



March 28, 2016

Ms. Christy Swenson, Remediation Scientist
Idaho Department of Environmental Quality
900 N Skyline Drive, Suite B
Idaho Falls, ID 83402

**Re: Lemhi County North Rifle Range Landfill
Draft Compliance Work Plan**

Dear Ms. Swenson:

Lemhi County has contracted with Great West Engineering to prepare a work plan for bringing the Lemhi County Landfill into full compliance with Idaho DEQ requirements. The work plan is designed to address the deficiencies noted in your audit letter dated December 1, 2015. This plan addresses engineering and facility deficiencies. The County is addressing the operations issues identified in the audit report separately.

The County has also received your letter dated March 4, 2016 proposing that the County enter into a voluntary consent order with the DEQ. The County proposes that this draft work plan serve as a basis for negotiations with the DEQ for the Consent Order. The purpose of the work plan is to obtain DEQ approval before taking action to address the deficiencies. The work plan is broken down into each of the key issues identified in the report.

Topographic Survey and Facility Map Update

The facility has not had an update to the topographic map for the facility for over twenty years. An updated map is needed for the closure verification and gas vent work being required by DEQ. An updated map is also required for the improvements to the leachate collection system and future cell expansion design work. The new map will cover the existing facility and the area the County has proposed for the land swap with BLM. The County is contracting with a local surveyor to prepare and updated design-level topographic map for the facility.

Closure Verification

The DEQ has noted that the County has not certified any of the landfill areas closed to date. Based on aerial photography and our site visit, approximately 6.7 acres of the landfill footprint have received final closure to date. Please see attached Figure 1 for



approximate area closed to date. The approved final cover system consists of an 18-inch barrier layer overlain with a 6-inch erosion control layer.

Closure verification will be completed by excavating test pits to verify the lateral extent of the final cover system. Test pits will establish the depth of the final cover and the types of soil materials present. We will notify DEQ of our schedule for the field work so that a DEQ representative can be present if you wish.

We propose excavating a minimum of two test pits per acre. The engineer will monitor and log the test pits excavations. The test pits will be dug to the top of waste. The engineer will measure the depth of the final cover soil and classify the material types.

The engineer will take one composite soil sample of final cover material for a gradation/hydrometer test from each the ten test pits. The engineer will also take a core sample from the 18-inch barrier layer from three of the test pits. Core samples will be tested for permeability on the barrier layer material. Each completed test pit will be located with a hand held GPS so the location of each test pit can be identified on the updated topographic map.

The engineer will prepare a report on the closure determination which will document the lateral boundaries of the closed area, locations of the test pits, test pit logs, final cover depth, soil types, gradation testing, and laboratory permeability testing. The report will include a drawing showing the locations of the test pits, closure boundary and the topography of the closed trench. Based on these field investigations, the Engineer will either certify the final closure to DEQ or make recommendations to the County for corrective action to meet the DEQ's requirements for closure.

Passive Gas Vents

The Idaho DEQ has noted that the County has not installed all of the gas vents required for the closed portions of the landfill. Once the new site topographic map is available, the Engineer will develop a new plan for gas vent design based on the existing topography. The design will be submitted for review and approval from the Idaho DEQ. The engineer will inspect and certify the gas vents installation and provide the DEQ with as-constructed drawings

Closure/Post Closure Plan

The Idaho DEQ has requested that the County develop a stand-alone written closure/post closure plan for the facility. This will be completed by the date shown in the schedule.



Financial Assurance Cost Estimate

The DEQ has requested the County prepare an updated closure/post-closure cost estimate for financial assurance. The cost estimate will be presented in a letter report format acceptable to the Idaho DEQ.

Leachate Collection System Verification and Repairs

We understand that there are no records of construction certification for any of the landfill cell construction projects after Phase 2. Because of the lack of documentation on the construction of the leachate collection system, Idaho DEQ required the County conduct a TV inspection of the system. The County attempted to conduct a video inspection of the system on February 3, 2016. Only a small fraction of the television inspection was conducted due to obstructions interfering with the camera equipment. However, in this limited inspection several deficiencies were discovered. We can provide a CD with the video documentation of the inspection if you wish. We have attached the report provided by the company retained by the County to conduct the inspection.

The County exposed the leachate collection system near the lower end of the collection piping on the north end of the landfill footprint (Figure 2). The camera was run up the system to the south for a distance of 181 feet before an obstruction was encountered. The County excavated the leachate collection system at this point and discovered two 22 ½ degree fittings in the leachate system with cast iron couplings. These fittings were removed and the camera was reinserted in the leachate piping and only travelled 23 feet further south before accumulated soil prevented further advancement of the camera. Although only approximately 30% of the cross sectional area was obstructed, the six inch piping has a very small tolerance for clearance of the camera. This completed the inspection effort on this run of piping. The final effort was to insert the camera at the original insertion point and attempt to inspect the run north to the 90 degree elbow in the leachate system. The camera only ran 24 feet before accumulated sediment blocked the advancement of the camera. Again, the cross sectional area of the leachate collection pipe was only 30% obstructed.

Although sediment has accumulated in the leachate piping, we believe the system is still functional with cleaning, further inspection and a few improvements. The video inspection completed to date still shows significant capacity remaining in the piping (70% of design capacity). A significant portion of the leachate collection system is still easily accessible because it has not been buried with waste yet (Please see Figure 2 which shows the current waste limits and leachate collection system). In addition, the portion of the cell which is exposed is the lower end of the leachate system. We



have enclosed Figure 16 from the original design report (MSE June 1993) which shows a cross sectional view of the leachate collection system piping. In the locations where County excavated the leachate collection system to obtain access for the camera, there was evidence of a gravel section wrapped with filter fabric as shown in Figure 16. Even in the case of complete plugging of leachate piping, the gravel section has significant capacity to convey liquids. In our opinion, the capacity of the lower portion of the system can be reestablished with a cleaning program.

The County proposes cleaning and television inspecting all of the accessible leachate piping in the cell bottom all the way to the leachate collection pond. This will include using a sewer jetter to clean accumulated sediment out of the piping. The County will also clean and inspect as much of the leachate piping as possible that is buried under the waste as possible. The video inspection documentation will be provided for the DEQ's review. We will notify the DEQ of the video inspection work in advance so that a DEQ representative can be present if you wish.

The County proposes several improvements to the system. First, all of the areas which have been excavated to expose the leachate collection system will be repaired with a gravel and fabric collection trench similar to the original design (Figure 16). We also propose the installation of a manhole at the existing 90-degree bend. This will facilitate future cleaning and inspection of the leachate system.

The County's engineer will provide DEQ with design and specifications of the leachate system repairs and installation of the manhole. A field engineer will inspect installation of the repairs and the manhole. The Engineer will then certify the completed repairs to the DEQ. Once the repairs are complete, we recommend the County place a 4 foot lift of waste directly over the leachate trench as soon as possible so that sediment is less likely to wash into the collection system during future run-off events. The original design called for the leachate piping to be covered with waste as shown on enclosed Figure 13 from the MSE 1993 design report. This was not done and is likely a contributing factor to the sediment plugging of the leachate collection system.

Small Community Exemption/Arid Design

The County acknowledges that the landfill is permitted and designed under an Arid Design rather than a small community exemption and that future cell expansions will be required to demonstrate that the arid design standards can be met.



Schedule

A proposed schedule for the completion of the work under this draft Work Plan is attached. Under this schedule, the County would complete the work by September 2016. The schedule does include timelines for DEQ review and approval which may or may not be realistic and we expect DEQ to comment on the review times proposed.

Thank you for working with Great West and Lemhi County to bring the landfill into long term compliance. If you have any questions, please contact me at my office.

Sincerely,

Great West Engineering, Inc.

A handwritten signature in black ink, appearing to read "RC Church".

Robert Church, PE
Principal

cc: Ken Boese, Lemhi County Solid Waste Manager
Lemhi County Commission
Mollie Mangerich, Solid Waste Program Coordinator, IDEQ-SO
Nathan Taylor, Environmental Health Supervisor, EIPHD
Rensay Owen, Regional Waste/Remediation & Air Program Mgr. IDEQ-IF

Attachments



NOTE: AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH IMAGERY JUNE 30, 2014.

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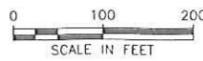


Figure 1
Existing Site Layout

LEMHI COUNTY LANDFILL

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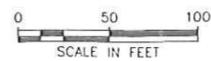
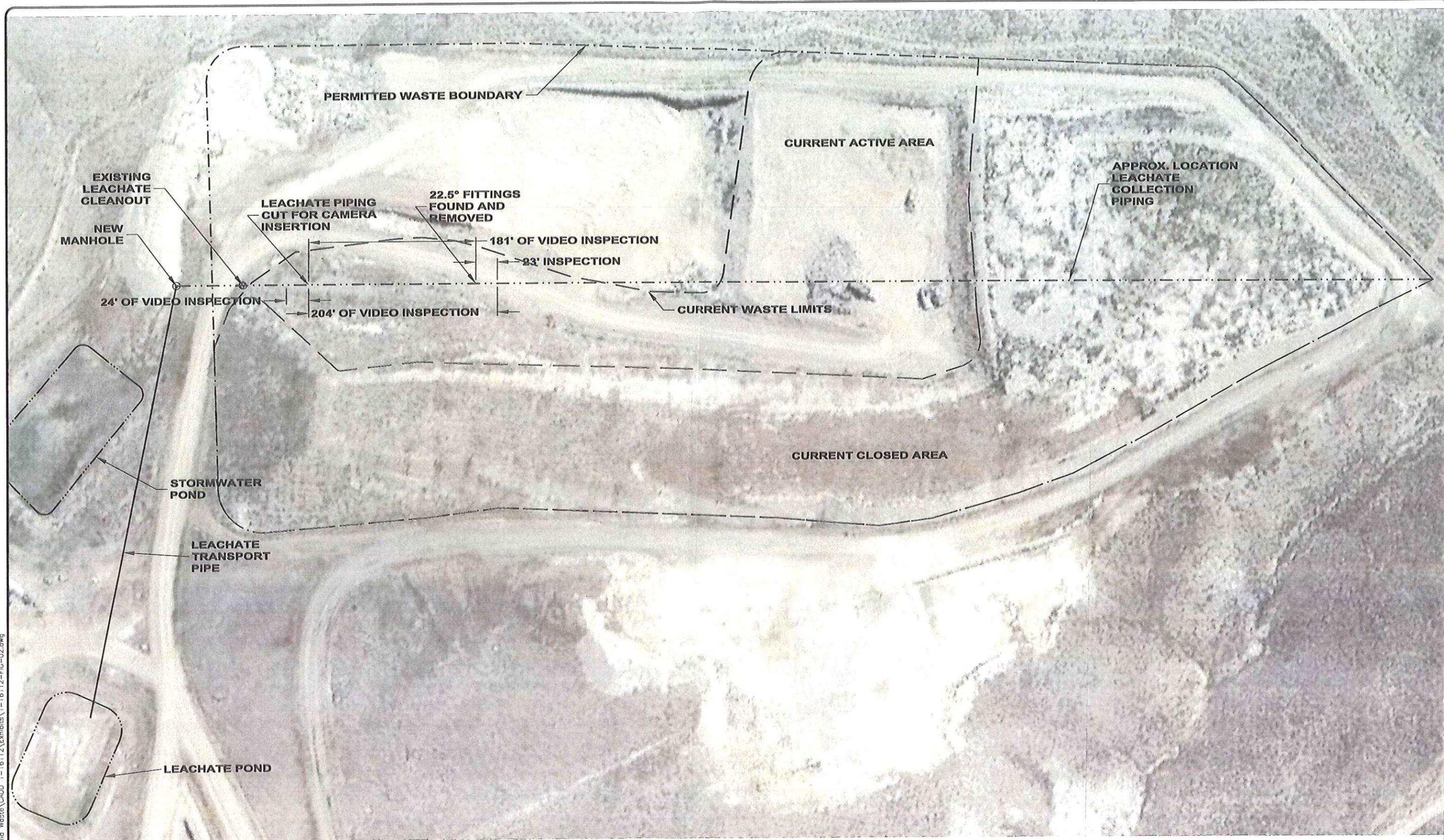


Figure 2
Leachate Collection System

LEMHI COUNTY LANDFILL