barrier and an erosion barrier on top of that. If additional filter zones or other

materials are needed in the embankment they should be put in addition to the 7 feet of clay that has been used at many other facilities. These 7 feet of clay provides a way to heal a lot of the problems that might occur in the cover of the embankment.

42. To minimize infiltration, page 52 discusses that the primary fact relating to minimize infiltration is the permeability of the upper 1 foot of the radon barrier. This shows how critical that 1 foot is, and if it is punctured by debris, if it dries out, or if it is cracked due to differential settlement that this would severely affect the embankment. All of these situations are possible to occur and would cause damage to this very valuable 1 foot of radon barrier. It is strongly suggested that a thicker layer of $(5 \times 10)^{-8}$ clay be included in the design of the facility.

43. Page 53 states that the cover system must be constructed in a way that there is no slope reversal, however it has been described in the latest settlement report that there already a cresting or slope reversal in the LARW cell that was reported by the applicant's engineers. This type of slope reversal in the LARW only shows with more magnitude how important it is that new types of approaches be taken in the Class A and Class A North cell to protect from similar types of reversal.

44. Page 53 discusses the importance of the Type B and Type A filter zones. It is important that studies be done to show that fine materials coming down from upper layers would not affect or plug this filter material.

45. Page 56 discusses the frost penetration and describes that the calculated frost depth 3.4 feet. The design of the current facility is to have the radon barrier only 3.5 feet down into the embankment. This is not acceptable to have only .1 foot difference between the calculated frost depth and the protection provided to the radon barrier. As described earlier, this top 1 foot of the radon barrier is the main and most important part of the radon cover. If the calculations are off just a slight amount this important radon barrier would be damaged. Other reports presented by the applicant have shown that their forecasted values are low. This indicates that it is very possible that the frost could penetrate past a 3.5 feet cover and damage the important radon barrier.

Section 5.4

1. Studies done have shown that the deep rooted black greasewood has roots as deep as 13 feet deep. This concern does not seem to be included in the infiltration modeling in the fact that if the plants do grow on the embankment and then die, they could easily leave large holes in the

cover that could create direct pathways for water to the waste. This concern is even stated on page 58, but it is not addressed. These potential holes in the cover need to be included in the studies and resolved.

2. Studies done have shown that the deep rooted black greasewood has roots as deep as 13 feet deep. This concern does not seem to be included in the radioactivity leaving the embankment in the fact that if the plants do grow on the embankment and then die, they could easily leave large holes in the cover that could create direct pathways for radioactivity to leave the waste. These potential holes in the cover need to be included in the studies and resolved.
3. Post closure analysis of the normal exposure to radioactivity does not consider that plant intrusion into the waste could create direct pathways to the atmosphere.
4. The Allow Site Monitoring Section suggests that the temporary cover may need to be in place for up to three years. One would also assume that it would take a construction season to complete a large section of cover. With this in mind it makes sense that the last waste would be placed in the cell eight years after the cell was opened. With this in mind, a large amount of the Class A cell will need to be closed in 2008. A plan should be developed on tracking how the different portions of the cell will be closed. This will allow the State to monitor the time when certain parts of the cell will need to be closed to further waste placement. It should be noted that cell covers cannot be finished in small increments in the middle of the cell area. Cell covers would need to be constructed from the point of beginning to the edge of the cell.
5. Settlement monitoring has already proven to be a failure. Many years of data on the LARW system are in question. The results from the initial settlement of the embankment showed large amounts of differential settlement. The results showed that there was enough settlement to call into question the integrity of the cover. Some areas of the cover showed frost heave, some showed large amounts of settlement. After a few years the applicant decided to call the data into question themselves. Just throwing out data when it begins to look like a problem is not an acceptable practice. The data showed problems and now the cell itself is showing problems. A recent report by the applicant stated that there were ridges forming on the embankment that would change the direction of the flow of water off the cell.
6. Settlement monitoring costs should be included in the surety and monies should be included in the surety to protect the State from when the cover needs to be repaired. All indications are that the cover is already in need of repair and the new covers will be even worse because of the way that wastes have been placed in the Class A and Class A north cells.
7. In the section titled "Mitigate Differential Settlement" it states that "the maximum projected differential settlement was estimated to be 0.009 ft/ft under abnormal conditions evaluated by the Applicant (AGRA 2000a)". Settlement data collected on the LARW cell for 6 years show that the actual differential settlement has already exceeded 1.18 feet in 100 feet or 0.0118. This means that in reality the abnormal condition has already been exceeded in 6 years. There are 994 years left for concern. Obviously the projections by the applicant are wrong. The big question is "HOW MANY OTHER PROJECTIONS ARE WRONG ALSO?" As more and more data is collected it needs to be included in projections and corrections need to be made. This item is just one of many items that show that he cover is going to fail. Corrections need to be made now, not later.

8. URS is very smart to make the statement they did on page 61 of the SER. "the design criterion for distortion were met, for the initial phases of the LARW Cell cover placement and facility closure (with the placement techniques in use prior to 2006). They are right in qualifying their statement. The techniques that were used prior to 2006 were much more effective than those used today. The LARW cover may be saved but the Class A and Class A north cells are so different than the LARW cell. The new placement techniques are sure to make the newer cells fail. Wastes should not be allowed to be placed with a debris ratio of 1:1. This new approach does not include the affects of bridging of debris, long term degradation of the debris and other such items. Over 1000 years the bridged areas will fail, the wood, paper and metals will degrade and leave void spaces. All this will lead to more differential settlement and more cover failure. The 1:1 ratio of debris to soil needs to be revoked.
9. Internal erosion cannot be ruled out since test pads of the cover have not been able to show that the cover is affective.
10. The applicant has not rock to cover their immense cells. The rock needed as stated in this report is rock with the proper gradation and with a rock score. The applicant has access to 10,000 cubic yards of rock that has not been tested to determine its gradation or its rock score. Currently there is no way to close the cells already constructed. How can a license be renewed if there is no way to close the cells according to the regulations.
11. The performance of the filter zones need to be reviewed to determine the affects of fine materials from the overlying layers migrating down into the filer material. This type of migration could severely impact the filter zones.
12. The Ensure Structural Stability – Settlement sections improperly suggests that settlement should be okay because in the Salt Lake Valley, embankments for pavements and bridges have performed adequately. Roads and bridges are built in a much different was than the Class A embankment. The Class A embankment was built with a canyon in the middle. Bridges and roads in Salt Lake are not a reasonable comparison to the Class A embankment at Clive.
13. Page 68 states that the projected settlement for the embankment would be 3 feet. With the way that the Class A facility was constructed this means that it is likely that the clay liner has been or soon will be breached. The north and south sides of the embankment were constructed about 5 years ahead of the middle portion. The loading on the north and south would cause the settlement in these areas to happen 5 years ahead of the middle section. When the middle section does settle the liners will no longer match up but will be as much as 3 feet away from each other.
14. The statement that the large components would be placed below the crest would tend to improve the cover conditions is not founded. If a bowl shaped depression occurs in the cover it will drastically affect the performance of the cover no matter where it is located in the top cover. In fact it would be argued that the crest of the embankment would be the worst place to have a bowl shaped depression.
15. Page 67 suggests that four durability tests will be run on the rock. These have not been completed on any rock sources available to the applicant. Approval cannot be given until a suitable rock source has been identified.

16. Page 68 states that because of the information in the 2005 revision that the requirements for the rock cover have been met. These requirements cannot be met since the rock source the applicant has is not longer available to them.
17. Page 69 discusses the drainage systems around the site. The drainage around the site needs to be studied again. The clay areas are a concern as stated, but other items need to be included in the study. Other items include the newly constructed rail spur on the north end of the site which would block sheet flow around the site and channel water to other areas of the site. It would also be important to study the sheet flow around the embankments if the CAN cell were not fully developed. If the site closed in the next two years there would be a three sided containment area with Vitro on the east, Class A on the south and CAN on the west. As the sheet flow collected in this area it would need to be channeled between the embankments and drastically change the sheet flow.
18. The ditches around the site need to be studied again. With the new 2 foot radon barrier instead of the 7 foot radon barrier the flow line of the ditch is moved much closer to the waste. In fact when the ditches flow with water the flowing water will be directly over the waste. This was not considered in previous studies.
19. The transport modeling discussed on page 78 should include at least two other strong possibilities; first, that the liner below the Class A cell has been breached and second, that that cover has been breached by differential settlement and by biointrusion.

Section 6.0

20. Page 83 discusses the site closure plan. The site closure plan has not been well thought through and leaves out many key items. First of all, the amount of air space left in the Class A cell is not relevant. The amount of space left for waste, especially debris, placement is relevant. Much of the cell space cannot be used for placement of closure items, such as equipment, since there's not space for that in the debris-free zone and other areas in the embankment. Second, the amount of material that will be needed for waste placement at closure is severely underestimated. For example, it is unlikely the 1:1 debris ratio will be acceptable for this type of debris. It is more likely that a 3:1 soil to debris ratio should be used for cell closure with this type of debris. Also, the thought that equipment , such as locomotive and dump trucks, can be placed at a 1:1 ratio is unacceptable. In reality, the amount of cell space needed for closure should be 500,000-600,000 cubic yards. The closure plan is also deficient and misleading in an August 31, 2007 Surety update premature closing plan document. Energy*Solutions* tries to mislead the State by suggesting they have a 5 year contract for material in the Central Grayback Community Pit, which has the reserve of at least 1.1 million cubic yards of material. The fact of the matter is that Energy*Solutions* only has a permit for 10,000 cubic yards of this rock. They also say they are working to develop a pit with the BLM, which is a 1.2 million cubic yard pit, again trying to mislead the State into thinking they have plenty of rock available. In reality, the BLM is not looking at developing any new sand or gravel pits in the area. These types of misleading statements are unacceptable and are a prime reason why instead of having in-house engineers stamp and approve drawings such as this that

an independent engineer needs to be hired. This is a prime example of the situation where an independent engineer would not try to mislead the State to the advantage of Energy*Solutions*. The closure plan is also not effective in the fact that the plan for premature closure is not decided until after it is announced that there is closure. It is much more acceptable to have plans in place of how to close the different facilities at any point in time, especially since the facility is nearing closure and is limited in cell space at this point in time.

22. It has become necessary at this point in time to have a State reviewed "cell space availability" report on at least a bi-annual basis. There is little doubt that the time that Energy*Solutions* will be open is limited and that cell space is limited. In fact, at this point in time, the only real place left for waste is in the Class A North embankment. When considering all of the cell space that will be used for closure of the facility, it is critical that wastes not be contracted that cannot be disposed. Therefore, it is important for a report to be prepared at least twice a year which gives exactly how much cell space is left, and also reports how much waste Energy*Solutions* is contracted to take in the future. It is important that they not be allowed to contract for wastes that are not going to be able to be placed into the cell.

23. Page 84 suggests that after the embankment is covered with a temporary cover that verification that the waste form is stable needs to be done. No specific description is given on how this verification is to be done or at what limits of differential settlement would need to be at before closure could happen. This is a great concern because much of the cell needs to be closed now in order to make sure that the 12 year open cell requirement is not violated. In the middle of the cell is the first area where waste was placed in 2000, meaning that completed cover needs to be done by 2012. If you realize that for stabilization to occur it will take at least three years, and I emphasize at least 3 years, and 1 year to put the final cover on then waste placement should stop in the embankment in 2008. This means that a majority, if not all of the Class A cell needs to receive temporary cover in 2008.

24. The State needs to keep track of the open cell requirement in a definite manner and provide a way in which they can make sure that the waste will stabilize and have a complete cover before the 12 years is up. Currently there's a large amount of the Class A cell that needs to stop accepting waste, receive its temporary cover and prepare for the final cover to be placed in the next 3 to 4 years.

25. Page 87 makes a clear statement that the applicant expects to receive a maximum waste volume of about 11 million cubic feet per year. This means that the facility is only licensed to be open for approximately 4 years. The cell space that is left in the Class A North is less than 2 million cubic yards, when you consider that a lot of the space needs to be reserved for site closure and decontamination. Therefore, it should be made clear that the current license is only able to be in effect for approximately 4 years before the cell will be full. A license condition should be included which caps the receipt of waste at 11 million cubic feet per year so that the

facility does not fill up without having a place for site closure. Other LLW sites in the nation have volume caps for waste acceptance.

26. Page 88 suggests that only 331,000 cubic yards would be generated during facility closure, this number is low because of the fact that they assume this type of debris can be placed at a 1:1 ratio which is not an effective way of placing waste. It is also low because they are assuming that locomotives and large trucks can be shredded or crushed to one half their original size, but this type of assumption is not correct and produces a number that is extremely low. Also based on previous Vitro experience, there will be more cleanup wastes than they are currently projecting. During the Vitro project clean up at the same location, the amount of waste anticipated before clean up and the amount that actually was incurred was significantly different. The State should take into account that the contamination is always more extreme than is expected. The State should take consideration of a conservatively high number which would be more in the lines of the 700,000 cubic yards for site closure. It is much better to have too much space for site cleanup than not enough. What would happen if the amount of cell space left was not enough for site cleanup?

27. Page 104 says that the applicant needs to show that they have the necessary funds to complete all activities. Previous reviews of the financial surety show it to be $32 million short of a safe level for the State's protection.

28. Page 108 suggests that the long-term stability is controlled at this point in time, however many items indicate that long-term stability will not be effective because of already indicated with the cover test pad, problems with differential settlement, problems with the placement of the waste and other such items. The authors of the SER seems to agree with this by suggesting that they only agree that the site will have long-term stability if all the required criteria discussed above is met, which a review shows they are not being met.

29. Page 110 indicates that it is clear that the financial surety requirements as required under 5.8.9 are currently being met by the applicant. Page 122 states that the Division has concluded that the site of the embankments does not lie within the 100-year flood plain, this is not consistent with other areas in the report that suggest that during flooding that the embankment would have 1 foot of water running past the embankment. It is true that there may not be any surface water normally in the area, but during flood conditions there would be water going past the embankments.

30. On page 124 it suggests that the ground water would not raise more than 13 feet in the next 500 years. This is something would need to be looked at more closely due to changes in the climate over a 500 year time frame.

31. Page 129 discusses contaminants being detected at the applicant's environmental monitoring stations; however it is unclear if at any point that any of the environmental monitoring stations have seen an increase in radioactive contaminants. This would include any wells that have seen elevated levels of radioactivity, any air monitoring stations, soil monitoring stations, or

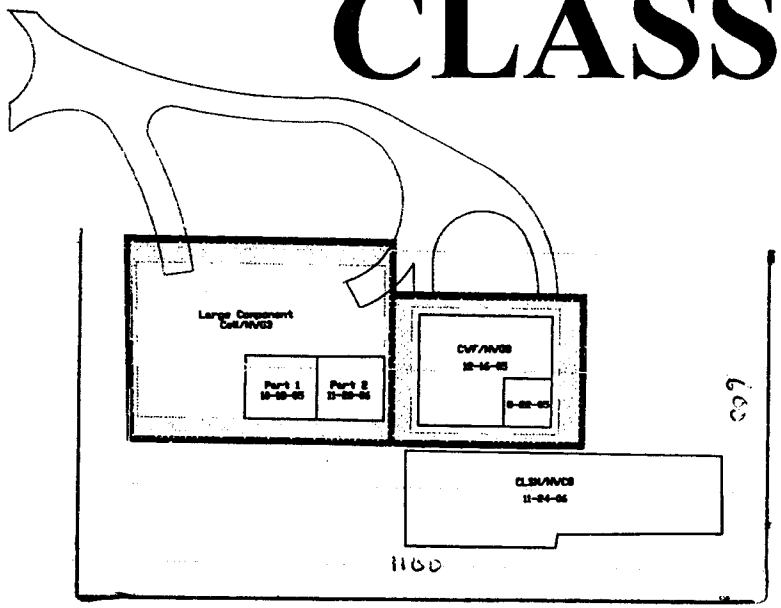
vegetative sampling. Is there a record currently available for the public to see any times when any of these levels have been exceeded the background levels?

32. Page 131 states that another 700,000 cubic yards of staged waste material awaiting final disposal is also accounted for in the surety as stockpile storage on the Class A and Class A North embankments. A review of the 2 sureties, 2006 and 2007, show no reference to 700,000 cubic yards of staged waste. It needs to be clear if Energy*Solutions* was in violation of their surety at any point in time and what the limits are at this point in time.

33. A record should be kept of stored materials on at least a monthly basis so that the State can review and assure that there are not more wastes in storage than are allowed.

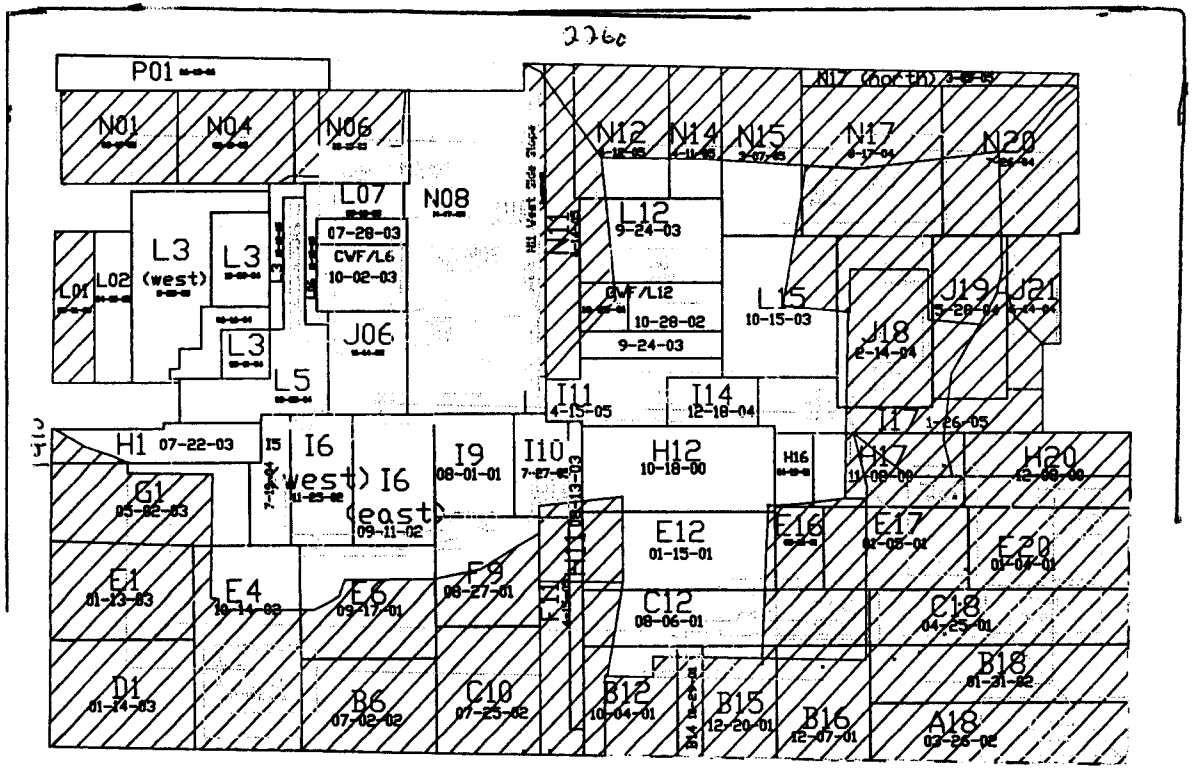
CLASS A

FIGURE A



Waste Limits

——— Limit of Construction



Temporary Cover
1,742,920 sf

150 0 150 300

ENERGYSOLUTIONS

April 6, 2007

Radiation Control Board Members
168 North 1950 West
Salt Lake City, UT 84114-4810

Dane Finerfrock, Director
Division of Radiation Control
168 North 1950 West
P.O. Box 144810
Salt Lake City, UT 84114-4810

RE: Ongoing concerns about Energy Solutions Operations

Dear Mr. Finerfrock and Board Members:

In the past year there have been several major concerns with the operation of the Energy Solutions facility at Clive, Utah. Cedar Mountain has attempted to have these concerns addressed in several different forums and have been turned away each time.

1) First we came to the Board last year about capacity concerns. We were told that the issue was not "ripe" and that we should wait until an amendment was requested by Energy Solutions. We submitted our concerns during public comment of the "supercell" amendment. Now the amendment has been withdrawn and the questions have not been answered.
2) Last year Cedar Mountain raised several concerns about the LARW Surety Agreement in a letter to the Division of Radiation Control. The Divisions response was that they would try to respond to these concerns in their review of the "supercell" amendment. Now the amendment has been withdrawn and the questions have not been answered.
3) In the past week I contacted Mr. Steve Creamer of Energy Solutions in writing to discuss some of some of these concerns. He denied my request to talk with him, stating that a meeting with us would not be beneficial to Energy Solutions, so he did not want to talk.

Since the State of Utah will ultimately end up with ownership of the site I hoped that the Board may be willing to direct us as to how we can get answers to some of our concerns.

I have attached a summary of a couple of concerns so that you can get a flavor of the magnitude of the concerns we are addressing. We believe these are concerns that you may want answers to also. We would appreciate your input on how we could best get these concerns addressed.

Sincerely,

Charles A. Judd
President
Cedar Mountain Environmental

CONCERN # 1

SITE CLOSURE IS COMING FAST

Energy Solutions has provided significant information in it's new SEC filing. One of the company's major risks is the length of time the Clive facility would be open before it would be full to capacity. They claim that the Clive facility is "vital" to their company. The company claims that it should have capacity for 19 more years. Our calculations show that this is only true if the facility brings in less than half the waste each year that it is currently using. At the current rate of LARW acceptance the facility will be full to it's current licensed capacity in about 4 years. Table 1 is a summary of Site Capacity and Profits Until Closure. The table shows the capacity of the different cells at Energy Solutions and the rate at which they will be filled if current volumes are accepted at the facility. The table also shows the estimated income from the years of operation.

One of bits of information that we do know is that they used approximately 400,000 cubic yards of space in their LARW facility in 2006 and have a lot of cubic yards still in storage. See Attachment 1 which is a page from Energy Solutions as-built drawings from 2006. Attachment 2 is two pages from Energy Solution SEC filing which are the Unaudited Pro Forma Income Statement for 2006. During 2006 they claim to have made $34 million in net income. If you credit some for the capital improvements and then round the annual volume used to 450,000 cubic yards then it makes sense to round the net income up to $50 million for every 450,000 cubic yards of waste they dispose.

The company is hoping to expand on it's current LARW license by using the space now licensed for 11e(2) for LARW disposal. Figure 1 is a layout of the site and shows the proposed location of the new cell. Figure 2 shows how the new facility would need to be separated from the existing 11e(2) cell. If they get approval to expand into the new area, they will need to close up the 11e(2) cell and then start a new LARW cell since, all 11e(2) facilities (wastes) are separated from low-level facilities (wastes). If, and that may be a big if, (they have withdrawn their last three attempts to expand after years of review) they get this request for expansion approved it would add five years to the life of the facility at the current waste acceptance rate.

Attachment 3 is page 32 of Energy Solutions SEC filing and shows the Long Term Debt for the company. At the end of 2006, the long term debt was listed at $753 million. Much of this debt was to buy companies in other States and other countries.

Energy Solutions can continue to bring in current rates of LARW and fill up the Clive site in 9 years and make about $450 million or they can bring in half that waste each year and stay open for 19 years and make less than $450 million.

Is the State ready to take over the Energy Solutions Clive site in either 4 years or 9 years? How will any debt be handled at that time? Does it make sense that the $450 million income from the Clive facility be spent out of State? Who should benefit from all of the waste coming to Utah?

TABLE 1 Summary of Site Capacity and Income Until Closure

	(1)Expected Amount Used Annually CY	Volume Remaining CY Class A	Volume Remaining CY Class A North	Volume Remaining New LARW Cell CY	(2) Annual Income Millions
6-Dec	0	933,878	1,705,006	0	
7-Dec	450,000	483,878	1,705,006	0	50
8-Dec	450,000	33,878		0	50
(3) Volume for top lift- debris free	33,878	33,878	1,705,006	0	
9-Dec	450,000	0	1,255,006	0	50
10-Dec	450,000	0	805,006	0	50
11-Sep	375,000	0	430,006	0	37
(4)Cell Space require to clean site	400,000	0	30,006	0	
(5) Volume for top lift- debris free	30,006		0	0	

Current Cell Space will be used by September 2011 - In just over 4 years

(6)If new Cell is developed in current 11e(2) Cell

			2003000	
11-Dec	75000		1928000	13
12-Dec	450000		1478000	50
13-Dec	450000		1028000	50
14-Dec	450000		578000	50
15-Dec	450000		128000	50
16-May	128000		0	15
				465

(7) With New 11e(2) Cell the site will be closed by May of 2016 - In 9 years

NOTES to Table 1

(1) In 2006 Energy Solutions reported filling approximately 400,000 cubic yards of LARW cell space plus left about 15,000 of waste in storage. To place this waste in storage it could take another 25,000 cubic yards of space. With this volume (400,000 +) the company reported $34 million profit for 2006. For this report, the numbers were rounded up to 450,000 cubic yards annually producing $50 million profits annually.

(2) Annual net income from the "Unaudited Pro Forma Income Statement, 2006" show net income of $34 million. Reports indicated that the company spent more in 2006 in capital improvements than normal and the volume accepted was less than 450,000 cubic yards. Therefore, instead of using the reported $34 million, this report bumped the net income number up to $50 million annually.

(3) In the low level cells the top lifts need to be debris free. This makes it so that when a cell is closed, some of the top layers of waste will not be able to be filled with income producing materials. These top layers are basically filled with soil. Energy Solutions has very few large volume soil contracts remaining.

(4) Energy Solutions is required to clean the site upon closure and dispose of the waste in their current cells. Their current closure plan calls for cleaning up all of the buildings, rail etc and putting this debris in the embankment. With the current expansion, the amount of debris generated at closure is increasing dramatically. It is expected that at least 400,000 cubic yards will need to be saved for site closure.

(5) In the low level cells the top lifts need to be debris free. This makes it so that when a cell is closed, some of the top layers of waste will not be able to be filled with income producing materials. These top layers are basically filled with soil. Energy Solutions has very few large volume soil contracts remaining.

(6) There is no current request for a new cell by Energy Solutions. They have indicated that they may want to change the area for 11(e) waste to LARW waste. The companies last three similar requests have been unsuccessful. There are many questions that would need to be answered before such and expansion would be approved.

(7) If the new cell is approved then wastes generated from site closure would be placed in the new cell. This is not shown in this report, since credit for site cleanup was given in the Class A North cell in 2011.

CONCERN #2

Insufficient Closure Funds

Energy Solutions is required to provide enough funds to close the facility at any time to make sure that the State of Utah does not get left with closing the facility without funds to complete the project. The last documented review we could obtain was done in August of 2006. When this review is compared to the recently submitted as built drawings it seems that Energy Solutions has expanded its cells beyond what it has the funds to close.

Energy Solutions currently has 2 LARW cells open as shown in their as-built drawings attached at Figure 3 and 4. Figure 3 shows the area that would need to be covered in the Class A cell and Figure 4 shows the area that would need to be covered if the old B&C cell needed to be closed at this time.

Table 2 is a comparison of the licensed amounts of different line items that Energy Solutions has funds set aside in accordance with their August 2006 Surety Agreement compared to what their as-built drawings now show that they would need to close the facility properly. The list always indicates areas where Energy Solutions may be in violation of their trust agreement limits if our calculations are correct.

Our Concern is that the State may not be properly protected under the current funding of the Energy Solutions Surety Agreement and that Energy Solution may have many violations of their current license requirements. A detailed review needs to be done of the surety and violations need to be given if Energy Solutions has exceeded their limits in these areas. The amount for erosion barrier needs to be addressed to cover the costs to haul rock in from the Salt Lake valley.

TABLE 2 - COMPARISON OF SURETY AND AS BUILTS

	Units	Amount Allowed Under 2006 Surety	Amount Now Shown on 2006 As Builts	Possible Violation
Square feet of Cover	square feet	3650000	4250000	Yes
10-8 Radon Barrier	cubic yards	135186	157408	Yes
10-6 Radon Barrier	cubic yards	135186	157408	Yes
Erosion Barrier	cubic yards	202778	236112	Yes
Sacrificial Soil	Cubic yards	135186	157408	Yes
Filter Zone	Cubic yards	135186	157408	Yes
Road	cubic yards	9692	8000	No
Drainage	cubic yards	13158	12000	No
Fence	feet	2290	9000	Yes

NOTE: Energy Solutions would need over 700,000 cubic yards of rock material to produce this much erosion barrier. They only have a permit for 50,000 CY. Other pits are many miles away and the cost to haul this material may be many millions more than is in the current surety.

CONCERN #3

Settlement Causing Failure in 10-8 Radon Barrier

Energy Solutions new cover design calls for only 1 foot of 10-8 radon barrier. If the radon barrier cracks or fails then radon gas is likely to escape into the atmosphere. The way in which Energy Solutions has constructed their Class A cell invites large amounts of differential settlement.

Figure 5 shows two cross sections of the Class A Cell. The areas marked A are areas where wastes have been placed for many years (some wastes have been placed there for 6 years). In these areas the initial settlement has already occurred. This initial settlement is estimated to be 1 to 2 feet. In Area B there currently is no waste but waste will be placed there in the next year or so.

If the 1 foot barrier is placed soon after the Area B waste is placed then the initial settlement in Area B will occur after the radon is placed. This one to two foot settlement could easily damage the 1 foot radon barrier. This engineering concern needs to be studied and it may be necessary to require a 2-3 year "settlement period" before radon barrier can be constructed over recently placed wastes.

This issue needs to be decided quickly because the "Open Cell" requirements only allow a cell to be open 12 years before it is completely closed. The Class A cell began taking wastes in 2000 and would need to be completely closed by 2012. Cover construction would take at least 1 year and if you needed three years of settlement time then wastes should only be placed in the Class A cell for one more year.

Concern #4

Will History Repeat Itself?

The State of Utah is in a situation where it needs to learn from past experiences.

In May, 1979 the Utah Board of Oil Gas and Mining authorized Atlas to use a reclamation contract with the State of Utah,- a general corporate obligation, in lieu of a bond to assure the stabilization of the Atlas uranium tailing pond outside Moab, Utah.[1] Estimates of the magnitude of the Atlas tailings range from 10.5 million to 13 million tons. In 1984 Atlas Corporation shut the mill down and began negotiating with the NRC about site cleanup. The State of Utah estimated clean up costs of $77 million but there were remaining unsolved water contamination problems. When it became clear that cleanup might be as much as$250-300 million, Atlas filed for bankruptcy, leaving a $5.25 million reclamation bond. NRC had no funds for clean up. PricewaterhouseCoopers was appointed trustee and attempted to stabilize the pile until a permanent solution could be found. The ultimate solution includes a 10 year tailings removal project costing $320 million and treatment of groundwater contamination for 75 years, costing $70 million.[2]

In either 2011 or 2016 Energy Solutions will have over 13 million tons of waste at the Clive facility. The site will be full and it will be time to clean up and close the site. There will be no more money to be made from the site. They will be ready to turn the site over to the State of Utah. There are significant differences between Atlas and EnergySolutions. There is no river adjacent to EnergySolutions, but the nearby exposed population is much larger. There are significant similarities – the size of the waste pile, the fact that EnergySolutions bond is inadequate to cover costs, and the fact that EnergySolutions public statements in its IPO filing indicates that EnergySolutions will not have income to cover the remediation costs.

Is the State of Utah ready to take over the Clive site; clean up the site and take all responsibilities for the site into the future? It will be no easy task and there are huge consequences.

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[1] "In the Matter of Atlas Oil and Mining Company," ACT/19/003. Utah Board of Oil, Gas and Mining. May 23, 1979.

[2] http://www.grandcanyontrust.org/programs/landscapes/atlas-cleanup.php