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Decision Plan for West Valley High-Level Waste Tank Lay-Up

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June, 2002

*Jacobs Engineering Group, Inc.

Prepared for the U.S. Department of Energy
under Contract DE-AC06-76RL01830

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May 25, 2001

Prepared for
Tanks Focus Area and
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Jacobs Engineering Group, Inc., and
Pacific Northwest National Laboratory
Richland, Washington 99352

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TABLES

1.0 INTRODUCTION

This report documents completion of Milestone A.3-1, "Issue Decision Plan for WVDP Tank Lay-Up," in Technical Task Plan RL30WT21A, "Post-Retrieval and Pre-Closure HLW Tank Lay-Up." This task is a collaborative effort among Pacific Northwest National Laboratory, Jacobs Engineering Group Inc., and West Valley Nuclear Services. The primary objective of the overall task is to develop and evaluate conceptual strategies for preclosure lay-up of the two large high-level waste storage tanks at the West Valley Demonstration Project.

Functions and requirements for tank lay-up were developed and previously documented in *Functions and Requirements for WVDP Lay-Up* (Henderson 2001a [Letter Report #1]). These functions and requirements served as the basis for criteria to evaluate potential lay-up options documented in *West Valley High-Level Waste Tank Lay-Up Strategies* (Henderson 2001b [Letter Report #2]).

2.0 OBJECTIVES

This report has two objectives:

- Present a methodology for selecting a preferred strategy for West Valley Demonstration Project tank lay-up.

- Present the results of an example application of the methodology including a sensitivity analysis.

3.0 EVALUATION CRITERIA FOR SELECTION OF PREFERRED OPTION

The following selection criteria were previously developed for evaluating options for tank lay-up (Letter Report #1). Two criteria were expanded into subcriteria for the scoring methodology.

- **Comply with regulations and permit requirements** – All regulations and permit requirements must be complied with during the lay-up period.

- **Prevent release of tank contents to the groundwater** – There shall be no release of radioactive or hazardous materials to the groundwater. This is a consideration during any preparatory activities and during the lay-up period.

- **Ensure acceptable risk to workers and the public**

    - Short-Term Risk: The risks associated with the installation of any new equipment required for the selected option must be as low as reasonably achievable.

    - Long-Term Risk: The selected option should result in a reduced risk to workers and the public during the lay-up period.

- **Maintain integrity of the tanks** – The ability of the tanks to continue to contain the waste residual must be maintained. Corrosion of the tanks must be controlled, and the structural integrity of the tanks must be ensured.

- **Establish a safe operating envelope during temporary lay-up** – The operational requirements during the lay-up period must continue to be within safe limits, but reduced monitoring and surveillance should be considered in evaluating options.

- **Control costs**

  - Capital costs of new equipment or modifications to existing systems.
  - Routine operating costs during the lay-up period.

- **Utilize accepted methods and technologies** – The preferred option should be based on proven construction methods and demonstrated technologies.

- **Avoid production of secondary wastes during construction and operation** – Options that may produce secondary wastes, especially radioactive wastes that will require further treatment and disposal, should be generally avoided.

- **Preserve future options for decontamination and final closure** – The selected lay-up option must maintain the ability to sample the waste, perform additional waste removal, and complete additional decontamination of the tanks if necessary. Also, the lay-up option selected must not preclude candidate final closure options, such as in-place stabilization or complete tank removal.

- **Gain acceptance for lay-up** – The selected option must be acceptable to stakeholders. Any changes to permits or other requirements must be acceptable to regulatory agencies.

- **Reduce monitoring and surveillance** – Reductions in monitoring and surveillance, consistent with requirements, is desired.

4.0 ALTERNATIVE LAY-UP STRATEGIES

Several alternative actions were identified to provide for continued safe storage of the residual waste in the tanks prior to final closure (Letter Report #2). The lay-up strategy selected must provide for placing the tanks in a safe, stable, and minimum maintenance mode that does not compromise final closure options.

4.1 CURRENT SYSTEM

The historical methods of corrosion control have been to periodically remove water from the containment pan, control the pH and nitrite/nitrate ratio of the liquid inside the tanks, and maintain a nitrogen purge inside the vaults. The corrosion rate of the tank internals is believed to be controlled in the range of 0.013 to 0.025 mm/yr (0.5 to 1.0 mpy[1]) (Chang et al. 1999). However, pH and nitrate limits have not been rigorously maintained since waste retrieval operations began, decreasing the level of the confidence of corrosion control.

[1]Note: mpy = mils per year; a mil is 1/1000 of an inch.

Pumps are currently used to remove water from outside and inside the tank vaults. However, there will continue to be a concern that corrosion to the external surfaces of the tanks could eventually result in penetrations during the lay-up period. Corrosion of the external tank walls is primarily from the wet conditions inside the vaults. General corrosion rates determined from corrosion coupons are generally less than 3 mpy and the highest measured rate is 0.188 mm/yr (7.4 mpy) (Chang et al. 1999). The external pitting corrosion rate has been estimated at up to 0.3 ± 0.075 mm/yr (12 ± 3 mpy) (Chang et al. 1998). If this rate has been experienced since the tanks were built, there may be little remaining corrosion allowance at locations prone to pitting.

The nitrogen inerting system has been in operation since August 1996. The oxygen concentration in the vault exhaust gas has been maintained at about 13.5% to 15.5% (oxygen concentration in air is 21%) even though the system was originally designed to maintain the oxygen concentration below 0.99% (WVNS-DC-065). Assuming an even distribution of nitrogen in the vaults, use of the system has resulted in an estimated decrease in the external corrosion rate of tank 8D-1 by about 33% (Chang et al. 1999). The nitrogen inerting system also reduces the concentration of other impurities in the gas surrounding the tanks, such as sulfur dioxide, that can also accelerate corrosion.

4.2 CATHODIC PROTECTION FOR EXTERNAL TANK SURFACES

Addition of cathodic protection to the tanks has been assessed. One alternative method for cathodic protection identified is to use the containment pan as the sacrificial anode. The tank 8D-2 containment pan is known to have a hole in it, so use as a sacrificial anode would be reasonable since its original purpose is already compromised. There are several technical and engineering issues that must be resolved before this option could be selected. These include (1) galvanic corrosion on the bottom of the tank; (2) runaway voltage with the impressed current system; (3) protection of welds; and (4) assurance that no electrical shorts are present (e.g., pan pump, dip tubes) (Chang et al. 1999).

4.3 VAULT DRYING SYSTEM

General textbook corrosion rates of carbon steel in water are generally 0.075 to 0.20 mm/yr (3 to 8 mpy) and pitting corrosion rates are generally 2.5 to 3.5 times the general corrosion rate. External tank corrosion could be virtually eliminated if the tank surfaces were kept dry. The criterion would be to maintain the relative humidity below 30% in the air surrounding the tanks (Chang et al. 1998). The drying system would include a dehumidifier and heater for air forced into the vaults. The exhaust air leaving the vaults would pass through high-efficiency particulate air filters.

4.4 VAULT AND TANK DRYING

An additional enhancement to also reduce corrosion inside the tanks is to install drying systems both inside the vaults and inside the tanks. Drying the inside of the tanks could result in contamination of the exhaust air by particles of dried solids in the tanks being suspended by the airflow through the tanks. However, once all the liquid inside the tanks was evaporated, only a very low flow of heated, dehumidified air would be required to maintain low humidity inside the

tanks. Keeping the tank internals the same temperature as the external surfaces would also prevent condensation of water on the tanks' external walls.

4.5 NITROGEN BLANKET

The current nitrogen inerting system has not been effective in maintaining the desired concentration of oxygen in the vault below 0.9% as specified in the design criteria (WVNS-DC-065). Sealing the vault as well as possible and then adding additional amounts of cold nitrogen to displace air from the vault should result in a more effective blanket and lower oxygen concentrations.

4.6 NITROGEN BLANKET WITH OXYGEN REMOVAL

Oxygen removal from the gas surrounding the tanks to a low level (the original design criterion for the nitrogen purge was less than 0.9% oxygen) may provide adequate protection without additional measures taken to keep the vaults dry. An efficient nitrogen blanket (recirculating system) would also be required for this option. Recirculated blanket gas could be passed through a device to remove oxygen. Such a system would be efficient only if air in-leakage is significantly reduced.

4.7 ARGON OR OTHER HIGH DENSITY INERT GAS INSTEAD OF NITROGEN

This is an enhancement of using argon instead of nitrogen to improve the displacement of oxygen and other corrosion-inducing gases from the vaults because argon is heavier than air. Proper use of an argon blanket should not require additional capability for oxygen removal. This option has been considered in the past, as early as 1997 (Meess and Chang 1997).

4.8 ARGON BLANKET WITH CATHODIC PROTECTION

This is an enhancement of using argon instead of nitrogen to improve the displacement of oxygen and other corrosion-inducing gases from the vaults in combination with cathodic protection for additional assurance of corrosion control.

4.9 INTERCEPTOR TRENCH/DRYING

One of the primary methods of preventing or significantly reducing corrosion on the outside of the tanks is to maintain very low humidity in the vaults. In order to do this, the ingress of water into the vaults must be prevented. The principal source of water into the vaults appears to be from percolation of rainwater and snowmelt through the soil layer above the vaults and groundwater flow in the soil/sand layer above the compacted clay layer. One method to significantly reduce this infiltration is to divert runoff and groundwater flow. This could be accomplished by installing an interceptor trench down to the compacted clay layer upgradient of the tanks. This trench would be filled with coarse gravel and perforated pipe would be installed at the bottom of the trench to collect and remove excess water. The trench would be connected to a culvert to carry water to an appropriate location downgradient from the tanks and vaults. This would be a totally passive system. Pumping of water from the vaults and the well between the vaults could be eliminated or significantly reduced.

4.10 TRENCH/INFILTRATION BARRIER/DRYING

To increase the effectiveness of a trench, a domed clay cap, roof or some other cover barrier could be added above the vaults to divert rainwater and snowmelt to the trench rather than infiltrating through the soil to the vaults.

A principal source of water ingress into the tank vaults appears to be from infiltration from above the vaults. A cover to divert rainwater away from the area would be effective in preventing this water from entering the vaults. This barrier could be a clay cap, a membrane, a roof or some other cover. Installation of a barrier above the vaults is complicated by the superstructure that was installed to support the mobilization pumps and penetrations into the soil above the tanks and vaults.

4.11 INFILTRATION BARRIER/DRYING/ENHANCED PUMPING

To ensure that water will not infiltrate into the vaults from groundwater around and below the vaults, the capability to pump water from the gravel bed below the vaults could be maintained or enhanced. Water is currently pumped from a well between the vaults, but the water table is not pumped to below the bottom of the vaults. The hydrology is not known well enough to determine the volume of water that would need to be pumped to maintain the water table below the level of the vaults. More frequent operation of the current system or additional wells and pumps may be needed. Elimination of surface water infiltration and possibly also a reduction in groundwater flow (as described in the preceding sections) may be necessary for this option to be effective.

If the combination of a trench, infiltration barrier and drying system was not effective, then additional pumping of water from inside and below the vaults could be instituted. The need for additional pumping is unlikely.

4.12 GROUNDWATER BARRIER/DRYING

A solid barrier to groundwater flow could be installed if more positive exclusion of groundwater from the vaults is needed. This barrier could be a solid grout wall, a frozen soil barrier, or a viscous liquid barrier.

A barrier around the vaults may be a more positive means to preclude water intrusion than would an interceptor trench. However this would be a much more costly approach and may not be necessary. Also, ponding (perched water) could accumulate behind the barrier.

4.13 INFILTRATION BARRIER/DRYING

A barrier above the tanks would be very effective in preventing water intrusion into the vaults. The combination of a barrier above the vaults and a drying system (no interceptor trench or barrier) may be adequate for keeping the vault humidity within an acceptable level. This is dependent on the amount of water that could infiltrate the vaults from groundwater flow alone, which appears to be quite small.

4.14 CORROSION INHIBITORS IN THE WATER OUTSIDE THE TANKS

Adding corrosion inhibitors to water in the containment pans may reduce the corrosion on the outer walls below the liquid level. Corrosion inhibitors would not be effective for reducing corrosion in the high humidity vapor space above the liquid level.

4.15 SORBENTS IN ANNULUS

An ion exchange and/or sorbent material could be added to the secondary containment pan and/or the vault to capture the radioactive species before they could migrate outside the vault. Additional information would be required to determine if a combination of materials could be selected which would be effective for all the species of concern.

4.16 SORBENTS WITH CATHODIC PROTECTION

This would be a relatively low cost option of adding a cathodic protection system and also sorbents for added protection in the unlikely event of a leak. However, reliable corrosion control with cathodic protection alone is uncertain.

4.17 LOW STRENGTH GROUT

The objective of this option is to provide a method for temporarily fixing the residual waste in the tank. Nearly all the residual liquid would have to be removed before the grout was added. A low strength grout would be necessary so that it could be removed in the future if final closure requires additional decontamination of the tanks or complete removal of the tanks. Adequate mixing of the grout with the residual waste has not been demonstrated.

4.18 LOW STRENGTH GROUT/DRYING

This would be the combination of adding a low strength grout and a drying system for the tanks and vaults. The drying system would be very effective in reducing corrosion and the grout would stabilize the radionuclides and reduce or possibly prevent leakage even if a penetration in the tank wall developed.

4.19 CONTAMINATION FIXATIVE

Another option for temporary stabilization of the residual material in the tank would be to spray a coating to prevent any suspension of contamination. This option could be used in combination with the option to keep the inside of the tanks dry to prevent corrosion or to reduce contaminated solids suspension if the tank contents are allowed to dry during the lay-up period. In fact, the tank contents would first have to be dry before a fixative could be applied. The drying system would reduce corrosion and the fixative would stabilize the radionuclides and prevent dispersion into the off-gas system.

4.20 MONITORS

Radiation and/or contamination monitors in the tanks or vaults would indicate changes in conditions and possible leaks. There are several monitors on the market that could be installed to

give early warning of a tank failure. A gamma monitor would need to be shielded from the background radiation inside the tank, or an alpha and/or beta monitor could be used.

Continuous corrosion monitors could also be installed in the tanks and vaults. These monitors would provide an indication of accelerated corrosion due to unexpected changes.

Depending on the composition of waste in the West Valley Demonstration Project carbon-steel tanks, the tanks may be susceptible to nitrate ion-induced stress corrosion cracking. Monitoring and maintaining adequate nitrite/nitrate ratio and hydroxide ion levels prevents this degradation. Sensors that could monitor all three species could reduce the costs of current baseline sampling and laboratory analysis methods and could minimize the addition of corrosion inhibitor solution. Savannah River Site personnel are currently evaluating a Raman spectroscopy-based method for in situ analysis of OH^-, NO_2^-, and NO_3^-.

4.21 WASTE REMOVAL

Very aggressive decontamination could be employed prior to temporary tank lay-up. Removal of all but a very small amount of residual contamination may preclude the need for any further action prior to final closure. This option might have a lower lay-up cost than other options that require continued operation of equipment (such as the nitrogen purge system) and surveillance. However, the criteria for what constitutes adequate decontamination are not established and any residual contamination could present a risk to the environment.

Table 1 is a summary of the lay-up strategies considered for the West Valley Demonstration Project tanks.

5.0 UNCERTAINTY OF STRATEGIES

Several of the strategies for temporary lay-up of the tanks have been previously proposed and partially assessed. Other options have only recently been proposed. The effectiveness and acceptability of several of the options are not fully developed. The principal information needs identified to reduce the uncertainties are listed below.

- A better estimate of the remaining corrosion allowance for the tanks.
- An estimate of the maximum rate of surface runoff from rain and/or snowmelt to establish the size of an interceptor trench in order to determine a cost estimate for that option. Are there existing storm sewers or other drainage systems?
- Data and analysis to establish if pumping from below the vaults alone would reduce groundwater infiltration into the vaults to a rate low enough for a drying system to be effective.
- Determination of whether maintaining a liquid inventory inside the tanks with continued chemistry adjustments is adequate to control internal corrosion.

Table 1. Alternative Strategies for West Valley Demonstration Project Tank Lay-Up

Strategy	Dry or Wet Option	Nitrogen Inerting	pH Control	Cathodic Protection	Vault Drying	Tank Drying	Nitrogen Blanket	Ar Inerting	Oxygen Removal	Intercep-tor Trench	Ground-water Barrier	Infiltra-tion Barrier	Enhanced Pumping	Corrosion Inhibitors	Sorbents in Annulus	Low Strength Grout	Contami-nation Fixative	Corrosion Monitors	Radiation/Contami-nation Monitors	Complete Waste Removal
Current System	Wet	X	X																	
Cathodic Protection	Wet	X	X	X																
Vault Drying	Dry		X		X															
Vault & Tank Drying	Dry				X	X														
Nitrogen Blanket	Wet		X				X													
Nitrogen Blanket w/Oxygen Removal	Wet		X				X		X											
Argon Blanket	Wet		X					X												
Argon Blanket w/Cathodic Protection	Wet		X	X				X												
Interceptor Trench/Drying	Dry		X		X					X										
Trench/Infiltration Barrier/Drying	Dry		X		X					X		X								
Trench/Infiltration Barrier/Drying/Enhanced Pumping	Dry		X		X					X		X	X							
Groundwater Barrier/Drying	Dry		X		X						X									
Infiltration Barrier/Drying	Dry		X		X							X								
Corrosion Inhibitors in Vault	Wet	X	X											X						
Sorbents in Annulus	Wet	X	X												X					
Sorbents with Cathodic Protection	Wet	X	X	X											X					
Low Strength Grout	Wet	X														X				
Low Strength Grout/Drying	Dry				X	X										X				
Contamination Fixative/Drying	Dry				X	X											X			
Monitors	Wet		X															X	X	
Waste Removal	Wet																			X

- Determination of whether effective control of the oxygen concentration in the gas in the annuli alone can control external corrosion within an acceptable rate. If so, is an oxygen removal system needed or will a better inert gas system suffice?

- Determine if a system to maintain the vaults and all external surfaces of the tanks in a dry condition is necessary to ensure an acceptable corrosion rate. The primary concern is keeping the bottoms of the tanks dry.

- Determine if a tank wall penetration must be prevented during lay-up or if small penetrations that would not result in releases outside the tanks or vaults would be acceptable.

- Resolution of the technical and engineering issues related to cathodic protection.

- Determination of the acceptability of using argon rather than nitrogen due to the higher cost and safety concerns.

- Determination of whether the pumps in the catch pans need to be relocated to be at the lowest point.

- Determine if sorbent material(s) could capture all leaking radionuclides of concern.

- Estimates of the expected life of potential groundwater barrier systems.

- A more detailed assessment of adding and maintaining corrosion inhibitors in the water in the vault.

- Feasibility of decontamination prior to lay-up precluding the need for any further preparation for lay-up.

- Updates to existing preliminary cost estimates and new preliminary cost estimates for several options, including:

    - Installation of an interceptor trench or an underground barrier
    - Installation of an infiltration barrier
    - Addition of a roof above the vaults and tanks
    - Installation and operation of an oxygen removal system
    - Continuous corrosion monitoring of tanks' external surfaces.

6.0 DECISION PLAN METHODOLOGY

A methodology for ranking the strategies was developed. The methodology consists of scoring each strategy with each of the selection criteria. The scoring matrix is shown as Table 2.

A team was selected with a broad range of experience to provide scores on the matrix which were used to demonstrate the methodology. These sample scores provided a starting point for demonstrating the methodology. The ranking of strategies resulting from these scores are reported only to demonstrate the methodology and are not intended as a recommendation of preferred strategies. This methodology can be used by West Valley Nuclear Services and the U.S. Department of Energy to determine the preferred path forward.

Table 2. Team Scoring Sheet (2 Sheets)

Evaluation Criteria------>	Compliance with Regulations and Permits	Prevent Release of Contents	Acceptable Risk (Short Term)	Acceptable Risk (Long Term)	Maintain Tank Integrity	Safe Operating Envelope	Capital Cost	Operating Cost	Proven Methods and Technologies	Minimize Secondary Waste	Preserve Closure Options	Regulatory and Stakeholder Acceptance	Reduced Monitoring and Surveillance	Certainty of Strategy	
Weighting Factor (1-5) --->															
STRATEGY															**SCORE**
Maximum Score	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	
Current System															
Cathodic Protection															
Vault Drying															
Vault & Tank Drying															
Nitrogen Blanket															
Nitrogen Blanket w/Oxygen Removal															
Argon Blanket															
Argon Blanket w/Cathodic Protection															
Interceptor Trench/Drying															
Trench/Infiltration Barrier/Drying															
Trench/Infiltration Barrier/ Drying/Enhanced Pumping															
Groundwater Barrier/Drying															
Infiltration															

Table 2. Team Scoring Sheet (2 Sheets)

Evaluation Criteria------>	Compliance with Regulations and Permits	Prevent Release of Contents	Acceptable Risk (Short Term)	Acceptable Risk (Long Term)	Maintain Tank Integrity	Safe Operating Envelope	Capital Cost	Operating Cost	Proven Methods and Technologies	Minimize Secondary Waste	Preserve Closure Options	Regulatory and Stakeholder Acceptance	Reduced Monitoring and Surveillance	Certainty of Strategy	
Weighting Factor (1-5) --->															
STRATEGY															**SCORE**
Maximum Score	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	
Barrier/Drying															
Corrosion Inhibitors in Vault															
Sorbents in Annulus															
Sorbents with Cathodic Protection															
Low Strength Grout															
Low Strength Grout/Drying															
Contamination Fixative/Drying															
Monitors															
Waste Removal															

The scoring team consisted of three personnel from the Richland Jacobs Engineering Office, three from the Denver Jacobs Engineering Office and three from PNNL. The disciplines represented were: (1) Chemist, (2) Chemical Engineer, (3) Civil Engineer, (4) Environmental Engineer, (5) Corrosion Engineer, (6) Hydrogeologist, (7) Mechanical Engineer, and (8) Regulatory Specialist (two). The scores provided by each team member are in the Attachment.

6.1 TEAM SCORES

The individual team rankings resulting from the scoring sheets are shown in Table 3. Team member B did not provide weighting factors, so the averages of the weighting factor scores from the other team members were used to determine scores for team member B. There are some interesting results from the individual scoring sheets. Note that team member A scored the grout options last, while team members F and G ranked them first. This may demonstrate a lack of understanding of this option by one or more of the team members. Scoring was completed on an individual basis and compiled for this report without a meeting to develop consensus for the weighting factors or scores. When the actual ranking of strategies is done, a meeting of all parties should be convened to discuss the scores and rankings and resolve such differences. The ranking from the raw scores and sensitivity analysis should merely serve as the starting point for the discussion.

The results shown in Table 3 indicate that the team members favored the strategy of using an interceptor trench, infiltration barrier and vault drying. This may be a result of this strategy being one of the more extensive in terms of the number of actions taken to prevent water from entering the vaults. The addition of enhancement pumping to these three actions also scored high. The options of using grout to stabilize the tank contents also scored well. The waste removal option also scored in the top five.

A combined ranking of the strategies from the team member rankings is shown in Table 4. The combined ranking is based on assigning a score of 5 to each #1 ranking, a score of 4 to each #2 ranking, etc. down to a score of 1 for each #5 ranking. Table 4 shows that the strategy of installing an interceptor trench in combination with an infiltration barrier and vault drying is clearly preferred. There is very little difference in the scores for the strategies ranked second through fifth. There are a number of strategies that ranked low indicating that there was little confidence by any of the team members that the strategies as described would meet the tank lay-up goals. The bottom 1/3 of the strategies could be eliminated from further consideration or the strategies could be reconfigured to combine elements into a strategy or strategies oriented at meeting the tank lay-up goals.

The scores provided by the team for weighting factors for each criterion are shown in Table 5. Table 5 also shows the variation in scores (range) and a calculated average (mean) and median for each criterion. There was a very wide disparity in several of the weighting factors. The range for some was from 1 to 5. Again, this is something that should be discussed by team members to understand the basis for the differences. The criterion that scored highest was Prevent Release of Tank Contents. Other criteria that scored high were:

- Acceptable Long Term Risk

- Maintain Tank Integrity
- Acceptable Short Term Risk
- Safe Operating Envelope
- Preserve Closure Options.

Table 3. Team Member Rankings (2 Sheets)

A	B	C	D	E	F	G	H	I
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	Waste Removal	Waste Removal	Trench/Infiltration Barrier/ Drying/Enhanced Pumping	Interceptor Trench/Drying	Low Strength Grout/Drying	Low Strength Grout/Drying	Trench/Infiltration Barrier/Drying	Interceptor Trench/Drying
Trench/Infiltration Barrier/Drying	Vault Drying	Trench/Infiltration Barrier/Drying	Low Strength Grout/Drying	Trench/Infiltration Barrier/Drying	Low Strength Grout	Low Strength Grout	Trench/Infiltration Barrier/ Drying/Enhanced Pumping	Contamination Fixative/Drying
Groundwater Barrier/Drying	Vault & Tank Drying	Low Strength Grout	Current System	Nitrogen Blanket	Contamination Fixative/Drying	Vault & Tank Drying	Vault & Tank Drying	Vault Drying
Infiltration Barrier/Drying	Trench/Infiltration Barrier/Drying	Corrosion Inhibitors in Vault	Low Strength Grout	Sorbents in Annulus	Monitors	Waste Removal	Waste Removal	Trench/Infiltration Barrier/Drying
Vault & Tank Drying	Trench/Infiltration Barrier/ Drying/Enhanced Pumping	Cathodic Protection	Waste Removal	Low Strength Grout	Groundwater Barrier/Drying	Current System	Low Strength Grout/Drying	Infiltration Barrier/Drying
Interceptor Trench/Drying	Sorbents with Cathodic Protection	Current System	Trench/Infiltration Barrier/Drying	Infiltration Barrier/Drying	Interceptor Trench/Drying	Infiltration Barrier/Drying	Interceptor Trench/Drying	Vault & Tank Drying
Corrosion Inhibitors in Vault	Sorbents in Annulus	Low Strength Grout/Drying	Infiltration Barrier/Drying	Monitors	Trench/Infiltration Barrier/Drying	Trench/Infiltration Barrier/Drying	Infiltration Barrier/Drying	Trench/Infiltration Barrier/ Drying/Enhanced Pumping
Nitrogen Blanket w/Oxygen Removal	Nitrogen Blanket w/Oxygen Removal	Vault & Tank Drying	Vault Drying	Current System	Sorbents with Cathodic Protection	Argon Blanket w/Cathodic Protection	Vault Drying	Waste Removal
Argon Blanket w/Cathodic Protection	Nitrogen Blanket	Sorbents in Annulus	Groundwater Barrier/Drying	Low Strength Grout/Drying	Argon Blanket w/Cathodic Protection	Trench/Infiltration Barrier/ Drying/Enhanced Pumping	Groundwater Barrier/Drying	Corrosion Inhibitors in Vault
Cathodic Protection	Monitors	Vault Drying	Vault & Tank Drying	Argon Blanket	Trench/Infiltration Barrier/ Drying/Enhanced Pumping	Contamination Fixative/Drying	Contamination Fixative/Drying	Groundwater Barrier/Drying
Sorbents in Annulus	Low Strength Grout/Drying	Nitrogen Blanket	Corrosion Inhibitors in Vault	Sorbents with Cathodic Protection	Current System	Cathodic Protection	Nitrogen Blanket w/Oxygen Removal	Low Strength Grout/Drying
Vault Drying	Low Strength Grout	Argon Blanket	Argon Blanket w/Cathodic Protection	Nitrogen Blanket w/Oxygen Removal	Nitrogen Blanket w/Oxygen Removal	Vault Drying	Nitrogen Blanket	Current System

Table 3. Team Member Rankings (2 Sheets)

A	B	C	D	E	F	G	H	I
Sorbents with Cathodic Protection	Interceptor Trench/Drying	Argon Blanket w/Cathodic Protection	Interceptor Trench/Drying	Trench/Infiltration Barrier/ Drying/Enhanced Pumping	Vault Drying	Sorbents with Cathodic Protection	Low Strength Grout	Low Strength Grout
Monitors	Infiltration Barrier/Drying	Sorbents with Cathodic Protection	Contamination Fixative/Drying	Corrosion Inhibitors in Vault	Waste Removal	Monitors	Corrosion Inhibitors in Vault	Nitrogen Blanket w/Oxygen Removal
Current System	Groundwater Barrier/Drying	Nitrogen Blanket w/Oxygen Removal	Nitrogen Blanket	Waste Removal	Argon Blanket	Nitrogen Blanket w/Oxygen Removal	Current System	Nitrogen Blanket
Argon Blanket	Current System	Infiltration Barrier/Drying	Cathodic Protection	Cathodic Protection	Vault & Tank Drying	Groundwater Barrier/Drying	Cathodic Protection	Monitors
Nitrogen Blanket	Corrosion Inhibitors in Vault	Trench/Infiltration Barrier/ Drying/Enhanced Pumping	Argon Blanket	Vault & Tank Drying	Nitrogen Blanket	Corrosion Inhibitors in Vault	Argon Blanket	Cathodic Protection
Contamination Fixative/Drying	Contamination Fixative/Drying	Contamination Fixative/Drying	Nitrogen Blanket w/Oxygen Removal	Groundwater Barrier/Drying	Infiltration Barrier/Drying	Sorbents in Annulus	Sorbents with Cathodic Protection	Sorbents with Cathodic Protection
Waste Removal	Cathodic Protection	Monitors	Sorbents with Cathodic Protection	Vault Drying	Sorbents in Annulus	Interceptor Trench/Drying	Monitors	Sorbents in Annulus
Low Strength Grout/Drying	Argon Blanket w/Cathodic Protection	Interceptor Trench/Drying	Monitors	Argon Blanket w/Cathodic Protection	Cathodic Protection	Argon Blanket	Argon Blanket w/Cathodic Protection	Argon Blanket
Low Strength Grout	Argon Blanket	Groundwater Barrier/Drying	Sorbents in Annulus	Contamination Fixative/Drying	Corrosion Inhibitors in Vault	Nitrogen Blanket	Sorbents in Annulus	Argon Blanket w/Cathodic Protection

Table 4. Combined Rankings of Team Members

Sorted by Rankings Score	Ranked #1	Ranked #2	Ranked #3	Ranked #4	Ranked #5	Rankings Score
Trench/Infiltration Barrier/Drying	1	3	2	0	0	23
Trench/Infiltration Barrier/Drying/ Enhanced Pumping	2	1	0	1	0	16
Low Strength Grout/Drying	2	1	0	0	1	15
Waste Removal	2	0	0	2	1	15
Low Strength Grout	0	2	1	1	1	14
Interceptor Trench/Drying	2	0	0	0	0	10
Vault & Tank Drying	0	0	3	0	1	10
Contamination Fixative/Drying	0	1	1	0	0	7
Vault Drying	0	1	1	0	0	7
Current System	0	0	1	0	1	4
Groundwater Barrier/Drying	0	0	1	0	1	4
Infiltration Barrier/Drying	0	0	0	1	1	3
Nitrogen Blanket	0	0	1	0	0	3
Corrosion Inhibitors in Vault	0	0	0	1	0	2
Monitors	0	0	0	1	0	2
Sorbents in Annulus	0	0	0	1	0	2
Cathodic Protection	0	0	0	0	1	1
Argon Blanket						0
Argon Blanket w/Cathodic Protection						0
Nitrogen Blanket w/Oxygen Removal						0
Sorbents with Cathodic Protection						0

Table 5. Weighting Factor Averages

Evaluation Criteria---->	Compliance with Regulations and Permits	Prevent Release of Contents	Acceptable Risk (Short Term)	Acceptable Risk (Long Term)	Maintain Tank Integrity	Safe Operating Envelope	Capital Cost	Operating Cost	Proven Methods and Technologies	Minimize Secondary Waste	Preserve Closure Options	Regulatory and Stakeholder Acceptance	Reduced Monitoring and Surveillance	Certainty of Strategy
Team Member														
B	Did not supply weightings													
C	Did not weight from 1-5													
A	1	5	4	4	5	3	4	3	4	5	4	2	3	4
D	2	3	5	5	4	5	3	3	2	1	4	3	2	5
E	5	5	5	5	4	5	3	3	4	3	4	4	3	4
F	4	5	4	4	4	4	3	3	3	4	4	4	2	3
G	4	5	4	5	3	4	2	3	4	3	4	4	1	4
H	5	5	4	4	5	5	3	2	4	2	5	4	3	4
I	5	5	2	3	5	2	2	4	3	4	3	3	2	2
Mean (Average)	3.7	4.7	4.0	4.3	4.3	4.0	2.9	3.0	3.4	3.1	4.0	3.4	2.3	3.7
Median	4.0	5.0	4.0	4.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0	4.0	2.0	4.0
Range	1-5	3-5	2-5	3-5	3-5	2-5	2-4	2-4	2-4	1-5	3-5	2-4	1-3	2-5

6.2 SENSITIVITY ANALYSIS

6.2.1 Variations in Team Scoring

The average scores for weighting factors were then used for a sensitivity analysis of the scores. The scores resulting from using the average weighting factors and each team member's scores for each strategy are shown in the Attachment (Table A-10). Scores that are particularly higher or lower than other team member scores are noted. The individual scores are light-shaded if that is the only score that is higher than all other scores and dark-shaded if that is the only score lower than all other scores. The total score is light-shaded if it is more than 20 points higher than the next lower score and is dark-shaded if it is more than 20 points lower than the next lowest score.

The high and low scores in Table A-10 were then adjusted to determine the effect on the rankings. The high scores (light) were adjusted to be equal to the next lowest score and the low scores (dark) were adjusted to be equal to the next highest score. The adjusted scores are shown in Table A-11.

The differences in average scores are shown in Table 6. The differences are small as would be expected due to the fairly large number of team members (nine).

A comparison in the rankings of the strategies using the averages of unadjusted scores and by adjusting the high and low scores is shown in Table 7. Again, there is little difference caused by individual scores being significantly different than scoring by other team members.

As long as there is a relatively large number of people scoring the strategies, average weighting factors and an average score for each criteria can be used to determine a ranking order from the scoring sheets. The high and low scores should not be discarded, but should be discussed.

6.2.2 Sensitivity of Weighting Factors

The effect of assigning higher or lower weighting factors to key criteria was assessed. The criteria were grouped as follows:

1. Risk Weight Factors
    a. Acceptable Risk (Short Term)
    b. Acceptable Risk (Long Term)
2. Safety / Compliance Factors
    a. Compliance with Regulations and Permits
    b. Prevent Release of Contents
    c. Maintain Tank Integrity

Table 6. Comparison of Scoring Averages

	Score using Average Weighting Factor and Individual Scores	Score using Average Weighting Factor and Average of Individual Scores	Combined Average Using All Scores (from Table A-10)	Combined Average With Adjusted Scores (from Table A-11)	Change in Combined Average from Using All Scores to Using Adjusted Scores
Argon Blanket	139.7	139.0	139.3	139.8	0.36%
Argon Blanket w/Cathodic Protection	145.1	145.3	145.2	145.5	0.21%
Cathodic Protection	148.6	148.3	148.4	147.2	-0.81%
Contamination Fixative/Drying	151.0	151.6	151.3	152.2	0.59%
Corrosion Inhibitors in Vault	152.7	153.3	153	149.3	-2.42%
Current System	151.5	151.8	151.7	153.1	0.92%
Groundwater Barrier/Drying	150.3	150.4	150.3	149.1	-0.80%
Infiltration Barrier/Drying	160.7	160.8	160.8	158.3	-1.55%
Interceptor Trench/Drying	155.4	155.6	156.5	155.6	-0.58%
Low Strength Grout	158.6	159.3	159	158.7	-0.19%
Low Strength Grout/Drying	167.9	168.7	168.3	167.7	-0.36%
Monitors	141.4	142.0	141.7	142	0.21%
Nitrogen Blanket	147.7	146.9	147.3	146.2	-0.75%
Nitrogen Blanket w/Oxygen Removal	145.6	145.1	145.4	146.5	0.76%
Sorbents in Annulus	136.3	135.4	135.4	137.7	1.70%
Sorbents with Cathodic Protection	139.8	140.0	139.9	142.4	1.79%
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	163.6	164.1	163.8	163.2	-0.37%
Trench/Infiltration Barrier/Drying	174.1	173.8	173.9	171.8	-1.21%
Vault & Tank Drying	166.0	167.3	166.6	166	-0.36%
Vault Drying	157.9	158.2	158	158.3	0.19%
Waste Removal	172.4	174.0	173.2	168.8	-2.54%

Table 7. Ranking Comparisons

Combined Average Using All Scores (from Table A-10)	Ranking from Averages	Combined Average With Adjusted Scores (from Table A-11)	Ranking from Adjusted Averages
173.9	Trench/Infiltration Barrier/Drying	171.8	Trench/Infiltration Barrier/Drying
173.2	Waste Removal	168.8	Waste Removal
168.3	Low Strength Grout/Drying	167.7	Low Strength Grout/Drying
166.6	Vault & Tank Drying	166	Vault & Tank Drying
163.8	Trench/Infiltration Barrier/ Drying/Enhanced Pumping	163.2	Trench/Infiltration Barrier/ Drying/Enhanced Pumping
160.8	Infiltration Barrier/Drying	158.7	Low Strength Grout
159	Low Strength Grout	158.3	Infiltration Barrier/Drying
158	Vault Drying	158.3	Vault Drying
156.5	Interceptor Trench/Drying	155.6	Interceptor Trench/Drying
153	Corrosion Inhibitors in Vault	153.1	Current System
151.7	Current System	152.2	Contamination Fixative/Drying
151.3	Contamination Fixative/Drying	149.3	Corrosion Inhibitors in Vault
150.3	Groundwater Barrier/Drying	149.1	Groundwater Barrier/Drying
148.4	Cathodic Protection	147.2	Cathodic Protection
147.3	Nitrogen Blanket	146.5	Nitrogen Blanket w/Oxygen Removal
145.4	Nitrogen Blanket w/Oxygen Removal	146.2	Nitrogen Blanket
145.2	Argon Blanket w/Cathodic Protection	145.5	Argon Blanket w/Cathodic Protection
141.7	Monitors	142.4	Sorbents with Cathodic Protection
139.9	Sorbents with Cathodic Protection	142	Monitors
139.3	Argon Blanket	139.8	Argon Blanket
135.4	Sorbents in Annulus	137.7	Sorbents in Annulus

d. Safe Operating Envelope

e. Regulatory and Stakeholder Acceptance

3. Certainty

    a. Certainty of Strategy

4. Cost

    a. Capital Cost

    b. Operating Cost

5. No Weight

    This is a case where all the criteria are weighted the same.

The rankings from these cases can be compared to the base case using the average of the weighting factors scored by the team. The results of this analysis are shown in Table A-12. A summary of the results of the weighting factor sensitivity analysis is shown in Table 8. The strategies that scored highest with the average weighting factors generally scored highest in these sensitivity cases. The only significant difference is when the major criterion is cost; in this case, the current system scores highest. However, the current system may not result in lowest total life cycle cost.

Finally, a combined ranking from the results of the weighting factor comparisons was developed. This is shown in Table 9. The strategy including an interceptor trench, infiltration barrier and vault drying was still the favorite and relatively insensitive to weighting the different criteria more heavily.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The methodology developed for ranking the potential strategies for lay-up of the WVDP tanks will provide a basis for a decision on the preferred path forward. The methodology will provide a consensus ranking even with wide variations in scores from individual team members as long as the number of team members is large enough. A minimum of eight team members is recommended, and 10-12 would be better. The team members should represent a broad spectrum of technical experts and decision makers.

The current uncertainties associated with several strategies will tend to result in more costly and involved strategies to be favored. Strategy specific performance data could result in simpler strategies. Also, there may be other strategies and criteria identified during the process that will be ranked higher than most or all of the strategies identified in this report. In the absence of performance data for the strategies there is a tendency to rank the strategies on a relative basis because the minimum but sufficient effort to meet the tank lay-up goals is unknown.

All the strategies and criteria should be presented to the team members to ensure a common understanding. All available information should be provided to the team members at this time. The team should then determine if additional strategies should be scored and if the decision

criteria should be modified. Any changes to the strategies or criteria should be done before the scoring starts. Orientation, scoring, and discussions should be in a facilitated session or sessions.

A difficulty in evaluating the lay-up strategies for the WVDP tanks is that there is incomplete information on the cost and performance for several of the identified strategies. A recommended path forward would be to reevaluate the strategies identified in this report based on the example ranking and eliminate or reconfigure the strategies that were ranked at or near the bottom. Preconceptual engineering data should be developed for the remaining strategies to facilitate scoring and ranking using this methodology. The team members should be consulted to identify any additional information needs to support making informed decisions. The initial rankings will have to be made based on the available information.

Once each team member scores the alternatives, the scores can be combined as described in this report and the team members can then be reconvened to discuss the results. Any wide variations among scores should be discussed to ensure there are no errors. This discussion will also help team members share their points of view and expertise or experience on the strategies. The discussion can then focus on the composite ranking to determine if there is consensus. The team members should be allowed to discuss if they feel the list should be modified based on the information shared. The team should develop a final, consensus ranked list of the top five strategies. The team and WVDP and DOE management should then decide whether to proceed with conceptual design of the top one or two strategies or specify the additional information needed to make a final decision.

Table 8. Rankings Using Alternate Weighting Factors (2 Sheets)

No Weighting	Average	Safety/ Compliance	Risk	Certainty	Cost
Trench/Infiltration Barrier/Drying	Trench/Infiltration Barrier/Drying	Low Strength Grout/Drying	Low Strength Grout/Drying	Trench/Infiltration Barrier/Drying	Current System
Waste Removal	Waste Removal	Trench/Infiltration Barrier/Drying	Trench/Infiltration Barrier/Drying	Low Strength Grout/Drying	Infiltration Barrier/Drying
Low Strength Grout/Drying	Low Strength Grout/Drying	Waste Removal	Waste Removal	Waste Removal	Low Strength Grout
Vault & Tank Drying	Vault & Tank Drying	Trench/Infiltration Barrier/ Drying/Enhanced Pumping	Low Strength Grout	Vault & Tank Drying	Vault Drying
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	Trench/Infiltration Barrier/ Drying/Enhanced Pumping	Vault & Tank Drying	Trench/Infiltration Barrier/ Drying/Enhanced Pumping	Current System	Trench/Infiltration Barrier/Drying
Low Strength Grout	Low Strength Grout	Low Strength Grout	Vault & Tank Drying	Trench/Infiltration Barrier/ Drying/Enhanced Pumping	Waste Removal
Vault Drying	Vault Drying	Contamination Fixative/Drying	Vault Drying	Infiltration Barrier/Drying	Corrosion Inhibitors in Vault
Infiltration Barrier/Drying	Infiltration Barrier/Drying	Interceptor Trench/Drying	Contamination Fixative/Drying	Low Strength Grout	Cathodic Protection
Current System	Interceptor Trench/Drying	Infiltration Barrier/Drying	Infiltration Barrier/Drying	Vault Drying	Vault & Tank Drying
Interceptor Trench/Drying	Current System	Vault Drying	Interceptor Trench/Drying	Interceptor Trench/Drying	Nitrogen Blanket
Contamination Fixative/Drying	Contamination Fixative/Drying	Groundwater Barrier/Drying	Current System	Corrosion Inhibitors in Vault	Interceptor Trench/Drying
Corrosion Inhibitors in Vault	Corrosion Inhibitors in Vault	Nitrogen Blanket w/Oxygen Removal	Corrosion Inhibitors in Vault	Contamination Fixative/Drying	Low Strength Grout/Drying
Groundwater Barrier/Drying	Groundwater Barrier/Drying	Argon Blanket w/Cathodic Protection	Monitors	Groundwater Barrier/Drying	Monitors

Table 8. Rankings Using Alternate Weighting Factors (2 Sheets)

No Weighting	Average	Safety/ Compliance	Risk	Certainty	Cost
Cathodic Protection	Cathodic Protection	Cathodic Protection	Groundwater Barrier/Drying	Monitors	Sorbents in Annulus
Nitrogen Blanket	Nitrogen Blanket w/Oxygen Removal	Corrosion Inhibitors in Vault	Nitrogen Blanket w/Oxygen Removal	Cathodic Protection	Contamination Fixative/Drying
Nitrogen Blanket w/Oxygen Removal	Nitrogen Blanket	Sorbents with Cathodic Protection	Argon Blanket w/Cathodic Protection	Nitrogen Blanket	Groundwater Barrier/Drying
Argon Blanket w/Cathodic Protection	Argon Blanket w/Cathodic Protection	Current System	Nitrogen Blanket	Nitrogen Blanket w/Oxygen Removal	Sorbents with Cathodic Protection
Monitors	Monitors	Nitrogen Blanket	Sorbents with Cathodic Protection	Argon Blanket w/Cathodic Protection	Argon Blanket
Sorbents with Cathodic Protection	Sorbents with Cathodic Protection	Argon Blanket	Cathodic Protection	Argon Blanket	Nitrogen Blanket w/Oxygen Removal
Argon Blanket	Argon Blanket	Sorbents in Annulus	Sorbents in Annulus	Sorbents with Cathodic Protection	Argon Blanket w/Cathodic Protection
Sorbents in Annulus	Sorbents in Annulus	Monitors	Argon Blanket	Sorbents in Annulus	Trench/Infiltration Barrier/ Drying/Enhanced Pumping

Table 9. Combined Rankings by Weighting Factors

Sorted by Rankings Score	Ranked #1	Ranked #2	Ranked #3	Ranked #4	Ranked #5	Rankings Score
Trench/Infiltration Barrier/Drying	3	2	0	0	1	24
Low Strength Grout/Drying	2	0	2	0	0	16
Waste Removal	0	2	2	0	0	14
Interceptor Trench/Drying	2	0	0	0	0	10
Contamination Fixative/Drying	0	1	1	0	0	7
Vault Drying	0	1	1	0	0	7
Current System	1	0	0	0	1	6
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	0	0	0	1	3	5
Vault & Tank Drying	0	0	0	2	1	5
Low Strength Grout	0	0	0	1	0	2
Argon Blanket						0
Argon Blanket w/Cathodic Protection						0
Cathodic Protection						0
Corrosion Inhibitors in Vault						0
Groundwater Barrier/Drying						0
Infiltration Barrier/Drying						0
Monitors						0
Nitrogen Blanket						0
Nitrogen Blanket w/Oxygen Removal						0
Sorbents in Annulus						0
Sorbents with Cathodic Protection						0

8.0 REFERENCES

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ATTACHMENT

WEST VALLEY DEMONSTRATION PROJECT DECISION PLAN METHODOLOGY RESULTS

TABLES

Table A-1. Team Member A Scoring Sheet

EVALUATION CRITERIA---->	Compliance with Regulations and Permits	Prevent Release of Contents	Acceptable Risk (Short Term)	Acceptable Risk (Long Term)	Maintain Tank Integrity	Safe Operating Envelope	Capital Cost	Operating Cost	Proven Methods and Technologies	Minimize Secondary Waste	Preserve Closure Options	Regulatory and Stakeholder Acceptance	Reduced Monitoring and Surveillance	Certainty of Strategy	
Weighting Factor (1-5) --->	1	5	4	4	5	3	4	3	4	5	4	2	3	4	
STRATEGY															SCORE
Maximum Score	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*255*
Current System	5	1	3	2	1	3	5	5	2	2	3	1	3	5	140
Cathodic Protection	5	3	3	2	3	3	3	4	3	2	4	3	2	3	150
Vault Drying	5	2	2	2	3	2	3	4	3	3	4	3	3	3	146
Vault & Tank Drying	5	3	3	3	4	3	2	3	3	3	4	3	3	3	160
Nitrogen Blanket	5	2	2	2	3	2	3	4	3	3	3	3	2	2	135
Nitrogen Blanket w/Oxygen Removal	5	3	3	3	4	3	2	3	3	3	3	3	3	2	152
Argon Blanket	5	3	2	2	3	2	3	4	3	3	3	3	2	2	140
Argon Blanket w/Cathodic Protection	5	3	3	3	4	3	2	3	3	3	3	3	3	2	152
Interceptor Trench/Drying	5	3	3	3	3	3	3	4	4	4	2	3	3	2	159
Trench/Infiltration Barrier/Drying	5	3	4	4	5	4	2	2	4	4	2	4	4	2	175
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	5	4	5	5	5	5	1	3	4	4	2	5	5	2	195
Groundwater Barrier/Drying	5	3	3	3	4	3	3	4	4	4	2	3	3	3	168
Infiltration Barrier/Drying	5	3	3	3	4	3	3	4	4	4	2	3	3	3	168
Corrosion Inhibitors in Vault	5	3	3	3	3	3	4	4	3	2	3	3	2	3	154
Sorbents in Annulus	5	4	3	3	2	3	3	4	4	2	3	3	2	2	150
Sorbents with Cathodic Protection	5	3	3	3	3	3	2	4	4	2	3	3	2	2	146
Low Strength Grout	5	2	3	3	2	3	3	4	2	1	2	2	3	2	124
Low Strength Grout/Drying	5	3	3	3	2	3	2	3	3	1	2	2	3	2	126
Contamination Fixative/Drying	5	2	3	3	2	3	2	3	2	2	3	3	3	3	132
Monitors	5	1	4	3	1	4	3	2	4	3	4	3	1	4	145
Waste Removal	5	2	1	1	2	1	2	4	4	2	5	5	3	2	129

Table A-2. Team Member B Scoring Sheet

EVALUATION CRITERIA---->	Compliance with Regulations and Permits	Prevent Release of Contents	Acceptable Risk (Short Term)	Acceptable Risk (Long Term)	Maintain Tank Integrity	Safe Operating Envelope	Capital Cost	Operating Cost	Proven Methods and Technologies	Minimize Secondary Waste	Preserve Closure Options	Regulatory and Stakeholder Acceptance	Reduced Monitoring and Surveillance	Certainty of Strategy	
Weighting Factor (1-5)* --->	3.7	4.7	4.0	4.3	4.3	4.0	2.9	3.0	3.4	3.1	4.0	3.4	2.3	3.7	
STRATEGY															**SCORE**
Maximum Score	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*254*
Current System	4	2	3	1	1	3	4	2	4	3	4	2	1	2	130
Cathodic Protection	4	3	3	2	3	3	4	3	3	4	4	3	3	2	158
Vault Drying	4	3	4	3	3	3	3	3	2	3	4	4	2	2	158
Vault & Tank Drying	3	4	4	3	4	3	3	2	2	3	3	4	3	2	159
Nitrogen Blanket	4	2	4	2	2	3	4	2	3	4	4	3	2	2	148
Nitrogen Blanket w/Oxygen Removal	4	3	4	2	1	3	3	2	2	4	4	3	2	2	142
Argon Blanket	4	2	3	2	1	3	3	3	3	4	4	3	2	2	140
Argon Blanket w/Cathodic Protection	4	3	3	3	2	3	3	3	3	4	4	3	2	2	153
Interceptor Trench/Drying	3	2	2	2	2	2	2	3	2	3	4	4	2	1	123
Trench/Infiltration Barrier/Drying	3	2	2	2	2	2	2	3	2	3	4	4	2	1	123
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	3	2	2	2	2	2	1	3	2	2	4	3	2	2	117
Groundwater Barrier/Drying	3	3	2	2	2	2	2	3	2	3	4	4	2	2	131
Infiltration Barrier/Drying	3	3	2	2	2	3	2	3	2	3	4	4	2	2	135
Corrosion Inhibitors in Vault	3	3	3	2	2	3	4	4	2	4	4	2	2	2	144
Sorbents in Annulus	3	2	2	1	2	3	4	4	2	4	4	2	2	1	127
Sorbents with Cathodic Protection	3	3	2	2	3	3	3	3	3	4	4	2	2	2	142
Low Strength Grout	3	2	3	3	2	3	1	4	2	1	2	2	2	2	118
Low Strength Grout/Drying	3	3	4	4	3	3	1	3	3	1	2	3	3	2	141
Contamination Fixative/Drying	3	2	2	2	2	2	3	3	2	3	4	3	2	1	122
Monitors	3	1	3	3	0	4	4	4	3	3	4	2	3	1	133
Waste Removal	4	4	3	4	3	3	1	2	4	1	4	4	4	4	167

*** - Team member B did not score weighting factors, so averages from the other team members were used**

Table A-3. Team Member C Scoring Sheet

EVALUATION CRITERIA---->	Compliance with Regulations and Permits	Prevent Release of Contents	Acceptable Risk (Short Term)	Acceptable Risk (Long Term)	Maintain Tank Integrity	Safe Operating Envelope	Capital Cost	Operating Cost	Proven Methods and Technologies	Minimize Secondary Waste	Preserve Closure Options	Regulatory and Stakeholder Acceptance	Reduced Monitoring and Surveillance	Certainty of Strategy	
Weighting Factor (1-5) --->	2	3	5	5	4	5	3	3	2	1	4	3	2	5	
STRATEGY															**SCORE**
Maximum Score	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*235*
Current System	3	1	4	3	1	5	5	4	5	3	4	3	3	2	154
Cathodic Protection	2	2	3	2	2	4	3	4	2	3	4	2	2	2	127
Vault Drying	3	2	4	3	2	3	3	3	4	2	4	4	3	2	142
Vault & Tank Drying	3	3	3	3	3	2	3	3	4	2	4	4	3	2	139
Nitrogen Blanket	3	2	3	3	2	3	3	3	2	2	4	3	2	2	128
Nitrogen Blanket w/Oxygen Removal	3	3	3	3	3	2	2	2	2	2	4	3	1	2	122
Argon Blanket	3	2	3	2	2	3	3	3	2	3	4	3	2	2	124
Argon Blanket w/Cathodic Protection	3	3	3	3	3	3	2	3	2	3	4	3	2	3	138
Interceptor Trench/Drying	3	3	2	3	3	3	2	3	3	1	4	4	3	2	133
Trench/Infiltration Barrier/Drying	4	4	1	4	4	3	1	3	3	1	4	4	3	4	149
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	5	5	1	5	5	3	1	2	3	1	4	4	1	5	161
Groundwater Barrier/Drying	4	4	2	3	3	3	1	3	3	1	4	4	3	3	140
Infiltration Barrier/Drying	4	2	2	3	3	3	2	3	4	2	4	4	3	4	145
Corrosion Inhibitors in Vault	3	3	4	1	2	3	4	4	5	3	4	3	2	2	139
Sorbents in Annulus	2	1	4	1	1	3	4	3	1	3	2	2	2	1	100
Sorbents with Cathodic Protection	3	3	2	2	3	3	3	2	1	3	2	2	2	1	105
Low Strength Grout	3	2	3	3	3	4	4	4	4	4	1	4	4	4	154
Low Strength Grout/Drying	3	4	3	4	4	3	3	3	4	3	1	4	5	4	159
Contamination Fixative/Drying	3	3	3	3	2	3	4	2	4	3	2	2	3	3	132
Monitors	1	1	4	1	1	1	4	4	5	4	4	1	2	1	105
Waste Removal	5	5	1	5	1	4	1	2	1	1	5	5	4	4	154

Table A-4. Team Member D Scoring Sheet

EVALUATION CRITERIA---->	Compliance with Regulations and Permits	Prevent Release of Contents	Acceptable Risk (Short Term)	Acceptable Risk (Long Term)	Maintain Tank Integrity	Safe Operating Envelope	Capital Cost	Operating Cost	Proven Methods and Technologies	Minimize Secondary Waste	Preserve Closure Options	Regulatory and Stakeholder Acceptance	Reduced Monitoring and Surveillance	Certainty of Strategy	
Weighting Factor (1-5) --->	5	5	5	5	4	5	3	3	4	3	4	4	3	4	
STRATEGY															SCORE
Maximum Score	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*285*
Current System	5	3	5	2	2	4	5	4	4	3	4	4	1	2	198
Cathodic Protection	5	3	5	3	3	4	3	3	2	3	4	3	1	2	186
Vault Drying	4	3	4	3	3	3	3	3	3	3	4	3	1	2	175
Vault & Tank Drying	4	3	4	3	4	3	3	4	3	3	4	3	1	3	186
Nitrogen Blanket	5	3	5	3	3	4	3	4	4	3	4	4	2	3	208
Nitrogen Blanket w/Oxygen Removal	5	3	5	3	3	4	3	4	2	3	4	3	2	2	192
Argon Blanket	5	3	5	3	3	3	2	3	3	3	4	4	2	3	193
Argon Blanket w/Cathodic Protection	5	3	5	3	3	3	2	2	2	3	4	3	1	2	175
Interceptor Trench/Drying	5	3	5	3	3	4	4	4	4	3	4	4	2	3	211
Trench/Infiltration Barrier/Drying	4	3	5	3	3	4	3	4	4	4	4	4	2	4	210
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	4	3	5	3	3	4	3	3	2	4	4	4	2	2	191
Groundwater Barrier/Drying	4	3	5	3	3	3	2	2	2	3	4	4	2	2	177
Infiltration Barrier/Drying	4	3	5	3	3	3	4	4	4	3	4	4	2	3	201
Corrosion Inhibitors in Vault	5	3	4	3	3	4	4	3	2	3	4	4	2	2	191
Sorbents in Annulus	5	3	5	3	3	4	3	4	3	3	4	4	2	3	204
Sorbents with Cathodic Protection	5	3	5	3	3	4	3	3	2	3	4	4	2	2	193
Low Strength Grout	5	4	5	3	3	4	3	4	3	3	2	4	3	3	204
Low Strength Grout/Drying	4	4	5	3	3	4	3	3	3	3	2	4	3	3	196
Contamination Fixative/Drying	5	3	4	3	3	3	3	3	2	3	2	4	2	2	175
Monitors	5	3	5	3	3	4	3	3	3	3	4	4	2	3	201
Waste Removal	4	4	4	3	4	3	2	3	3	4	4	3	2	2	187

Table A-5. Team Member E Scoring Sheet

EVALUATION CRITERIA---->	Compliance with Regulations and Permits	Prevent Release of Contents	Acceptable Risk (Short Term)	Acceptable Risk (Long Term)	Maintain Tank Integrity	Safe Operating Envelope	Capital Cost	Operating Cost	Proven Methods and Technologies	Minimize Secondary Waste	Preserve Closure Options	Regulatory and Stakeholder Acceptance	Reduced Monitoring and Surveillance	Certainty of Strategy	
Weighting Factor (1-5) --->	4	5	4	4	4	4	3	3	3	4	4	4	2	3	
STRATEGY															SCORE
Maximum Score	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*255*
Current System	2	2	2	2	2	3	4	3	4	4	4	1	1	3	134
Cathodic Protection	2	2	1	2	2	1	3	3	3	4	4	1	1	2	113
Vault Drying	2	2	2	2	2	2	4	3	4	3	4	1	1	3	126
Vault & Tank Drying	1	2	2	2	2	2	3	3	3	3	4	2	1	3	120
Nitrogen Blanket	2	2	2	2	2	2	4	3	4	3	4	1	1	1	120
Nitrogen Blanket w/Oxygen Removal	2	2	2	2	2	2	4	3	4	3	4	2	1	2	127
Argon Blanket	2	2	2	2	2	2	3	3	3	3	4	2	1	2	121
Argon Blanket w/Cathodic Protection	2	2	2	4	3	2	4	3	2	3	4	2	2	2	135
Interceptor Trench/Drying	3	2	2	3	3	3	4	3	3	3	4	2	2	2	142
Trench/Infiltration Barrier/Drying	2	1	3	3	3	3	5	3	3	3	4	2	2	2	140
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	2	3	3	3	2	3	3	2	3	3	4	2	1	2	135
Groundwater Barrier/Drying	2	3	2	3	3	3	5	4	3	3	4	2	2	1	146
Infiltration Barrier/Drying	0	1	2	1	3	3	5	4	3	3	4	2	2	1	120
Corrosion Inhibitors in Vault	0	1	4	1	1	1	1	1	3	3	4	1	1	1	85
Sorbents in Annulus	2	2	2	2	2	2	4	4	2	3	4	2	1	0	118
Sorbents with Cathodic Protection	2	3	2	3	3	3	4	4	2	3	4	2	1	1	138
Low Strength Grout	4	4	4	4	3	3	3	2	4	4	3	2	2	3	168
Low Strength Grout/Drying	4	4	3	4	4	4	4	3	4	4	3	3	2	3	182
Contamination Fixative/Drying	3	3	3	3	3	4	4	3	3	4	3	2	2	2	155
Monitors	2	2	4	3	3	3	4	4	3	3	4	2	1	2	147
Waste Removal	4	2	5	3	0	3	5	0	2	1	2	1	5	2	123

Table A-6. Team Member F Scoring Sheet

EVALUATION CRITERIA---->	Compliance with Regulations and Permits	Prevent Release of Contents	Acceptable Risk (Short Term)	Acceptable Risk (Long Term)	Maintain Tank Integrity	Safe Operating Envelope	Capital Cost	Operating Cost	Proven Methods and Technologies	Minimize Secondary Waste	Preserve Closure Options	Regulatory and Stakeholder Acceptance	Reduced Monitoring and Surveillance	Certainty of Strategy	
Weighting Factor (1-5) --->	2	2	1	1	1	1	2	3	1	1	1	3	2	1	
STRATEGY															SCORE
Maximum Score	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*110*
Current System	3	1	3	1	1	3	5	4	3	4	5	2	3	1	63
Cathodic Protection	3	2	3	2	2	3	4	3	3	4	5	3	2	2	64
Vault Drying	3	2	3	3	3	3	3	2	2	3	5	3	2	2	59
Vault & Tank Drying	3	3	3	4	4	3	3	1	3	3	4	3	1	4	60
Nitrogen Blanket	3	2	3	2	1	2	4	2	2	4	5	3	2	1	57
Nitrogen Blanket w/Oxygen Removal	3	2	3	2	1	2	3	1	2	3	5	3	2	1	51
Argon Blanket	3	2	3	2	2	2	3	2	2	4	5	3	2	1	56
Argon Blanket w/Cathodic Protection	3	2	3	2	2	2	3	2	1	3	5	3	2	2	55
Interceptor Trench/Drying	1	2	2	1	2	2	2	2	2	3	3	2	2	2	43
Trench/Infiltration Barrier/Drying	4	5	3	5	4	3	1	3	2	4	5	4	3	4	77
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	2	2	3	2	2	2	3	1	4	1	5	2	2	2	48
Groundwater Barrier/Drying	1	2	2	1	2	2	1	1	1	3	3	1	1	1	31
Infiltration Barrier/Drying	1	2	3	2	2	2	3	3	3	3	3	2	2	2	51
Corrosion Inhibitors in Vault	3	2	3	2	2	2	4	4	3	4	5	3	2	2	66
Sorbents in Annulus	2	3	3	3	1	2	3	4	2	3	3	2	3	3	60
Sorbents with Cathodic Protection	2	3	3	3	2	2	3	3	1	3	3	2	2	3	55
Low Strength Grout	4	4	4	4	2	3	3	5	3	1	1	3	4	4	76
Low Strength Grout/Drying	4	5	4	5	3	3	2	1	3	2	1	3	2	4	63
Contamination Fixative/Drying	3	4	3	3	3	3	1	1	1	1	2	2	1	3	46
Monitors	2	1	2	1	1	3	2	2	2	4	5	3	1	1	46
Waste Removal	4	5	5	5	5	4	1	4	3	1	4	5	5	4	88

Table A-7. Team Member G Scoring Sheet

EVALUATION CRITERIA---->	Compliance with Regulations and Permits	Prevent Release of Contents	Acceptable Risk (Short Term)	Acceptable Risk (Long Term)	Maintain Tank Integrity	Safe Operating Envelope	Capital Cost	Operating Cost	Proven Methods and Technologies	Minimize Secondary Waste	Preserve Closure Options	Regulatory and Stakeholder Acceptance	Reduced Monitoring and Surveillance	Certainty of Strategy	
Weighting Factor (1-5) --->	4	5	4	5	3	4	2	3	4	3	4	4	1	4	
STRATEGY															SCORE
Maximum Score	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*250*
Current System	4	3	3	2	2	3	4	3	3	5	5	2	2	3	157
Cathodic Protection	4	2	3	2	2	4	2	4	2	5	5	2	2	2	147
Vault Drying	3	3	3	3	2	3	4	3	2	4	5	2	2	2	147
Vault & Tank Drying	3	4	3	4	3	3	3	2	2	4	5	3	2	3	163
Nitrogen Blanket	3	2	2	2	2	2	3	4	1	5	5	2	2	2	129
Nitrogen Blanket w/Oxygen Removal	3	3	2	3	3	2	2	3	2	4	5	3	2	2	142
Argon Blanket	3	3	1	3	3	1	2	3	2	5	5	2	2	2	133
Argon Blanket w/Cathodic Protection	3	4	1	3	4	2	1	2	3	5	5	3	2	3	152
Interceptor Trench/Drying	2	3	3	3	3	3	3	3	2	1	5	2	1	2	134
Trench/Infiltration Barrier/Drying	2	4	3	4	4	3	2	3	2	1	5	3	1	3	153
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	2	4	3	4	4	3	1	2	2	1	5	4	1	3	152
Groundwater Barrier/Drying	3	2	3	2	2	3	2	3	2	4	5	2	2	3	137
Infiltration Barrier/Drying	3	3	3	3	3	3	2	3	3	4	5	3	2	2	154
Corrosion Inhibitors in Vault	3	2	3	3	3	2	4	4	3	2	4	2	1	2	137
Sorbents in Annulus	3	2	3	3	3	2	4	4	2	3	4	3	1	1	136
Sorbents with Cathodic Protection	3	2	3	4	3	2	2	3	3	3	4	3	2	3	147
Low Strength Grout	4	4	4	4	4	4	4	5	3	1	1	3	3	3	169
Low Strength Grout/Drying	4	5	3	5	5	3	3	3	3	1	1	4	3	4	174
Contamination Fixative/Drying	3	4	3	4	4	3	2	3	2	3	2	3	2	2	148
Monitors	4	2	4	2	1	4	4	4	2	5	5	2	1	1	147
Waste Removal	1	5	1	5	1	5	1	5	1	5	5	4	5	1	162

Table A-8. Team Member H Scoring Sheet

EVALUATION CRITERIA---->	Compliance with Regulations and Permits	Prevent Release of Contents	Acceptable Risk (Short Term)	Acceptable Risk (Long Term)	Maintain Tank Integrity	Safe Operating Envelope	Capital Cost	Operating Cost	Proven Methods and Technologies	Minimize Secondary Waste	Preserve Closure Options	Regulatory and Stakeholder Acceptance	Reduced Monitoring and Surveillance	Certainty of Strategy	SCORE
Weighting Factor-->	5	5	4	4	5	5	3	2	4	2	5	4	3	4	
STRATEGY															
Maximum Score	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*275*
Current System	3	2	5	2	2	2	5	4	5	3	5	2	1	2	166
Cathodic Protection	3	3	3	3	2	3	4	4	3	3	5	3	1	2	165
Vault Drying	2	4	4	4	3	4	3	3	4	3	5	4	3	2	192
Vault & Tank Drying	2	4	4	5	4	5	2	3	4	4	4	5	3	3	208
Nitrogen Blanket	3	3	4	3	3	4	4	4	4	3	5	3	1	2	183
Nitrogen Blanket w/Oxygen Removal	3	4	4	3	3	4	2	3	3	3	5	4	2	2	183
Argon Blanket	2	4	4	1	3	2	3	3	3	3	5	2	1	2	152
Argon Blanket w/Cathodic Protection	2	4	3	2	3	2	3	2	3	3	5	2	1	2	150
Interceptor Trench/Drying	2	4	3	4	4	4	2	3	4	4	5	4	3	3	196
Trench/Infiltration Barrier/Drying	2	5	2	5	5	5	1	3	4	4	5	5	4	4	219
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	2	5	2	5	5	5	1	2	4	2	5	5	4	4	213
Groundwater Barrier/Drying	2	4	4	4	4	4	2	3	3	4	5	4	3	2	192
Infiltration Barrier/Drying	2	4	3	4	4	4	2	3	4	4	5	4	3	3	196
Corrosion Inhibitors in Vault	3	3	4	2	3	3	4	4	3	2	5	3	2	2	171
Sorbents in Annulus	2	3	4	2	2	2	3	4	2	2	4	3	2	2	144
Sorbents with Cathodic Protection	2	4	3	3	2	3	2	4	2	2	4	3	2	2	151
Low Strength Grout	3	4	4	3	2	3	4	4	3	3	4	3	3	2	175
Low Strength Grout/Drying	2	4	4	4	5	4	3	3	3	4	3	4	4	3	197
Contamination Fixative/Drying	2	4	4	4	4	4	3	3	3	3	3	3	4	3	186
Monitors	3	2	4	2	2	2	3	3	4	3	5	2	1	2	150
Waste Removal	4	5	2	4	3	5	1	5	2	2	5	5	5	3	206

Table A-9. Team Member I Scoring Sheet

EVALUATION CRITERIA---->	Compliance with Regulations and Permits	Prevent Release of Contents	Acceptable Risk (Short Term)	Acceptable Risk (Long Term)	Maintain Tank Integrity	Safe Operating Envelope	Capital Cost	Operating Cost	Proven Methods and Technologies	Minimize Secondary Waste	Preserve Closure Options	Regulatory and Stakeholder Acceptance	Reduced Monitoring and Surveillance	Certainty of Strategy	
Weighting Factor (1-5) --->	5	5	2	3	5	2	2	4	3	4	3	3	2	2	
STRATEGY															SCORE
Maximum Score	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*225*
Current System	5	4	3	3	4	3	5	2	5	2	5	4	2	3	164
Cathodic Protection	4	2	3	2	2	4	3	3	2	5	5	2	2	2	133
Vault Drying	5	4	4	4	4	5	4	4	4	5	5	4	3	4	192
Vault & Tank Drying	5	5	3	4	4	5	4	4	4	3	5	4	3	4	187
Nitrogen Blanket	4	3	3	2	2	3	3	3	2	5	5	3	3	2	141
Nitrogen Blanket w/Oxygen Removal	4	3	2	2	3	2	3	2	3	5	5	3	3	3	143
Argon Blanket	4	3	2	2	2	2	2	2	3	5	5	2	2	2	129
Argon Blanket w/Cathodic Protection	3	3	3	2	2	3	3	2	2	5	5	2	2	2	127
Interceptor Trench/Drying	4	5	5	5	4	5	4	4	5	5	5	4	3	4	200
Trench/Infiltration Barrier/Drying	4	5	5	5	4	5	3	4	5	5	2	5	2	4	190
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	4	5	5	5	4	5	3	4	5	2	5	3	2	4	181
Groundwater Barrier/Drying	4	4	4	3	4	4	2	4	4	4	5	3	3	3	169
Infiltration Barrier/Drying	5	4	5	5	4	4	3	4	4	5	4	4	3	3	188
Corrosion Inhibitors in Vault	5	3	4	3	3	4	5	5	5	5	5	2	2	2	174
Sorbents in Annulus	4	3	4	3	1	2	3	3	2	4	5	2	2	2	130
Sorbents with Cathodic Protection	5	2	3	3	2	2	3	3	2	4	5	2	2	2	133
Low Strength Grout	5	4	5	4	2	5	2	4	4	1	4	2	2	2	149
Low Strength Grout/Drying	5	4	5	4	5	5	2	4	4	1	4	3	2	3	169
Contamination Fixative/Drying	5	5	5	5	5	4	3	4	3	4	5	4	2	4	194
Monitors	5	1	5	1	1	5	4	4	3	5	5	2	1	2	138
Waste Removal	5	5	5	5	1	5	1	5	5	1	5	5	4	5	179

Table A-10. Average Scores for Each Strategy

EVALUATION CRITERIA---->	Compliance with Regulations and Permits	Prevent Release of Contents	Acceptable Risk (Short Term)	Acceptable Risk (Long Term)	Maintain Tank Integrity	Safe Operating Envelope	Capital Cost	Operating Cost	Proven Methods and Technologies	Minimize Secondary Waste	Preserve Closure Options	Regulatory and Stakeholder Acceptance	Reduced Monitoring and Surveillance	Certainty of Strategy			
Team Member																	
A	1	5	4	4	5	3	4	3	4	5	4	2	3	4			
B	Did not supply weightings																
C	Did not weight from 1-5																
D	2	3	5	5	4	5	3	3	2	1	4	3	2	5			
E	5	5	5	5	4	5	3	3	4	3	4	4	3	4			
F	4	5	4	4	4	4	3	3	3	4	4	4	2	3			
G	4	5	4	5	3	4	2	3	4	3	4	4	1	4			
H	5	5	4	4	5	5	3	2	4	2	5	4	3	4			
I	5	5	2	3	5	2	2	4	3	4	3	3	2	2			
Average Weighting Factor	**3.7**	**4.7**	**4.0**	**4.3**	**4.3**	**4.0**	**2.9**	**3.0**	**3.4**	**3.1**	**4.0**	**3.4**	**2.3**	**3.7**			
STRATEGY															**TEAM MEMBER**	**SCORE**	
Argon Blanket	5	3	2	2	3	2	3	4	3	3	3	3	2	2	A	140	
Argon Blanket	4	2	3	2	1	3	3	3	3	4	4	3	2	2	B*	140	
Argon Blanket	3	2	3	2	2	2	3	2	2	4	5	3	2	1	C*	130	
Argon Blanket	3	2	3	2	2	3	3	3	2	3	4	3	2	2	D	124	
Argon Blanket	5	3	5	3	3	3	2	3	3	3	4	4	2	3	E	193	
Argon Blanket	2	2	2	2	2	2	3	3	3	3	4	2	1	2	F	121	
Argon Blanket	3	3	1	3	3	1	2	3	2	5	5	2	2	2	G	133	
Argon Blanket	2	4	4	1	3	2	3	3	3	3	5	2	1	2	H	152	
Argon Blanket	4	3	2	2	2	2	2	2	3	5	5	2	2	2	I	129	
Note: *Average weighting factors from other team members were used															**Average Score**	**140.2**	**Combined Average**
Average Score	**3.4**	**2.7**	**2.8**	**2.1**	**2.3**	**2.2**	**2.7**	**2.9**	**2.7**	**3.7**	**4.3**	**2.7**	**1.8**	**2.0**	**Score Using Avg. Wt. And Avg. Score**	**139.3**	**139.8**
Argon Blanket w/Cathodic Protection	5	3	3	3	4	3	2	3	3	3	3	3	3	2	A	152	
Argon Blanket w/Cathodic Protection	4	3	3	3	2	3	3	3	3	4	4	3	2	2	B*	153	
Argon Blanket w/Cathodic Protection	3	2	3	2	2	2	3	2	1	3	5	3	2	2	C*	127	
Argon Blanket w/Cathodic Protection	3	3	3	3	3	3	2	3	2	3	4	3	2	3	D	138	
Argon Blanket w/Cathodic Protection	5	3	5	3	3	3	2	2	2	3	4	3	1	2	E	175	
Argon Blanket w/Cathodic Protection	2	2	2	4	3	2	4	3	2	3	4	2	2	2	F	135	
Argon Blanket w/Cathodic Protection	3	4	1	3	4	2	1	2	3	5	5	3	2	3	G	152	
Argon Blanket w/Cathodic Protection	2	4	3	2	3	2	3	2	3	3	5	2	1	2	H	150	
Argon Blanket w/Cathodic Protection	3	3	3	2	2	3	3	2	2	5	5	2	2	2	I	127	
															Average Score	**145.5**	**Combined Average**
Average (Mean)	**3.3**	**3.0**	**2.9**	**2.8**	**2.9**	**2.6**	**2.6**	**2.4**	**2.3**	**3.6**	**4.3**	**2.7**	**1.9**	**2.2**	**Score Using Avg. Wt. And Avg. Score**	**145.4**	**145.5**

Table A-10. Average Scores for Each Strategy

Cathodic Protection	5	3	3	2	3	3	3	4	3	2	4	3	2	3	A	150	
Cathodic Protection	4	3	3	2	3	3	4	3	3	4	4	3	3	2	B*	158	
Cathodic Protection	3	2	3	2	2	3	4	3	3	4	5	3	2	2	C*	147	
Cathodic Protection	2	2	3	2	2	4	3	4	2	3	4	2	2	2	D	127	
Cathodic Protection	5	3	5	3	3	4	3	3	2	3	4	3	1	2	E	186	
Cathodic Protection	2	2	1	2	2	1	3	3	3	4	4	1	1	2	F	113	
Cathodic Protection	4	2	3	2	2	4	2	4	2	5	5	2	2	2	G	147	
Cathodic Protection	3	3	3	3	2	3	4	4	3	3	5	3	1	2	H	165	
Cathodic Protection	4	2	3	2	2	4	3	3	2	5	5	2	2	2	I	133	
															Average Score	**147.4**	**Combined Average**
Average (Mean)	**3.6**	**2.4**	**3.0**	**2.2**	**2.3**	**3.2**	**3.2**	**3.4**	**2.6**	**3.7**	**4.4**	**2.4**	**1.8**	**2.1**	**Score Using Avg. Wt. And Avg. Score**	**147.0**	**147.2**
Contamination Fixative/Drying	5	2	3	3	2	3	2	3	2	2	3	3	3	3	A	132	
Contamination Fixative/Drying	3	2	2	2	2	2	3	3	2	3	4	3	2	1	B*	122	
Contamination Fixative/Drying	3	4	3	3	3	3	1	1	1	1	2	2	1	3	C*	120	
Contamination Fixative/Drying	3	3	3	3	2	3	4	2	4	3	2	2	3	3	D	132	
Contamination Fixative/Drying	5	3	4	3	3	3	3	3	2	3	2	4	2	2	E	175	
Contamination Fixative/Drying	3	3	3	3	3	4	4	3	3	4	3	2	2	2	F	155	
Contamination Fixative/Drying	3	4	3	4	4	3	2	3	2	3	2	3	2	2	G	148	
Contamination Fixative/Drying	2	4	4	4	4	4	3	3	3	3	3	3	4	3	H	186	
Contamination Fixative/Drying	5	5	5	5	5	4	3	4	3	4	5	4	2	4	I	194	
															Average Score	**151.6**	**Combined Average**
Average (Mean)	**3.6**	**3.3**	**3.3**	**3.3**	**3.1**	**3.2**	**2.8**	**2.8**	**2.4**	**2.9**	**2.9**	**2.9**	**2.3**	**2.6**	**Score Using Avg. Wt. And Avg. Score**	**152.8**	**152.2**
Corrosion Inhibitors in Vault	5	3	3	3	3	3	4	4	3	2	3	3	2	3	A	154	
Corrosion Inhibitors in Vault	3	3	3	2	2	3	4	4	2	4	4	2	2	2	B*	144	
Corrosion Inhibitors in Vault	3	2	3	2	2	2	4	4	3	4	5	3	2	2	C*	146	
Corrosion Inhibitors in Vault	3	3	4	1	2	3	4	4	5	3	4	3	2	2	D	139	
Corrosion Inhibitors in Vault	5	3	4	3	3	4	4	3	2	3	4	4	2	2	E	191	
Corrosion Inhibitors in Vault	0	1	4	1	1	1	1	1	3	3	4	1	1	1	F	85	
Corrosion Inhibitors in Vault	3	2	3	3	3	2	4	4	3	2	4	2	1	2	G	137	
Corrosion Inhibitors in Vault	3	3	4	2	3	3	4	4	3	2	5	3	2	2	H	171	
Corrosion Inhibitors in Vault	5	3	4	3	3	4	5	5	5	5	5	2	2	2	I	174	
															Average Score	**149.0**	**Combined Average**
Average (Mean)	**3.3**	**2.6**	**3.6**	**2.2**	**2.4**	**2.8**	**3.8**	**3.7**	**3.2**	**3.1**	**4.2**	**2.6**	**1.8**	**2.0**	**Score Using Avg. Wt. And Avg. Score**	**149.5**	**149.3**

Table A-10. Average Scores for Each Strategy

Current System	5	1	3	2	1	3	5	5	2	2	3	1	3	5	A	140	
Current System	4	2	3	1	1	3	4	2	4	3	4	2	1	2	B*	130	
Current System	3	1	3	1	1	3	5	4	3	4	5	2	3	1	C*	135	
Current System	3	1	4	3	1	5	5	4	5	3	4	3	3	2	D	154	
Current System	5	3	5	2	2	4	5	4	4	3	4	4	1	2	E	198	
Current System	2	2	2	2	2	3	4	3	4	4	4	1	1	3	F	134	
Current System	4	3	3	2	2	3	4	3	3	5	5	2	2	3	G	157	
Current System	3	2	5	2	2	2	5	4	5	3	5	2	1	2	H	166	
Current System	5	4	3	3	4	3	5	2	5	2	5	4	2	3	I	164	
															Average Score	**153.1**	**Combined Average**
Average (Mean)	**3.8**	**2.1**	**3.4**	**2.0**	**1.8**	**3.2**	**4.7**	**3.4**	**3.9**	**3.2**	**4.3**	**2.3**	**1.9**	**2.6**	**Score Using Avg. Wt. And Avg. Score**	**153.1**	**153.1**
Groundwater Barrier/Drying	5	3	3	3	4	3	3	4	4	4	2	3	3	3	A	168	
Groundwater Barrier/Drying	3	3	2	2	2	2	2	3	2	3	4	4	2	2	B*	131	
Groundwater Barrier/Drying	1	2	2	1	2	2	1	1	1	3	3	1	1	1	C*	82	
Groundwater Barrier/Drying	4	4	2	3	3	3	1	3	3	1	4	4	3	3	D	140	
Groundwater Barrier/Drying	4	3	5	3	3	3	2	2	2	3	4	4	2	2	E	177	
Groundwater Barrier/Drying	2	3	2	3	3	3	5	4	3	3	4	2	2	1	F	146	
Groundwater Barrier/Drying	3	2	3	2	2	3	2	3	2	4	5	2	2	3	G	137	
Groundwater Barrier/Drying	2	4	4	4	4	4	2	3	3	4	5	4	3	2	H	192	
Groundwater Barrier/Drying	4	4	4	3	4	4	2	4	4	4	5	3	3	3	I	169	
															Average Score	**149.1**	**Combined Average**
Average (Mean)	**3.1**	**3.1**	**3.0**	**2.7**	**3.0**	**3.0**	**2.2**	**3.0**	**2.7**	**3.2**	**4.0**	**3.0**	**2.3**	**2.2**	**Score Using Avg. Wt. And Avg. Score**	**149.0**	**149.1**
Infiltration Barrier/Drying	5	3	3	3	4	3	3	4	4	4	2	3	3	3	A	168	
Infiltration Barrier/Drying	3	3	2	2	2	3	2	3	2	3	4	4	2	2	B*	135	
Infiltration Barrier/Drying	1	2	3	2	2	2	3	3	3	3	3	2	2	2	C*	118	
Infiltration Barrier/Drying	4	2	2	3	3	3	2	3	4	2	4	4	3	4	D	145	
Infiltration Barrier/Drying	4	3	5	3	3	3	4	4	4	3	4	4	2	3	E	201	
Infiltration Barrier/Drying	0	1	2	1	3	3	5	4	3	3	4	2	2	1	F	120	
Infiltration Barrier/Drying	3	3	3	3	3	3	2	3	3	4	5	3	2	2	G	154	
Infiltration Barrier/Drying	2	4	3	4	4	4	2	3	4	4	5	4	3	3	H	196	
Infiltration Barrier/Drying	5	4	5	5	4	4	3	4	4	5	4	4	3	3	I	188	
															Average Score	**158.4**	**Combined Average**
Average (Mean)	**3.0**	**2.8**	**3.1**	**2.9**	**3.1**	**3.1**	**2.9**	**3.4**	**3.4**	**3.4**	**3.9**	**3.3**	**2.4**	**2.6**	**Score Using Avg. Wt. And Avg. Score**	**158.1**	**158.3**

Table A-10. Average Scores for Each Strategy

Interceptor Trench/Drying	5	3	3	3	3	3	3	4	4	4	2	3	3	2	A	159	
Interceptor Trench/Drying	3	2	2	2	2	2	2	3	2	3	4	4	2	1	B*	123	
Interceptor Trench/Drying	1	2	2	1	2	2	2	2	2	3	3	2	2	2	C*	101	
Interceptor Trench/Drying	3	3	2	3	3	3	2	3	3	1	4	4	3	2	D	133	
Interceptor Trench/Drying	5	3	5	3	3	4	4	4	4	3	4	4	2	3	E	211	
Interceptor Trench/Drying	3	2	2	3	3	3	4	3	3	3	4	2	2	2	F	142	
Interceptor Trench/Drying	2	3	3	3	3	3	3	3	2	1	5	2	1	2	G	134	
Interceptor Trench/Drying	2	4	3	4	4	4	2	3	4	4	5	4	3	3	H	196	
Interceptor Trench/Drying	4	5	5	5	4	5	4	4	5	5	5	4	3	4	I	200	
															Average Score	**155.4**	**Combined Average**
Average (Mean)	**3.1**	**3.0**	**3.0**	**3.0**	**3.0**	**3.2**	**2.9**	**3.2**	**3.2**	**3.0**	**4.0**	**3.2**	**2.3**	**2.3**	**Score Using Avg. Wt. And Avg. Score**	**155.7**	**155.6**
Low Strength Grout	5	2	3	3	2	3	3	4	2	1	2	2	3	2	A	124	
Low Strength Grout	3	2	3	3	2	3	1	4	2	1	2	2	2	2	B*	118	
Low Strength Grout	4	4	4	4	2	3	3	5	3	1	1	3	4	4	C*	163	
Low Strength Grout	3	2	3	3	3	4	4	4	4	4	1	4	4	4	D	154	
Low Strength Grout	5	4	5	3	3	4	3	4	3	3	2	4	3	3	E	204	
Low Strength Grout	4	4	4	4	3	3	3	2	4	4	3	2	2	3	F	168	
Low Strength Grout	4	4	4	4	4	4	4	5	3	1	1	3	3	3	G	169	
Low Strength Grout	3	4	4	3	2	3	4	4	3	3	4	3	3	2	H	175	
Low Strength Grout	5	4	5	4	2	5	2	4	4	1	4	2	2	2	I	149	
															Average Score	**158.2**	**Combined Average**
Average (Mean)	**4.0**	**3.3**	**3.9**	**3.4**	**2.6**	**3.6**	**3.0**	**4.0**	**3.1**	**2.1**	**2.2**	**2.8**	**2.9**	**2.8**	**Score Using Avg. Wt. And Avg. Score**	**159.3**	**158.7**
Low Strength Grout/Drying	5	3	3	3	2	3	2	3	3	1	2	2	3	2	A	126	
Low Strength Grout/Drying	3	3	4	4	3	3	1	3	3	1	2	3	3	2	B*	141	
Low Strength Grout/Drying	4	5	4	5	3	3	2	1	3	2	1	3	2	4	C*	160	
Low Strength Grout/Drying	3	4	3	4	4	3	3	3	4	3	1	4	5	4	D	159	
Low Strength Grout/Drying	4	4	5	3	3	4	3	3	3	3	2	4	3	3	E	196	
Low Strength Grout/Drying	4	4	3	4	4	4	4	3	4	4	3	3	2	3	F	182	
Low Strength Grout/Drying	4	5	3	5	5	3	3	3	3	1	1	4	3	4	G	174	
Low Strength Grout/Drying	2	4	4	4	5	4	3	3	3	4	3	4	4	3	H	197	
Low Strength Grout/Drying	5	4	5	4	5	5	2	4	4	1	4	3	2	3	I	169	
															Average Score	**167.1**	**Combined Average**
Average (Mean)	**3.8**	**4.0**	**3.8**	**4.0**	**3.8**	**3.6**	**2.6**	**2.9**	**3.3**	**2.2**	**2.1**	**3.3**	**3.0**	**3.1**	**Score Using Avg. Wt. And Avg. Score**	**168.2**	**167.7**

Table A-10. Average Scores for Each Strategy

Monitors	5	1	4	3	1	4	3	2	4	3	4	3	1	4	A	145	
Monitors	3	1	3	3	0	4	4	4	3	3	4	2	3	1	B*	133	
Monitors	2	1	2	1	1	3	2	2	2	4	5	3	1	1	C*	108	
Monitors	1	1	4	1	1	1	4	4	5	4	4	1	2	1	D	105	
Monitors	5	3	5	3	3	4	3	3	3	3	4	4	2	3	E	201	
Monitors	2	2	4	3	3	3	4	4	3	3	4	2	1	2	F	147	
Monitors	4	2	4	2	1	4	4	4	2	5	5	2	1	1	G	147	
Monitors	3	2	4	2	2	2	3	3	4	3	5	2	1	2	H	150	
Monitors	5	1	5	1	1	5	4	4	3	5	5	2	1	2	I	138	
															Average Score	**141.6**	**Combined Average**
Average (Mean)	**3.3**	**1.6**	**3.9**	**2.1**	**1.4**	**3.3**	**3.4**	**3.3**	**3.2**	**3.7**	**4.4**	**2.3**	**1.4**	**1.9**	**Score Using Avg. Wt. And Avg. Score**	**142.3**	**142.0**
Nitrogen Blanket	5	2	2	2	3	2	3	4	3	3	3	3	2	2	A	135	
Nitrogen Blanket	4	2	4	2	2	3	4	2	3	4	4	3	2	2	B*	148	
Nitrogen Blanket	3	2	3	2	1	2	4	2	2	4	5	3	2	1	C*	129	
Nitrogen Blanket	3	2	3	3	2	3	3	3	2	2	4	3	2	2	D	128	
Nitrogen Blanket	5	3	5	3	3	4	3	4	4	3	4	4	2	3	E	208	
Nitrogen Blanket	2	2	2	2	2	2	4	3	4	3	4	1	1	1	F	120	
Nitrogen Blanket	3	2	2	2	2	2	3	4	1	5	5	2	2	2	G	129	
Nitrogen Blanket	3	3	4	3	3	4	4	4	4	3	5	3	1	2	H	183	
Nitrogen Blanket	4	3	3	2	2	3	3	3	2	5	5	3	3	2	I	141	
															Average Score	**146.8**	**Combined Average**
Average (Mean)	**3.6**	**2.3**	**3.1**	**2.3**	**2.2**	**2.8**	**3.4**	**3.2**	**2.8**	**3.6**	**4.3**	**2.8**	**1.9**	**1.9**	**Score Using Avg. Wt. And Avg. Score**	**145.7**	**146.2**
Nitrogen Blanket w/Oxygen Removal	5	3	3	3	4	3	2	3	3	3	3	3	3	2	A	152	
Nitrogen Blanket w/Oxygen Removal	4	3	4	2	1	3	3	2	2	4	4	3	2	2	B*	142	
Nitrogen Blanket w/Oxygen Removal	3	2	3	2	1	2	3	1	2	3	5	3	2	1	C*	120	
Nitrogen Blanket w/Oxygen Removal	3	3	3	3	3	2	2	2	2	2	4	3	1	2	D	122	
Nitrogen Blanket w/Oxygen Removal	5	3	5	3	3	4	3	4	2	3	4	3	2	2	E	192	
Nitrogen Blanket w/Oxygen Removal	2	2	2	2	2	2	4	3	4	3	4	2	1	2	F	127	
Nitrogen Blanket w/Oxygen Removal	3	3	2	3	3	2	2	3	2	4	5	3	2	2	G	142	
Nitrogen Blanket w/Oxygen Removal	3	4	4	3	3	4	2	3	3	3	5	4	2	2	H	183	
Nitrogen Blanket w/Oxygen Removal	4	3	2	2	3	2	3	2	3	5	5	3	3	3	I	143	
															Average Score	**147.0**	**Combined Average**
Average (Mean)	**3.6**	**2.9**	**3.1**	**2.6**	**2.6**	**2.7**	**2.7**	**2.6**	**2.6**	**3.3**	**4.3**	**3.0**	**2.0**	**2.0**	**Score Using Avg. Wt. And Avg. Score**	**146.0**	**146.5**

Table A-10. Average Scores for Each Strategy

Sorbents in Annulus	5	4	3	3	2	3	3	4	4	2	3	3	2	2	A	150	
Sorbents in Annulus	3	2	2	1	2	3	4	4	2	4	4	2	2	1	B*	127	
Sorbents in Annulus	2	3	3	3	1	2	3	4	2	3	3	2	3	3	C*	132	
Sorbents in Annulus	2	1	4	1	1	3	4	3	1	3	2	2	2	1	D	100	
Sorbents in Annulus	5	3	5	3	3	4	3	4	3	3	4	4	2	3	E	204	
Sorbents in Annulus	2	2	2	2	2	2	4	4	2	3	4	2	1	0	F	118	
Sorbents in Annulus	3	2	3	3	3	2	4	4	2	3	4	3	1	1	G	136	
Sorbents in Annulus	2	3	4	2	2	2	3	4	2	2	4	3	2	2	H	144	
Sorbents in Annulus	4	3	4	3	1	2	3	3	2	4	5	2	2	2	I	130	
															Average Score	**138.0**	**Combined Average**
Average (Mean)	**3.1**	**2.6**	**3.3**	**2.3**	**1.9**	**2.6**	**3.4**	**3.8**	**2.2**	**3.0**	**3.7**	**2.6**	**1.9**	**1.7**	**Score Using Avg. Wt. And Avg. Score**	**137.4**	**137.7**
Sorbents with Cathodic Protection	5	3	3	3	3	3	2	4	4	2	3	3	2	2	A	146	
Sorbents with Cathodic Protection	3	3	2	2	3	3	3	3	3	4	4	2	2	2	B*	142	
Sorbents with Cathodic Protection	2	3	3	3	2	2	3	3	1	3	3	2	2	3	C*	128	
Sorbents with Cathodic Protection	3	3	2	2	3	3	3	2	1	3	2	2	2	1	D	105	
Sorbents with Cathodic Protection	5	3	5	3	3	4	3	3	2	3	4	4	2	2	E	193	
Sorbents with Cathodic Protection	2	3	2	3	3	3	4	4	2	3	4	2	1	1	F	138	
Sorbents with Cathodic Protection	3	2	3	4	3	2	2	3	3	3	4	3	2	3	G	147	
Sorbents with Cathodic Protection	2	4	3	3	2	3	2	4	2	2	4	3	2	2	H	151	
Sorbents with Cathodic Protection	5	2	3	3	2	2	3	3	2	4	5	2	2	2	I	133	
															Average Score	**142.6**	**Combined Average**
Average (Mean)	**3.3**	**2.9**	**2.9**	**2.9**	**2.7**	**2.8**	**2.8**	**3.2**	**2.2**	**3.0**	**3.7**	**2.6**	**1.9**	**2.0**	**Score Using Avg. Wt. And Avg. Score**	**142.3**	**142.4**
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	5	4	5	5	5	5	1	3	4	4	2	5	5	2	A	195	
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	3	2	2	2	2	2	1	3	2	2	4	3	2	2	B*	117	
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	2	2	3	2	2	2	3	1	4	1	5	2	2	2	C*	121	
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	5	5	1	5	5	3	1	2	3	1	4	4	1	5	D	161	
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	4	3	5	3	3	4	3	3	2	4	4	4	2	2	E	191	
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	2	3	3	3	2	3	3	2	3	3	4	2	1	2	F	135	
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	2	4	3	4	4	3	1	2	2	1	5	4	1	3	G	152	
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	2	5	2	5	5	5	1	2	4	2	5	5	4	4	H	213	
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	4	5	5	5	4	5	3	4	5	2	5	3	2	4	I	181	
															Average Score	**162.9**	**Combined Average**
Average (Mean)	**3.2**	**3.7**	**3.2**	**3.8**	**3.6**	**3.6**	**1.9**	**2.4**	**3.2**	**2.2**	**4.2**	**3.6**	**2.2**	**2.9**	**Score Using Avg. Wt. And Avg. Score**	**163.4**	**163.2**

Table A-10. Average Scores for Each Strategy

Trench/Infiltration Barrier/Drying	5	3	4	4	5	4	2	2	4	4	2	4	4	2	A	175	
Trench/Infiltration Barrier/Drying	3	2	2	2	2	2	2	3	2	3	4	4	2	1	B*	123	
Trench/Infiltration Barrier/Drying	4	5	3	5	4	3	1	3	2	4	5	4	3	4	C*	188	
Trench/Infiltration Barrier/Drying	4	4	1	4	4	3	1	3	3	1	4	4	3	4	D	149	
Trench/Infiltration Barrier/Drying	4	3	5	3	3	4	3	4	4	4	4	4	2	4	E	210	
Trench/Infiltration Barrier/Drying	2	1	3	3	3	3	5	3	3	3	4	2	2	2	F	140	
Trench/Infiltration Barrier/Drying	2	4	3	4	4	3	2	3	2	1	5	3	1	3	G	153	
Trench/Infiltration Barrier/Drying	2	5	2	5	5	5	1	3	4	4	5	5	4	4	H	219	
Trench/Infiltration Barrier/Drying	4	5	5	5	4	5	3	4	5	5	2	5	2	4	I	190	
															Average Score	**171.8**	**Combined Average**
Average (Mean)	**3.3**	**3.6**	**3.1**	**3.9**	**3.8**	**3.6**	**2.2**	**3.1**	**3.2**	**3.2**	**3.9**	**3.9**	**2.6**	**3.1**	**Score Using Avg. Wt. And Avg. Score**	**171.8**	**171.8**
Vault & Tank Drying	5	3	3	3	4	3	2	3	3	3	4	3	3	3	A	160	
Vault & Tank Drying	3	4	4	3	4	3	3	2	2	3	3	4	3	2	B*	159	
Vault & Tank Drying	3	3	3	4	4	3	3	1	3	3	4	3	1	4	C*	158	
Vault & Tank Drying	3	3	3	3	3	2	3	3	4	2	4	4	3	2	D	139	
Vault & Tank Drying	4	3	4	3	4	3	3	4	3	3	4	3	1	3	E	186	
Vault & Tank Drying	1	2	2	2	2	2	3	3	3	3	4	2	1	3	F	120	
Vault & Tank Drying	3	4	3	4	3	3	3	2	2	4	5	3	2	3	G	163	
Vault & Tank Drying	2	4	4	5	4	5	2	3	4	4	4	5	3	3	H	208	
Vault & Tank Drying	5	5	3	4	4	5	4	4	4	3	5	4	3	4	I	187	
															Average Score	**164.5**	**Combined Average**
Average (Mean)	**3.2**	**3.4**	**3.2**	**3.4**	**3.6**	**3.2**	**2.9**	**2.8**	**3.1**	**3.1**	**4.1**	**3.4**	**2.2**	**3.0**	**Score Using Avg. Wt. And Avg. Score**	**165.5**	**165.0**
Vault Drying	5	2	2	2	3	2	3	4	3	3	4	3	3	3	A	146	
Vault Drying	4	3	4	3	3	3	3	3	2	3	4	4	2	2	B*	158	
Vault Drying	3	2	3	3	3	3	3	2	2	3	5	3	2	2	C*	143	
Vault Drying	3	2	4	3	2	3	3	3	4	2	4	4	3	2	D	142	
Vault Drying	4	3	4	3	3	3	3	3	3	3	4	3	1	2	E	175	
Vault Drying	2	2	2	2	2	2	4	3	4	3	4	1	1	3	F	126	
Vault Drying	3	3	3	3	2	3	4	3	2	4	5	2	2	2	G	147	
Vault Drying	2	4	4	4	3	4	3	3	4	3	5	4	3	2	H	192	
Vault Drying	5	4	4	4	4	5	4	4	4	5	5	4	3	4	I	192	
															Average Score	**158.0**	**Combined Average**
Average (Mean)	**3.4**	**2.8**	**3.3**	**3.0**	**2.8**	**3.1**	**3.3**	**3.1**	**3.1**	**3.2**	**4.4**	**3.1**	**2.2**	**2.4**	**Score Using Avg. Wt. And Avg. Score**	**158.7**	**158.3**

Table A-10. Average Scores for Each Strategy

Waste Removal	5	2	1	1	2	1	2	4	4	2	5	5	3	2	A	129	
Waste Removal	4	4	3	4	3	3	1	2	4	1	4	4	4	4	B*	167	
Waste Removal	4	5	5	5	5	4	1	4	3	1	4	5	5	4	C*	205	
Waste Removal	5	5	1	5	1	4	1	2	1	1	5	5	4	4	D	154	
Waste Removal	4	4	4	3	4	3	2	3	3	4	4	3	2	2	E	187	
Waste Removal	4	2	5	3	0	3	5	0	2	1	2	1	5	2	F	123	
Waste Removal	1	5	1	5	1	5	1	5	1	5	5	4	5	1	G	162	
Waste Removal	4	5	2	4	3	5	1	5	2	2	5	5	5	3	H	206	
Waste Removal	5	5	5	5	1	5	1	5	5	1	5	5	4	5	I	179	
															Average Score	**168.0**	**Combined Average**
Average (Mean)	**4.0**	**4.1**	**3.0**	**3.9**	**2.2**	**3.7**	**1.7**	**3.3**	**2.8**	**2.0**	**4.3**	**4.1**	**4.1**	**3.0**	**Score Using Avg. Wt. And Avg. Score**	**169.6**	**168.8**

Table A-11. Adjusted Average Scores for Each Strategy

EVALUATION CRITERIA---->	Compliance with Regulations and Permits	Prevent Release of Contents	Acceptable Risk (Short Term)	Acceptable Risk (Long Term)	Maintain Tank Integrity	Safe Operating Envelope	Capital Cost	Operating Cost	Proven Methods and Technologies	Minimize Secondary Waste	Preserve Closure Options	Regulatory and Stakeholder Acceptance	Reduced Monitoring and Surveillance	Certainty of Strategy			
Team Member																	
A	1	5	4	4	5	3	4	3	4	5	4	2	3	4			
B	Did not supply weightings																
C	Did not weight from 1-5																
D	2	3	5	5	4	5	3	3	2	1	4	3	2	5			
E	5	5	5	5	4	5	3	3	4	3	4	4	3	4			
F	4	5	4	4	4	4	3	3	3	4	4	4	2	3			
G	4	5	4	5	3	4	2	3	4	3	4	4	1	4			
H	5	5	4	4	5	5	3	2	4	2	5	4	3	4			
I	5	5	2	3	5	2	2	4	3	4	3	3	2	2			
Average Weighting Factor	**3.7**	**4.7**	**4.0**	**4.3**	**4.3**	**4.0**	**2.9**	**3.0**	**3.4**	**3.1**	**4.0**	**3.4**	**2.3**	**3.7**			
STRATEGY															**TEAM MEMBER**	**SCORE**	
Argon Blanket	5	3	2	2	3	2	3	3	3	3	4	3	2	2	A	141	
Argon Blanket	4	2	3	2	2	3	3	3	3	4	4	3	2	2	B*	144	
Argon Blanket	3	2	3	2	2	2	3	2	2	4	5	3	2	2	C*	134	
Argon Blanket	3	2	3	2	2	3	3	3	2	3	4	3	2	2	D	124	
Argon Blanket	5	3	4	3	3	3	2	3	3	3	4	3	2	2	E	180	
Argon Blanket	2	2	2	2	2	2	3	3	3	3	4	2	1	2	F	121	
Argon Blanket	3	3	1	3	3	2	2	3	2	5	5	2	2	2	G	137	
Argon Blanket	2	3	4	1	3	2	3	3	3	3	5	2	1	2	H	147	
Argon Blanket	4	3	2	2	2	2	2	2	3	5	5	2	2	2	I	129	
Note: *Average weighting factors from other team members were used															**Average Score**	**139.7**	**Combined Average**
Average Score	**3.4**	**2.6**	**2.7**	**2.1**	**2.4**	**2.3**	**2.7**	**2.8**	**2.7**	**3.7**	**4.4**	**2.6**	**1.8**	**2.0**	**Score Using Avg. Wt. And Avg. Score**	**139.0**	**139.3**
Argon Blanket w/Cathodic Protection	5	3	3	3	4	3	2	3	3	3	4	3	3	2	A	156	
Argon Blanket w/Cathodic Protection	4	3	3	3	2	3	3	3	3	4	4	3	2	2	B*	153	
Argon Blanket w/Cathodic Protection	3	2	3	2	2	2	3	2	2	3	5	3	2	2	C*	131	
Argon Blanket w/Cathodic Protection	3	3	3	3	3	3	2	3	2	3	4	3	2	3	D	138	
Argon Blanket w/Cathodic Protection	5	3	3	3	3	3	2	2	2	3	4	3	1	2	E	165	
Argon Blanket w/Cathodic Protection	2	2	2	3	3	2	3	3	2	3	4	2	2	2	F	128	
Argon Blanket w/Cathodic Protection	3	4	2	3	4	2	2	2	3	5	5	3	2	3	G	158	
Argon Blanket w/Cathodic Protection	2	4	3	2	3	2	3	2	3	3	5	2	1	2	H	150	
Argon Blanket w/Cathodic Protection	3	3	3	2	2	3	3	2	2	5	5	2	2	2	I	127	
															Average Score	**145.1**	**Combined Average**
Average (Mean)	**3.3**	**3.0**	**2.8**	**2.7**	**2.9**	**2.6**	**2.6**	**2.4**	**2.4**	**3.6**	**4.4**	**2.7**	**1.9**	**2.2**	**Score Using Avg. Wt. And Avg. Score**	**145.3**	**145.2**

Table A-11. Adjusted Average Scores for Each Strategy

Cathodic Protection	5	3	3	2	3	3	3	4	3	3	4	3	2	2	A	151	
Cathodic Protection	4	3	3	2	3	3	4	3	3	4	4	3	2	2	B*	156	
Cathodic Protection	3	2	3	2	2	3	4	3	3	4	5	3	2	2	C*	147	
Cathodic Protection	2	2	3	2	2	4	3	4	2	3	4	2	2	2	D	127	
Cathodic Protection	5	3	3	3	3	4	3	3	2	3	4	3	1	2	E	176	
Cathodic Protection	2	2	3	2	2	3	3	3	3	4	4	2	1	2	F	133	
Cathodic Protection	4	2	3	2	2	4	3	4	2	5	5	2	2	2	G	149	
Cathodic Protection	3	3	3	3	2	3	4	4	3	3	5	3	1	2	H	165	
Cathodic Protection	4	2	3	2	2	4	3	3	2	5	5	2	2	2	I	133	
															Average Score	**148.6**	**Combined Average**
Average (Mean)	**3.6**	**2.4**	**3.0**	**2.2**	**2.3**	**3.4**	**3.3**	**3.4**	**2.6**	**3.8**	**4.4**	**2.6**	**1.7**	**2.0**	**Score Using Avg. Wt. And Avg. Score**	**148.3**	**148.4**
Contamination Fixative/Drying	5	2	3	3	2	3	2	3	2	2	3	3	3	3	A	132	
Contamination Fixative/Drying	3	2	3	2	2	3	3	3	2	3	4	3	2	2	B*	134	
Contamination Fixative/Drying	3	4	3	3	3	3	2	2	2	2	2	2	2	3	C*	135	
Contamination Fixative/Drying	3	3	3	3	2	3	4	2	3	3	2	2	3	3	D	130	
Contamination Fixative/Drying	5	3	4	3	3	3	3	3	2	3	2	4	2	2	E	175	
Contamination Fixative/Drying	3	3	3	3	3	4	4	3	3	4	3	2	2	2	F	155	
Contamination Fixative/Drying	3	4	3	4	4	3	2	3	2	3	2	3	2	2	G	148	
Contamination Fixative/Drying	2	4	4	4	4	4	3	3	3	3	3	3	3	3	H	183	
Contamination Fixative/Drying	5	4	4	4	4	4	3	3	3	4	4	3	2	3	I	167	
															Average Score	**151.0**	**Combined Average**
Average (Mean)	**3.6**	**3.2**	**3.3**	**3.2**	**3.0**	**3.3**	**2.9**	**2.8**	**2.4**	**3.0**	**2.8**	**2.8**	**2.3**	**2.6**	**Score Using Avg. Wt. And Avg. Score**	**151.6**	**151.3**
Corrosion Inhibitors in Vault	5	3	3	3	3	3	4	4	3	2	4	3	2	2	A	154	
Corrosion Inhibitors in Vault	3	3	3	2	2	3	4	4	2	4	4	2	2	2	B*	144	
Corrosion Inhibitors in Vault	3	2	3	2	2	2	4	4	3	4	5	3	2	2	C*	146	
Corrosion Inhibitors in Vault	3	3	4	1	2	3	4	4	5	3	4	3	2	2	D	139	
Corrosion Inhibitors in Vault	5	3	4	3	3	4	4	3	2	3	4	3	2	2	E	187	
Corrosion Inhibitors in Vault	3	2	4	1	2	2	4	3	3	3	4	2	1	2	F	132	
Corrosion Inhibitors in Vault	3	2	3	3	3	2	4	4	3	2	4	2	1	2	G	137	
Corrosion Inhibitors in Vault	3	3	4	2	3	3	4	4	3	2	5	3	2	2	H	171	
Corrosion Inhibitors in Vault	5	3	4	3	3	4	4	4	5	4	5	2	2	2	I	164	
															Average Score	**152.7**	**Combined Average**
Average (Mean)	**3.7**	**2.7**	**3.6**	**2.2**	**2.6**	**2.9**	**4.0**	**3.8**	**3.2**	**3.0**	**4.3**	**2.6**	**1.8**	**2.0**	**Score Using Avg. Wt. And Avg. Score**	**153.3**	**153.0**

Table A-11. Adjusted Average Scores for Each Strategy

Current System	5	1	3	2	1	3	5	4	3	2	4	1	3	3	A	137	
Current System	4	2	3	1	1	3	4	2	4	3	4	2	1	2	B*	130	
Current System	3	1	3	1	1	3	5	4	3	4	5	2	3	2	C*	139	
Current System	3	1	4	3	1	4	5	4	5	3	4	3	3	2	D	149	
Current System	5	3	5	2	2	4	5	4	4	3	4	4	1	2	E	198	
Current System	3	2	3	2	2	3	4	3	4	4	4	1	1	3	F	142	
Current System	4	3	3	2	2	3	4	3	3	4	5	2	2	3	G	154	
Current System	3	2	5	2	2	2	5	4	5	3	5	2	1	2	H	166	
Current System	5	3	3	3	2	3	5	2	5	2	5	4	2	3	I	149	
															Average Score	**151.5**	**Combined Average**
Average (Mean)	**3.9**	**2.0**	**3.6**	**2.0**	**1.6**	**3.1**	**4.7**	**3.3**	**4.0**	**3.1**	**4.4**	**2.3**	**1.9**	**2.4**	**Score Using Avg. Wt. And Avg. Score**	**151.8**	**151.7**
Groundwater Barrier/Drying	4	3	3	3	4	3	3	4	4	4	3	3	3	3	A	171	
Groundwater Barrier/Drying	3	3	2	2	2	2	2	3	2	3	4	4	2	2	B*	131	
Groundwater Barrier/Drying	2	2	2	2	2	2	1	2	2	3	3	2	2	1	C*	102	
Groundwater Barrier/Drying	4	4	2	3	3	3	1	3	3	3	4	4	3	3	D	142	
Groundwater Barrier/Drying	4	3	4	3	3	3	2	2	2	3	4	4	2	2	E	172	
Groundwater Barrier/Drying	2	3	2	3	3	3	3	4	3	3	4	2	2	1	F	140	
Groundwater Barrier/Drying	3	2	3	2	2	3	2	3	2	4	5	2	2	3	G	137	
Groundwater Barrier/Drying	2	4	4	3	4	4	2	3	3	4	5	4	3	2	H	188	
Groundwater Barrier/Drying	4	4	4	3	4	4	2	4	4	4	5	3	3	3	I	169	
															Average Score	**150.3**	**Combined Average**
Average (Mean)	**3.1**	**3.1**	**2.9**	**2.7**	**3.0**	**3.0**	**2.0**	**3.1**	**2.8**	**3.4**	**4.1**	**3.1**	**2.4**	**2.2**	**Score Using Avg. Wt. And Avg. Score**	**150.4**	**150.3**
Infiltration Barrier/Drying	5	3	3	3	4	3	3	4	4	4	3	3	3	3	A	172	
Infiltration Barrier/Drying	3	3	2	2	2	3	2	3	3	3	4	4	2	2	B*	139	
Infiltration Barrier/Drying	1	2	3	2	2	3	3	3	3	3	3	2	2	2	C*	122	
Infiltration Barrier/Drying	4	2	2	3	3	3	2	3	4	3	4	4	3	3	D	141	
Infiltration Barrier/Drying	4	3	5	3	3	3	4	4	4	3	4	4	2	3	E	201	
Infiltration Barrier/Drying	1	2	2	2	3	3	4	4	3	3	4	2	2	2	F	133	
Infiltration Barrier/Drying	3	3	3	3	3	3	2	3	3	4	5	3	2	2	G	154	
Infiltration Barrier/Drying	2	4	3	4	4	4	2	3	4	4	5	4	3	3	H	196	
Infiltration Barrier/Drying	5	4	5	5	4	4	3	4	4	5	4	4	3	3	I	188	
															Average Score	**160.7**	**Combined Average**
Average (Mean)	**3.1**	**2.9**	**3.1**	**3.0**	**3.1**	**3.2**	**2.8**	**3.4**	**3.6**	**3.6**	**4.0**	**3.3**	**2.4**	**2.6**	**Score Using Avg. Wt. And Avg. Score**	**160.8**	**160.8**

Table A-11. Adjusted Average Scores for Each Strategy

Interceptor Trench/Drying	5	3	3	3	3	3	3	4	4	4	3	3	3	2	A	163	
Interceptor Trench/Drying	3	2	2	2	2	2	2	3	2	3	4	4	2	2	B*	126	
Interceptor Trench/Drying	2	2	2	2	2	2	2	2	2	3	3	2	2	2	C*	109	
Interceptor Trench/Drying	3	3	2	3	3	3	2	3	3	1	4	4	3	2	D	133	
Interceptor Trench/Drying	5	3	5	3	3	4	4	4	4	3	4	4	2	3	E	211	
Interceptor Trench/Drying	3	2	2	3	3	3	4	3	3	3	4	2	2	2	F	142	
Interceptor Trench/Drying	2	3	3	3	3	3	3	3	2	1	5	2	2	2	G	135	
Interceptor Trench/Drying	2	4	3	4	4	4	2	3	4	4	5	4	3	3	H	196	
Interceptor Trench/Drying	4	4	5	4	4	4	4	4	4	4	5	4	3	4	I	183	
															Average Score	**155.4**	**Combined Average**
Average (Mean)	**3.2**	**2.9**	**3.0**	**3.0**	**3.0**	**3.1**	**2.9**	**3.2**	**3.1**	**2.9**	**4.1**	**3.2**	**2.4**	**2.4**	**Score Using Avg. Wt. And Avg. Score**	**155.6**	**155.5**
Low Strength Grout	5	2	3	3	2	3	3	4	2	1	2	2	3	2	A	124	
Low Strength Grout	3	2	3	3	2	3	2	4	2	1	2	2	2	2	B*	121	
Low Strength Grout	4	4	4	4	2	3	3	5	3	1	1	3	4	4	C*	163	
Low Strength Grout	3	2	3	3	3	4	4	4	4	4	1	4	4	4	D	154	
Low Strength Grout	5	4	5	3	3	4	3	4	3	3	2	4	3	3	E	204	
Low Strength Grout	4	4	4	4	3	3	3	4	4	4	3	2	2	3	F	174	
Low Strength Grout	4	4	4	4	3	4	4	5	3	1	1	3	3	3	G	166	
Low Strength Grout	3	4	4	3	2	3	4	4	3	3	4	3	3	2	H	175	
Low Strength Grout	5	4	5	4	2	4	2	4	4	1	4	2	2	2	I	147	
															Average Score	**158.6**	**Combined Average**
Average (Mean)	**4.0**	**3.3**	**3.9**	**3.4**	**2.4**	**3.4**	**3.1**	**4.2**	**3.1**	**2.1**	**2.2**	**2.8**	**2.9**	**2.8**	**Score Using Avg. Wt. And Avg. Score**	**159.3**	**159.0**
Low Strength Grout/Drying	5	3	3	3	3	3	2	3	3	1	2	3	3	2	A	133	
Low Strength Grout/Drying	3	3	4	4	3	3	2	3	3	1	2	3	3	2	B*	144	
Low Strength Grout/Drying	4	5	4	5	3	3	2	3	3	2	1	3	2	4	C*	166	
Low Strength Grout/Drying	3	4	3	4	4	3	3	3	4	3	1	4	4	4	D	157	
Low Strength Grout/Drying	4	4	5	3	3	4	3	3	3	3	2	4	3	3	E	196	
Low Strength Grout/Drying	4	4	3	4	4	4	3	3	4	4	3	3	2	3	F	179	
Low Strength Grout/Drying	4	5	3	5	5	3	3	3	3	1	1	4	3	4	G	174	
Low Strength Grout/Drying	3	4	4	4	5	4	3	3	3	4	3	4	4	3	H	202	
Low Strength Grout/Drying	5	4	5	4	5	4	2	3	4	1	3	3	2	3	I	160	
															Average Score	**167.9**	**Combined Average**
Average (Mean)	**3.9**	**4.0**	**3.8**	**4.0**	**3.9**	**3.4**	**2.6**	**3.0**	**3.3**	**2.2**	**2.0**	**3.4**	**2.9**	**3.1**	**Score Using Avg. Wt. And Avg. Score**	**168.7**	**168.3**

Table A-11. Adjusted Average Scores for Each Strategy

Monitors	5	1	4	3	1	4	3	2	4	3	4	3	1	2	A	137	
Monitors	3	1	3	3	1	4	4	4	3	3	4	2	2	1	B*	135	
Monitors	2	1	3	1	1	3	3	2	2	4	5	3	1	1	C*	115	
Monitors	2	1	4	1	1	2	4	4	4	4	4	2	2	1	D	113	
Monitors	5	2	5	3	3	4	3	3	3	3	4	3	2	3	E	192	
Monitors	2	2	4	3	3	3	4	4	3	3	4	2	1	2	F	147	
Monitors	4	2	4	2	1	4	4	4	2	5	5	2	1	1	G	147	
Monitors	3	2	4	2	2	2	3	3	4	3	5	2	1	2	H	150	
Monitors	5	1	5	1	1	4	4	4	3	5	5	2	1	2	I	136	
															Average Score	**141.4**	**Combined Average**
Average (Mean)	**3.4**	**1.4**	**4.0**	**2.1**	**1.6**	**3.3**	**3.6**	**3.3**	**3.1**	**3.7**	**4.4**	**2.3**	**1.3**	**1.7**	**Score Using Avg. Wt. And Avg. Score**	**142.0**	**141.7**
Nitrogen Blanket	5	2	2	2	3	2	3	4	3	3	4	3	2	2	A	139	
Nitrogen Blanket	4	2	4	2	2	3	4	2	3	4	4	3	2	2	B*	148	
Nitrogen Blanket	3	2	3	2	2	2	4	2	2	4	5	3	2	1	C*	133	
Nitrogen Blanket	3	2	3	3	2	3	3	3	2	3	4	3	2	2	D	129	
Nitrogen Blanket	5	3	4	3	3	4	3	4	4	3	4	3	2	2	E	195	
Nitrogen Blanket	3	2	2	2	2	2	4	3	4	3	4	2	1	1	F	128	
Nitrogen Blanket	3	2	2	2	2	2	3	4	2	5	5	2	2	2	G	133	
Nitrogen Blanket	3	3	4	3	3	4	4	4	4	3	5	3	1	2	H	183	
Nitrogen Blanket	4	3	3	2	2	3	3	3	2	5	5	3	3	2	I	141	
															Average Score	**147.7**	**Combined Average**
Average (Mean)	**3.7**	**2.3**	**3.0**	**2.3**	**2.3**	**2.8**	**3.4**	**3.2**	**2.9**	**3.7**	**4.4**	**2.8**	**1.9**	**1.8**	**Score Using Avg. Wt. And Avg. Score**	**146.9**	**147.3**
Nitrogen Blanket w/Oxygen Removal	5	3	3	3	3	3	2	3	3	3	4	3	3	2	A	151	
Nitrogen Blanket w/Oxygen Removal	4	3	4	2	1	3	3	2	2	4	4	3	2	2	B*	142	
Nitrogen Blanket w/Oxygen Removal	3	2	3	2	1	2	3	2	2	3	5	3	2	2	C*	127	
Nitrogen Blanket w/Oxygen Removal	3	3	3	3	3	2	2	2	2	3	4	3	1	2	D	123	
Nitrogen Blanket w/Oxygen Removal	5	3	4	3	3	4	3	3	2	3	4	3	2	2	E	184	
Nitrogen Blanket w/Oxygen Removal	3	2	2	2	2	2	3	3	3	3	4	2	1	2	F	125	
Nitrogen Blanket w/Oxygen Removal	3	3	2	3	3	2	2	3	2	4	5	3	2	2	G	142	
Nitrogen Blanket w/Oxygen Removal	3	3	4	3	3	4	2	3	3	3	5	3	2	2	H	174	
Nitrogen Blanket w/Oxygen Removal	4	3	2	2	3	2	3	2	3	5	5	3	3	3	I	143	
															Average Score	**145.6**	**Combined Average**
Average (Mean)	**3.7**	**2.8**	**3.0**	**2.6**	**2.4**	**2.7**	**2.6**	**2.6**	**2.4**	**3.4**	**4.4**	**2.9**	**2.0**	**2.1**	**Score Using Avg. Wt. And Avg. Score**	**145.1**	**145.4**

Table A-11. Adjusted Average Scores for Each Strategy

Sorbents in Annulus	5	3	3	3	2	3	3	4	3	2	3	3	2	2	A	141	
Sorbents in Annulus	3	2	2	1	2	3	4	4	2	4	4	2	2	1	B*	127	
Sorbents in Annulus	2	3	3	3	1	2	3	4	2	3	3	2	2	2	C*	126	
Sorbents in Annulus	2	2	4	1	1	3	4	3	2	3	3	2	2	1	D	109	
Sorbents in Annulus	5	3	4	3	2	3	3	4	3	3	4	3	2	3	E	186	
Sorbents in Annulus	2	2	2	2	2	2	4	4	2	3	4	2	1	1	F	121	
Sorbents in Annulus	3	2	3	3	3	2	4	4	2	3	4	3	1	1	G	136	
Sorbents in Annulus	2	3	4	2	2	2	3	4	2	2	4	3	2	2	H	144	
Sorbents in Annulus	4	3	4	3	1	2	3	3	2	4	4	2	2	2	I	127	
															Average Score	**135.3**	**Combined Average**
Average (Mean)	**3.1**	**2.6**	**3.2**	**2.3**	**1.8**	**2.4**	**3.4**	**3.8**	**2.2**	**3.0**	**3.7**	**2.4**	**1.8**	**1.7**	**Score Using Avg. Wt. And Avg. Score**	**135.4**	**135.4**
Sorbents with Cathodic Protection	5	3	3	3	3	3	2	4	3	2	3	3	2	2	A	142	
Sorbents with Cathodic Protection	3	3	2	2	3	3	3	3	3	4	4	2	2	2	B*	142	
Sorbents with Cathodic Protection	2	3	3	3	2	2	3	3	1	3	3	2	2	3	C*	128	
Sorbents with Cathodic Protection	3	3	2	2	3	3	3	3	1	3	3	2	2	1	D	112	
Sorbents with Cathodic Protection	5	3	3	3	3	3	3	3	2	3	4	3	2	2	E	174	
Sorbents with Cathodic Protection	2	3	2	3	3	3	3	4	2	3	4	2	2	1	F	137	
Sorbents with Cathodic Protection	3	2	3	3	3	2	2	3	3	3	4	3	2	3	G	142	
Sorbents with Cathodic Protection	2	4	3	3	2	3	2	4	2	2	4	3	2	2	H	151	
Sorbents with Cathodic Protection	5	2	3	3	2	2	3	3	2	4	4	2	2	2	I	130	
															Average Score	**139.8**	**Combined Average**
Average (Mean)	**3.3**	**2.9**	**2.7**	**2.8**	**2.7**	**2.7**	**2.7**	**3.3**	**2.1**	**3.0**	**3.7**	**2.4**	**2.0**	**2.0**	**Score Using Avg. Wt. And Avg. Score**	**140.0**	**139.9**
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	5	4	5	5	5	5	1	3	4	4	4	5	4	2	A	200	
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	3	2	2	2	2	2	1	3	2	2	4	3	2	2	B*	117	
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	2	2	3	2	2	2	3	2	4	1	5	2	2	2	C*	124	
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	5	5	2	5	5	3	1	2	3	1	4	4	1	4	D	161	
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	4	3	5	3	3	4	3	3	2	4	4	4	2	2	E	191	
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	2	3	3	3	2	3	3	2	3	3	4	2	1	2	F	135	
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	2	4	3	4	4	3	1	2	2	1	5	4	1	3	G	152	
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	2	5	2	5	5	5	1	2	4	2	5	5	4	4	H	213	
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	4	5	5	5	4	5	3	4	4	2	5	3	2	4	I	178	
															Average Score	**163.5**	**Combined Average**
Average (Mean)	**3.2**	**3.7**	**3.3**	**3.8**	**3.6**	**3.6**	**1.9**	**2.6**	**3.1**	**2.2**	**4.4**	**3.6**	**2.1**	**2.8**	**Score Using Avg. Wt. And Avg. Score**	**164.1**	**163.8**

Table A-11. Adjusted Average Scores for Each Strategy

Trench/Infiltration Barrier/Drying	4	3	4	4	5	4	2	3	4	4	2	4	4	2	A	177	
Trench/Infiltration Barrier/Drying	3	2	2	3	3	3	2	3	2	3	4	4	2	2	B*	139	
Trench/Infiltration Barrier/Drying	4	5	3	5	4	3	1	3	2	4	5	4	3	4	C*	188	
Trench/Infiltration Barrier/Drying	4	4	2	4	4	3	1	3	3	1	4	4	3	4	D	154	
Trench/Infiltration Barrier/Drying	4	3	5	3	3	4	3	4	4	4	4	4	2	4	E	210	
Trench/Infiltration Barrier/Drying	2	2	3	3	3	3	3	3	3	3	4	3	2	2	F	143	
Trench/Infiltration Barrier/Drying	2	4	3	4	4	3	2	3	2	1	5	3	2	3	G	154	
Trench/Infiltration Barrier/Drying	2	5	2	5	5	5	1	3	4	4	5	5	4	4	H	219	
Trench/Infiltration Barrier/Drying	4	5	5	5	4	5	3	4	4	4	2	5	2	4	I	183	
															Average Score	**174.1**	**Combined Average**
Average (Mean)	**3.2**	**3.7**	**3.2**	**4.0**	**3.9**	**3.7**	**2.0**	**3.2**	**3.1**	**3.1**	**3.9**	**4.0**	**2.7**	**3.2**	**Score Using Avg. Wt. And Avg. Score**	**173.8**	**173.9**
Vault & Tank Drying	5	3	3	3	4	3	2	3	3	3	4	3	3	3	A	160	
Vault & Tank Drying	3	4	4	3	4	3	3	2	2	3	4	4	3	2	B*	163	
Vault & Tank Drying	3	3	3	4	4	3	3	2	3	3	4	3	1	4	C*	161	
Vault & Tank Drying	3	3	3	3	3	2	3	3	4	3	4	4	3	2	D	140	
Vault & Tank Drying	4	3	4	3	4	3	3	4	3	3	4	3	1	3	E	186	
Vault & Tank Drying	2	3	3	3	2	2	3	3	3	3	4	3	1	3	F	141	
Vault & Tank Drying	3	4	3	4	3	3	3	2	2	4	5	3	2	3	G	163	
Vault & Tank Drying	2	4	4	4	4	5	2	3	4	4	4	4	3	3	H	200	
Vault & Tank Drying	5	4	3	4	4	5	3	4	4	3	5	4	3	4	I	180	
															Average Score	**166.0**	**Combined Average**
Average (Mean)	**3.3**	**3.4**	**3.3**	**3.4**	**3.6**	**3.2**	**2.8**	**2.9**	**3.1**	**3.2**	**4.2**	**3.4**	**2.2**	**3.0**	**Score Using Avg. Wt. And Avg. Score**	**167.2**	**166.6**
Vault Drying	5	2	2	2	3	2	3	4	3	3	4	3	3	3	A	146	
Vault Drying	4	3	4	3	3	3	3	3	2	3	4	4	2	2	B*	158	
Vault Drying	3	2	3	3	3	3	3	3	2	3	5	3	2	2	C*	146	
Vault Drying	3	2	4	3	2	3	3	3	4	2	4	4	3	2	D	142	
Vault Drying	4	3	4	3	3	3	3	3	3	3	4	3	1	2	E	175	
Vault Drying	2	2	2	2	2	2	4	3	4	3	4	2	1	3	F	130	
Vault Drying	3	3	3	3	2	3	4	3	2	4	5	2	2	2	G	147	
Vault Drying	2	4	4	4	3	4	3	3	4	3	5	4	3	2	H	192	
Vault Drying	5	4	4	4	4	4	4	4	4	4	5	4	3	3	I	184	
															Average Score	**157.9**	**Combined Average**
Average (Mean)	**3.4**	**2.8**	**3.3**	**3.0**	**2.8**	**3.0**	**3.3**	**3.2**	**3.1**	**3.1**	**4.4**	**3.2**	**2.2**	**2.3**	**Score Using Avg. Wt. And Avg. Score**	**158.2**	**158.0**

Table A-11. Adjusted Average Scores for Each Strategy

Waste Removal	5	2	1	3	2	3	2	4	4	2	5	5	3	2	A	143	
Waste Removal	4	4	3	4	3	3	1	2	4	1	4	4	4	4	B*	167	
Waste Removal	4	5	5	5	4	4	1	4	3	1	4	5	5	4	C*	201	
Waste Removal	5	5	1	5	1	4	1	2	1	1	5	5	4	4	D	154	
Waste Removal	4	4	4	3	4	3	2	3	3	4	4	3	3	2	E	190	
Waste Removal	4	2	5	3	1	3	2	2	2	1	4	3	5	2	F	140	
Waste Removal	4	5	1	5	1	5	1	5	1	4	5	4	5	2	G	175	
Waste Removal	4	5	2	4	3	5	1	5	2	2	5	5	5	3	H	206	
Waste Removal	5	5	5	5	1	5	1	5	4	1	5	5	4	5	I	176	
															Average Score	**172.4**	**Combined Average**
Average (Mean)	**4.3**	**4.1**	**3.0**	**4.1**	**2.2**	**3.9**	**1.3**	**3.6**	**2.7**	**1.9**	**4.6**	**4.3**	**4.2**	**3.1**	**Score Using Avg. Wt. And Avg. Score**	**174.0**	**173.2**

Table A-12. Scores with Alternative Weighting Factors

EVALUATION CRITERIA---->	Compliance with Regulations and Permits	Prevent Release of Contents	Acceptable Risk (Short Term)	Acceptable Risk (Long Term)	Maintain Tank Integrity	Safe Operating Envelope	Capital Cost	Operating Cost	Proven Methods and Technologies	Minimize Secondary Waste	Preserve Closure Options	Regulatory and Stakeholder Acceptance	Reduced Monitoring and Surveillance	Certainty of Strategy						
Average Weighting Factor--->	3.7	4.7	4.0	4.3	4.3	4.0	2.9	3.0	3.4	3.1	4.0	3.4	2.3	3.7						
Risk Weighting Factor-->	1	1	5	5	1	1	1	1	1	1	1	1	1	1						
No Weighting Factor-->	3	3	3	3	3	3	3	3	3	3	3	3	3	3						
Safety/Compliance Weighting Factor-->	5	5	1	1	5	5	1	1	1	1	1	5	1	1						
Certainty Weighting Factor-->	1	1	1	1	1	1	1	1	5	1	1	1	1	5						
Cost Weighting Factor-->	1	1	1	1	1	1	5	5	1	5	1	1	5	1						
UNSORTED															Score w/Average WF	Score w/Risk WF	Score w/No WF	Score w/Safety/ Compliance WF	Score w/Certainty WF	Score w/Cost WF
Argon Blanket	3.4	2.7	2.8	2.1	2.3	2.2	2.7	2.9	2.7	3.7	4.3	2.7	1.8	2.0	139	58	115	92	57	82
Argon Blanket w/Cathodic Protection	3.3	3.0	2.9	2.8	2.9	2.6	2.6	2.4	2.3	3.6	4.3	2.7	1.9	2.2	145	62	118	97	58	81
Cathodic Protection	3.6	2.4	3.0	2.2	2.3	3.2	3.2	3.4	2.6	3.7	4.4	2.4	1.8	2.1	147	61	121	96	59	89
Contamination Fixative/Drying	3.6	3.3	3.3	3.3	3.1	3.2	2.8	2.8	2.4	2.9	2.9	2.9	2.3	2.6	153	68	124	106	61	85
Corrosion Inhibitors in Vault	3.3	2.6	3.6	2.2	2.4	2.8	3.8	3.7	3.2	3.1	4.2	2.6	1.8	2.0	150	64	124	96	62	91
Current System	3.8	2.1	3.4	2.0	1.8	3.2	4.7	3.4	3.9	3.2	4.3	2.3	1.9	2.6	153	64	128	96	68	96
Groundwater Barrier/Drying	3.1	3.1	3.0	2.7	3.0	3.0	2.2	3.0	2.7	3.2	4.0	3.0	2.3	2.2	149	63	122	101	60	84
Infiltration Barrier/Drying	3.0	2.8	3.1	2.9	3.1	3.1	2.9	3.4	3.4	3.4	3.9	3.3	2.4	2.6	158	67	130	105	67	92
Interceptor Trench/Drying	3.1	3.0	3.0	3.0	3.0	3.2	2.9	3.2	3.2	3.0	4.0	3.2	2.3	2.3	156	67	128	105	65	88
Low Strength Grout	4.0	3.3	3.9	3.4	2.6	3.6	3.0	4.0	3.1	2.1	2.2	2.8	2.9	2.8	159	73	131	109	67	92
Low Strength Grout/Drying	3.8	4.0	3.8	4.0	3.8	3.6	2.6	2.9	3.3	2.2	2.1	3.3	3.0	3.1	168	77	136	119	71	88
Monitors	3.3	1.6	3.9	2.1	1.4	3.3	3.4	3.3	3.2	3.7	4.4	2.3	1.4	1.9	142	63	118	87	60	87
Nitrogen Blanket	3.6	2.3	3.1	2.3	2.2	2.8	3.4	3.2	2.8	3.6	4.3	2.8	1.9	1.9	146	62	121	95	59	89
Nitrogen Blanket w/Oxygen Removal	3.6	2.9	3.1	2.6	2.6	2.7	2.7	2.6	2.6	3.3	4.3	3.0	2.0	2.0	146	62	119	98	58	82
Sorbents in Annulus	3.1	2.6	3.3	2.3	1.9	2.6	3.4	3.8	2.2	3.0	3.7	2.6	1.9	1.7	137	61	114	89	54	86
Sorbents with Cathodic Protection	3.3	2.9	2.9	2.9	2.7	2.8	2.8	3.2	2.2	3.0	3.7	2.6	1.9	2.0	142	62	116	96	56	82
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	3.2	3.7	3.2	3.8	3.6	3.6	1.9	2.4	3.2	2.2	4.2	3.6	2.2	2.9	163	72	131	114	68	79
Trench/Infiltration Barrier/Drying	3.3	3.6	3.1	3.9	3.8	3.6	2.2	3.1	3.2	3.2	3.9	3.9	2.6	3.1	172	74	139	119	72	91
Vault & Tank Drying	3.2	3.4	3.2	3.4	3.6	3.2	2.9	2.8	3.1	3.1	4.1	3.4	2.2	3.0	165	71	134	112	69	89
Vault Drying	3.4	2.8	3.3	3.0	2.8	3.1	3.3	3.1	3.1	3.2	4.4	3.1	2.2	2.4	159	69	130	104	66	91
Waste Removal	4.0	4.1	3.0	3.9	2.2	3.7	1.7	3.3	2.8	2.0	4.3	4.1	4.1	3.0	170	74	139	119	69	91

Table A-12. Scores with Alternative Weighting Factors

SORTED WITH AVERAGE															Score w/Average WF					
Trench/Infiltration Barrier/Drying	3.3	3.6	3.1	3.9	3.8	3.6	2.2	3.1	3.2	3.2	3.9	3.9	2.6	3.1	172	74	139	119	72	91
Waste Removal	4.0	4.1	3.0	3.9	2.2	3.7	1.7	3.3	2.8	2.0	4.3	4.1	4.1	3.0	170	74	139	119	69	91
Low Strength Grout/Drying	3.8	4.0	3.8	4.0	3.8	3.6	2.6	2.9	3.3	2.2	2.1	3.3	3.0	3.1	168	77	136	119	71	88
Vault & Tank Drying	3.2	3.4	3.2	3.4	3.6	3.2	2.9	2.8	3.1	3.1	4.1	3.4	2.2	3.0	165	71	134	112	69	89
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	3.2	3.7	3.2	3.8	3.6	3.6	1.9	2.4	3.2	2.2	4.2	3.6	2.2	2.9	163	72	131	114	68	79
Low Strength Grout	4.0	3.3	3.9	3.4	2.6	3.6	3.0	4.0	3.1	2.1	2.2	2.8	2.9	2.8	159	73	131	109	67	92
Vault Drying	3.4	2.8	3.3	3.0	2.8	3.1	3.3	3.1	3.1	3.2	4.4	3.1	2.2	2.4	159	69	130	104	66	91
Infiltration Barrier/Drying	3.0	2.8	3.1	2.9	3.1	3.1	2.9	3.4	3.4	3.4	3.9	3.3	2.4	2.6	158	67	130	105	67	92
Interceptor Trench/Drying	3.1	3.0	3.0	3.0	3.0	3.2	2.9	3.2	3.2	3.0	4.0	3.2	2.3	2.3	156	67	128	105	65	88
Current System	3.8	2.1	3.4	2.0	1.8	3.2	4.7	3.4	3.9	3.2	4.3	2.3	1.9	2.6	153	64	128	96	68	96
Contamination Fixative/Drying	3.6	3.3	3.3	3.3	3.1	3.2	2.8	2.8	2.4	2.9	2.9	2.9	2.3	2.6	153	68	124	106	61	85
Corrosion Inhibitors in Vault	3.3	2.6	3.6	2.2	2.4	2.8	3.8	3.7	3.2	3.1	4.2	2.6	1.8	2.0	150	64	124	96	62	91
Groundwater Barrier/Drying	3.1	3.1	3.0	2.7	3.0	3.0	2.2	3.0	2.7	3.2	4.0	3.0	2.3	2.2	149	63	122	101	60	84
Cathodic Protection	3.6	2.4	3.0	2.2	2.3	3.2	3.2	3.4	2.6	3.7	4.4	2.4	1.8	2.1	147	61	121	96	59	89
Nitrogen Blanket w/Oxygen Removal	3.6	2.9	3.1	2.6	2.6	2.7	2.7	2.6	2.6	3.3	4.3	3.0	2.0	2.0	146	62	119	98	58	82
Nitrogen Blanket	3.6	2.3	3.1	2.3	2.2	2.8	3.4	3.2	2.8	3.6	4.3	2.8	1.9	1.9	146	62	121	95	59	89
Argon Blanket w/Cathodic Protection	3.3	3.0	2.9	2.8	2.9	2.6	2.6	2.4	2.3	3.6	4.3	2.7	1.9	2.2	145	62	118	97	58	81
Monitors	3.3	1.6	3.9	2.1	1.4	3.3	3.4	3.3	3.2	3.7	4.4	2.3	1.4	1.9	142	63	118	87	60	87
Sorbents with Cathodic Protection	3.3	2.9	2.9	2.9	2.7	2.8	2.8	3.2	2.2	3.0	3.7	2.6	1.9	2.0	142	62	116	96	56	82
Argon Blanket	3.4	2.7	2.8	2.1	2.3	2.2	2.7	2.9	2.7	3.7	4.3	2.7	1.8	2.0	139	58	115	92	57	82
Sorbents in Annulus	3.1	2.6	3.3	2.3	1.9	2.6	3.4	3.8	2.2	3.0	3.7	2.6	1.9	1.7	137	61	114	89	54	86

Table A-12. Scores with Alternative Weighting Factors

SORTED WITH RISK																Score w/Risk WF				
Low Strength Grout/Drying	3.8	4.0	3.8	4.0	3.8	3.6	2.6	2.9	3.3	2.2	2.1	3.3	3.0	3.1	**168**	**77**	**136**	**119**	**71**	**88**
Trench/Infiltration Barrier/Drying	3.3	3.6	3.1	3.9	3.8	3.6	2.2	3.1	3.2	3.2	3.9	3.9	2.6	3.1	**172**	**74**	**139**	**119**	**72**	**91**
Waste Removal	4.0	4.1	3.0	3.9	2.2	3.7	1.7	3.3	2.8	2.0	4.3	4.1	4.1	3.0	**170**	**74**	**139**	**119**	**69**	**91**
Low Strength Grout	4.0	3.3	3.9	3.4	2.6	3.6	3.0	4.0	3.1	2.1	2.2	2.8	2.9	2.8	**159**	**73**	**131**	**109**	**67**	**92**
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	3.2	3.7	3.2	3.8	3.6	3.6	1.9	2.4	3.2	2.2	4.2	3.6	2.2	2.9	**163**	**72**	**131**	**114**	**68**	**79**
Vault & Tank Drying	3.2	3.4	3.2	3.4	3.6	3.2	2.9	2.8	3.1	3.1	4.1	3.4	2.2	3.0	**165**	**71**	**134**	**112**	**69**	**89**
Vault Drying	3.4	2.8	3.3	3.0	2.8	3.1	3.3	3.1	3.1	3.2	4.4	3.1	2.2	2.4	**159**	**69**	**130**	**104**	**66**	**91**
Contamination Fixative/Drying	3.6	3.3	3.3	3.3	3.1	3.2	2.8	2.8	2.4	2.9	2.9	2.9	2.3	2.6	**153**	**68**	**124**	**106**	**61**	**85**
Infiltration Barrier/Drying	3.0	2.8	3.1	2.9	3.1	3.1	2.9	3.4	3.4	3.4	3.9	3.3	2.4	2.6	**158**	**67**	**130**	**105**	**67**	**92**
Interceptor Trench/Drying	3.1	3.0	3.0	3.0	3.0	3.2	2.9	3.2	3.2	3.0	4.0	3.2	2.3	2.3	**156**	**67**	**128**	**105**	**65**	**88**
Current System	3.8	2.1	3.4	2.0	1.8	3.2	4.7	3.4	3.9	3.2	4.3	2.3	1.9	2.6	**153**	**64**	**128**	**96**	**68**	**96**
Corrosion Inhibitors in Vault	3.3	2.6	3.6	2.2	2.4	2.8	3.8	3.7	3.2	3.1	4.2	2.6	1.8	2.0	**150**	**64**	**124**	**96**	**62**	**91**
Monitors	3.3	1.6	3.9	2.1	1.4	3.3	3.4	3.3	3.2	3.7	4.4	2.3	1.4	1.9	**142**	**63**	**118**	**87**	**60**	**87**
Groundwater Barrier/Drying	3.1	3.1	3.0	2.7	3.0	3.0	2.2	3.0	2.7	3.2	4.0	3.0	2.3	2.2	**149**	**63**	**122**	**101**	**60**	**84**
Nitrogen Blanket w/Oxygen Removal	3.6	2.9	3.1	2.6	2.6	2.7	2.7	2.6	2.6	3.3	4.3	3.0	2.0	2.0	**146**	**62**	**119**	**98**	**58**	**82**
Argon Blanket w/Cathodic Protection	3.3	3.0	2.9	2.8	2.9	2.6	2.6	2.4	2.3	3.6	4.3	2.7	1.9	2.2	**145**	**62**	**118**	**97**	**58**	**81**
Nitrogen Blanket	3.6	2.3	3.1	2.3	2.2	2.8	3.4	3.2	2.8	3.6	4.3	2.8	1.9	1.9	**146**	**62**	**121**	**95**	**59**	**89**
Sorbents with Cathodic Protection	3.3	2.9	2.9	2.9	2.7	2.8	2.8	3.2	2.2	3.0	3.7	2.6	1.9	2.0	**142**	**62**	**116**	**96**	**56**	**82**
Cathodic Protection	3.6	2.4	3.0	2.2	2.3	3.2	3.2	3.4	2.6	3.7	4.4	2.4	1.8	2.1	**147**	**61**	**121**	**96**	**59**	**89**
Sorbents in Annulus	3.1	2.6	3.3	2.3	1.9	2.6	3.4	3.8	2.2	3.0	3.7	2.6	1.9	1.7	**137**	**61**	**114**	**89**	**54**	**86**
Argon Blanket	3.4	2.7	2.8	2.1	2.3	2.2	2.7	2.9	2.7	3.7	4.3	2.7	1.8	2.0	**139**	**58**	**115**	**92**	**57**	**82**

Table A-12. Scores with Alternative Weighting Factors

SORTED WITH NO WEIGHTING																	Score w/No WF			
Trench/Infiltration Barrier/Drying	3.3	3.6	3.1	3.9	3.8	3.6	2.2	3.1	3.2	3.2	3.9	3.9	2.6	3.1	172	74	139	119	72	91
Waste Removal	4.0	4.1	3.0	3.9	2.2	3.7	1.7	3.3	2.8	2.0	4.3	4.1	4.1	3.0	170	74	139	119	69	91
Low Strength Grout/Drying	3.8	4.0	3.8	4.0	3.8	3.6	2.6	2.9	3.3	2.2	2.1	3.3	3.0	3.1	168	77	136	119	71	88
Vault & Tank Drying	3.2	3.4	3.2	3.4	3.6	3.2	2.9	2.8	3.1	3.1	4.1	3.4	2.2	3.0	165	71	134	112	69	89
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	3.2	3.7	3.2	3.8	3.6	3.6	1.9	2.4	3.2	2.2	4.2	3.6	2.2	2.9	163	72	131	114	68	79
Low Strength Grout	4.0	3.3	3.9	3.4	2.6	3.6	3.0	4.0	3.1	2.1	2.2	2.8	2.9	2.8	159	73	131	109	67	92
Vault Drying	3.4	2.8	3.3	3.0	2.8	3.1	3.3	3.1	3.1	3.2	4.4	3.1	2.2	2.4	159	69	130	104	66	91
Infiltration Barrier/Drying	3.0	2.8	3.1	2.9	3.1	3.1	2.9	3.4	3.4	3.4	3.9	3.3	2.4	2.6	158	67	130	105	67	92
Current System	3.8	2.1	3.4	2.0	1.8	3.2	4.7	3.4	3.9	3.2	4.3	2.3	1.9	2.6	153	64	128	96	68	96
Interceptor Trench/Drying	3.1	3.0	3.0	3.0	3.0	3.2	2.9	3.2	3.2	3.0	4.0	3.2	2.3	2.3	156	67	128	105	65	88
Contamination Fixative/Drying	3.6	3.3	3.3	3.3	3.1	3.2	2.8	2.8	2.4	2.9	2.9	2.9	2.3	2.6	153	68	124	106	61	85
Corrosion Inhibitors in Vault	3.3	2.6	3.6	2.2	2.4	2.8	3.8	3.7	3.2	3.1	4.2	2.6	1.8	2.0	150	64	124	96	62	91
Groundwater Barrier/Drying	3.1	3.1	3.0	2.7	3.0	3.0	2.2	3.0	2.7	3.2	4.0	3.0	2.3	2.2	149	63	122	101	60	84
Cathodic Protection	3.6	2.4	3.0	2.2	2.3	3.2	3.2	3.4	2.6	3.7	4.4	2.4	1.8	2.1	147	61	121	96	59	89
Nitrogen Blanket	3.6	2.3	3.1	2.3	2.2	2.8	3.4	3.2	2.8	3.6	4.3	2.8	1.9	1.9	146	62	121	95	59	89
Nitrogen Blanket w/Oxygen Removal	3.6	2.9	3.1	2.6	2.6	2.7	2.7	2.6	2.6	3.3	4.3	3.0	2.0	2.0	146	62	119	98	58	82
Argon Blanket w/Cathodic Protection	3.3	3.0	2.9	2.8	2.9	2.6	2.6	2.4	2.3	3.6	4.3	2.7	1.9	2.2	145	62	118	97	58	81
Monitors	3.3	1.6	3.9	2.1	1.4	3.3	3.4	3.3	3.2	3.7	4.4	2.3	1.4	1.9	142	63	118	87	60	87
Sorbents with Cathodic Protection	3.3	2.9	2.9	2.9	2.7	2.8	2.8	3.2	2.2	3.0	3.7	2.6	1.9	2.0	142	62	116	96	56	82
Argon Blanket	3.4	2.7	2.8	2.1	2.3	2.2	2.7	2.9	2.7	3.7	4.3	2.7	1.8	2.0	139	58	115	92	57	82
Sorbents in Annulus	3.1	2.6	3.3	2.3	1.9	2.6	3.4	3.8	2.2	3.0	3.7	2.6	1.9	1.7	137	61	114	89	54	86

Table A-12. Scores with Alternative Weighting Factors

SORTED WITH SAFETY/COMPLIANCE																		Score w/Safety/ Compliance WF		
Low Strength Grout/Drying	3.8	4.0	3.8	4.0	3.8	3.6	2.6	2.9	3.3	2.2	2.1	3.3	3.0	3.1	168	77	136	119	71	88
Trench/Infiltration Barrier/Drying	3.3	3.6	3.1	3.9	3.8	3.6	2.2	3.1	3.2	3.2	3.9	3.9	2.6	3.1	172	74	139	119	72	91
Waste Removal	4.0	4.1	3.0	3.9	2.2	3.7	1.7	3.3	2.8	2.0	4.3	4.1	4.1	3.0	170	74	139	119	69	91
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	3.2	3.7	3.2	3.8	3.6	3.6	1.9	2.4	3.2	2.2	4.2	3.6	2.2	2.9	163	72	131	114	68	79
Vault & Tank Drying	3.2	3.4	3.2	3.4	3.6	3.2	2.9	2.8	3.1	3.1	4.1	3.4	2.2	3.0	165	71	134	112	69	89
Low Strength Grout	4.0	3.3	3.9	3.4	2.6	3.6	3.0	4.0	3.1	2.1	2.2	2.8	2.9	2.8	159	73	131	109	67	92
Contamination Fixative/Drying	3.6	3.3	3.3	3.3	3.1	3.2	2.8	2.8	2.4	2.9	2.9	2.9	2.3	2.6	153	68	124	106	61	85
Interceptor Trench/Drying	3.1	3.0	3.0	3.0	3.0	3.2	2.9	3.2	3.2	3.0	4.0	3.2	2.3	2.3	156	67	128	105	65	88
Infiltration Barrier/Drying	3.0	2.8	3.1	2.9	3.1	3.1	2.9	3.4	3.4	3.4	3.9	3.3	2.4	2.6	158	67	130	105	67	92
Vault Drying	3.4	2.8	3.3	3.0	2.8	3.1	3.3	3.1	3.1	3.2	4.4	3.1	2.2	2.4	159	69	130	104	66	91
Groundwater Barrier/Drying	3.1	3.1	3.0	2.7	3.0	3.0	2.2	3.0	2.7	3.2	4.0	3.0	2.3	2.2	149	63	122	101	60	84
Nitrogen Blanket w/Oxygen Removal	3.6	2.9	3.1	2.6	2.6	2.7	2.7	2.6	2.6	3.3	4.3	3.0	2.0	2.0	146	62	119	98	58	82
Argon Blanket w/Cathodic Protection	3.3	3.0	2.9	2.8	2.9	2.6	2.6	2.4	2.3	3.6	4.3	2.7	1.9	2.2	145	62	118	97	58	81
Cathodic Protection	3.6	2.4	3.0	2.2	2.3	3.2	3.2	3.4	2.6	3.7	4.4	2.4	1.8	2.1	147	61	121	96	59	89
Corrosion Inhibitors in Vault	3.3	2.6	3.6	2.2	2.4	2.8	3.8	3.7	3.2	3.1	4.2	2.6	1.8	2.0	150	64	124	96	62	91
Sorbents with Cathodic Protection	3.3	2.9	2.9	2.9	2.7	2.8	2.8	3.2	2.2	3.0	3.7	2.6	1.9	2.0	142	62	116	96	56	82
Current System	3.8	2.1	3.4	2.0	1.8	3.2	4.7	3.4	3.9	3.2	4.3	2.3	1.9	2.6	153	64	128	96	68	96
Nitrogen Blanket	3.6	2.3	3.1	2.3	2.2	2.8	3.4	3.2	2.8	3.6	4.3	2.8	1.9	1.9	146	62	121	95	59	89
Argon Blanket	3.4	2.7	2.8	2.1	2.3	2.2	2.7	2.9	2.7	3.7	4.3	2.7	1.8	2.0	139	58	115	92	57	82
Sorbents in Annulus	3.1	2.6	3.3	2.3	1.9	2.6	3.4	3.8	2.2	3.0	3.7	2.6	1.9	1.7	137	61	114	89	54	86
Monitors	3.3	1.6	3.9	2.1	1.4	3.3	3.4	3.3	3.2	3.7	4.4	2.3	1.4	1.9	142	63	118	87	60	87

Table A-12. Scores with Alternative Weighting Factors

SORTED WITH CERTAINTY																			Score w/Certainty WF	
Trench/Infiltration Barrier/Drying	3.3	3.6	3.1	3.9	3.8	3.6	2.2	3.1	3.2	3.2	3.9	3.9	2.6	3.1	172	74	139	119	72	91
Low Strength Grout/Drying	3.8	4.0	3.8	4.0	3.8	3.6	2.6	2.9	3.3	2.2	2.1	3.3	3.0	3.1	168	77	136	119	71	88
Waste Removal	4.0	4.1	3.0	3.9	2.2	3.7	1.7	3.3	2.8	2.0	4.3	4.1	4.1	3.0	170	74	139	119	69	91
Vault & Tank Drying	3.2	3.4	3.2	3.4	3.6	3.2	2.9	2.8	3.1	3.1	4.1	3.4	2.2	3.0	165	71	134	112	69	89
Current System	3.8	2.1	3.4	2.0	1.8	3.2	4.7	3.4	3.9	3.2	4.3	2.3	1.9	2.6	153	64	128	96	68	96
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	3.2	3.7	3.2	3.8	3.6	3.6	1.9	2.4	3.2	2.2	4.2	3.6	2.2	2.9	163	72	131	114	68	79
Infiltration Barrier/Drying	3.0	2.8	3.1	2.9	3.1	3.1	2.9	3.4	3.4	3.4	3.9	3.3	2.4	2.6	158	67	130	105	67	92
Low Strength Grout	4.0	3.3	3.9	3.4	2.6	3.6	3.0	4.0	3.1	2.1	2.2	2.8	2.9	2.8	159	73	131	109	67	92
Vault Drying	3.4	2.8	3.3	3.0	2.8	3.1	3.3	3.1	3.1	3.2	4.4	3.1	2.2	2.4	159	69	130	104	66	91
Interceptor Trench/Drying	3.1	3.0	3.0	3.0	3.0	3.2	2.9	3.2	3.2	3.0	4.0	3.2	2.3	2.3	156	67	128	105	65	88
Corrosion Inhibitors in Vault	3.3	2.6	3.6	2.2	2.4	2.8	3.8	3.7	3.2	3.1	4.2	2.6	1.8	2.0	150	64	124	96	62	91
Contamination Fixative/Drying	3.6	3.3	3.3	3.3	3.1	3.2	2.8	2.8	2.4	2.9	2.9	2.9	2.3	2.6	153	68	124	106	61	85
Groundwater Barrier/Drying	3.1	3.1	3.0	2.7	3.0	3.0	2.2	3.0	2.7	3.2	4.0	3.0	2.3	2.2	149	63	122	101	60	84
Monitors	3.3	1.6	3.9	2.1	1.4	3.3	3.4	3.3	3.2	3.7	4.4	2.3	1.4	1.9	142	63	118	87	60	87
Cathodic Protection	3.6	2.4	3.0	2.2	2.3	3.2	3.2	3.4	2.6	3.7	4.4	2.4	1.8	2.1	147	61	121	96	59	89
Nitrogen Blanket	3.6	2.3	3.1	2.3	2.2	2.8	3.4	3.2	2.8	3.6	4.3	2.8	1.9	1.9	146	62	121	95	59	89
Nitrogen Blanket w/Oxygen Removal	3.6	2.9	3.1	2.6	2.6	2.7	2.7	2.6	2.6	3.3	4.3	3.0	2.0	2.0	146	62	119	98	58	82
Argon Blanket w/Cathodic Protection	3.3	3.0	2.9	2.8	2.9	2.6	2.6	2.4	2.3	3.6	4.3	2.7	1.9	2.2	145	62	118	97	58	81
Argon Blanket	3.4	2.7	2.8	2.1	2.3	2.2	2.7	2.9	2.7	3.7	4.3	2.7	1.8	2.0	139	58	115	92	57	82
Sorbents with Cathodic Protection	3.3	2.9	2.9	2.9	2.7	2.8	2.8	3.2	2.2	3.0	3.7	2.6	1.9	2.0	142	62	116	96	56	82
Sorbents in Annulus	3.1	2.6	3.3	2.3	1.9	2.6	3.4	3.8	2.2	3.0	3.7	2.6	1.9	1.7	137	61	114	89	54	86

Table A-12. Scores with Alternative Weighting Factors

SORTED WITH COST																				Score w/Cost WF
Current System	3.8	2.1	3.4	2.0	1.8	3.2	4.7	3.4	3.9	3.2	4.3	2.3	1.9	2.6	153	64	128	96	68	96
Infiltration Barrier/Drying	3.0	2.8	3.1	2.9	3.1	3.1	2.9	3.4	3.4	3.4	3.9	3.3	2.4	2.6	158	67	130	105	67	92
Low Strength Grout	4.0	3.3	3.9	3.4	2.6	3.6	3.0	4.0	3.1	2.1	2.2	2.8	2.9	2.8	159	73	131	109	67	92
Vault Drying	3.4	2.8	3.3	3.0	2.8	3.1	3.3	3.1	3.1	3.2	4.4	3.1	2.2	2.4	159	69	130	104	66	91
Trench/Infiltration Barrier/Drying	3.3	3.6	3.1	3.9	3.8	3.6	2.2	3.1	3.2	3.2	3.9	3.9	2.6	3.1	172	74	139	119	72	91
Waste Removal	4.0	4.1	3.0	3.9	2.2	3.7	1.7	3.3	2.8	2.0	4.3	4.1	4.1	3.0	170	74	139	119	69	91
Corrosion Inhibitors in Vault	3.3	2.6	3.6	2.2	2.4	2.8	3.8	3.7	3.2	3.1	4.2	2.6	1.8	2.0	150	64	124	96	62	91
Cathodic Protection	3.6	2.4	3.0	2.2	2.3	3.2	3.2	3.4	2.6	3.7	4.4	2.4	1.8	2.1	147	61	121	96	59	89
Vault & Tank Drying	3.2	3.4	3.2	3.4	3.6	3.2	2.9	2.8	3.1	3.1	4.1	3.4	2.2	3.0	165	71	134	112	69	89
Nitrogen Blanket	3.6	2.3	3.1	2.3	2.2	2.8	3.4	3.2	2.8	3.6	4.3	2.8	1.9	1.9	146	62	121	95	59	89
Interceptor Trench/Drying	3.1	3.0	3.0	3.0	3.0	3.2	2.9	3.2	3.2	3.0	4.0	3.2	2.3	2.3	156	67	128	105	65	88
Low Strength Grout/Drying	3.8	4.0	3.8	4.0	3.8	3.6	2.6	2.9	3.3	2.2	2.1	3.3	3.0	3.1	168	77	136	119	71	88
Monitors	3.3	1.6	3.9	2.1	1.4	3.3	3.4	3.3	3.2	3.7	4.4	2.3	1.4	1.9	142	63	118	87	60	87
Sorbents in Annulus	3.1	2.6	3.3	2.3	1.9	2.6	3.4	3.8	2.2	3.0	3.7	2.6	1.9	1.7	137	61	114	89	54	86
Contamination Fixative/Drying	3.6	3.3	3.3	3.3	3.1	3.2	2.8	2.8	2.4	2.9	2.9	2.9	2.3	2.6	153	68	124	106	61	85
Groundwater Barrier/Drying	3.1	3.1	3.0	2.7	3.0	3.0	2.2	3.0	2.7	3.2	4.0	3.0	2.3	2.2	149	63	122	101	60	84
Sorbents with Cathodic Protection	3.3	2.9	2.9	2.9	2.7	2.8	2.8	3.2	2.2	3.0	3.7	2.6	1.9	2.0	142	62	116	96	56	82
Argon Blanket	3.4	2.7	2.8	2.1	2.3	2.2	2.7	2.9	2.7	3.7	4.3	2.7	1.8	2.0	139	58	115	92	57	82
Nitrogen Blanket w/Oxygen Removal	3.6	2.9	3.1	2.6	2.6	2.7	2.7	2.6	2.6	3.3	4.3	3.0	2.0	2.0	146	62	119	98	58	82
Argon Blanket w/Cathodic Protection	3.3	3.0	2.9	2.8	2.9	2.6	2.6	2.4	2.3	3.6	4.3	2.7	1.9	2.2	145	62	118	97	58	81
Trench/Infiltration Barrier/ Drying/Enhanced Pumping	3.2	3.7	3.2	3.8	3.6	3.6	1.9	2.4	3.2	2.2	4.2	3.6	2.2	2.9	163	72	131	114	68	79