

Utah Class I and V Landfill Permit Application Form

JAN 29 2018  
DEHW-2018-001609

|   |          |   |  |  |  |
|---|----------|---|--|--|--|
| <b>Part I General Information</b> APPLICANT: PLEASE COMPLETE ALL SECTIONS.  |          |   |  |  |  |
| <b>I. Landfill Type</b>   |          | <b>II. Application Type</b>   |  | <b>III. Facility Name and Location</b>   |  |
| <input checked="" type="checkbox"/> Class I<br><input type="checkbox"/> Class V                                       |          | <input type="checkbox"/> New Application<br><input checked="" type="checkbox"/> Renewal Application |  | <input checked="" type="checkbox"/> Facility Expansion<br><input checked="" type="checkbox"/> Modification |  |
| For Renewal Applications, Facility Expansion Applications and Modifications Enter Current Permit Number <b>#92-05</b> |          |   |  |  |  |
| <b>III. Facility Name and Location</b>  |          |   |  |  |  |
| Legal Name of Facility<br>John's Valley Sanitary Landfill   |          |   |  |  |  |
| Site Address (street or directions to site)<br>11 miles North of SR12 on John's Valley Road then 3 miles West         |          |   |  | County<br>Garfield County  |  |
| City Panguitch  |          | State UT  | Zip Code 84759                                       | Telephone (435) 676-1119   |  |
| Township 34S  | Range 3W | Section(s) 36   | Quarter/Quarter Section SE ¼                         | Quarter Section SW ¼   |  |
| Main Gate Latitude 37 degrees 47 minutes 55 seconds   |          | Longitude 112 degree 4 minutes 3 seconds  |  |  |  |
| <b>IV. Facility Owner(s) Information</b>  |          |   |  |  |  |
| Legal Name of Facility Owner<br>Garfield County   |          |   |  |  |  |
| Address (mailing)<br>P.O. Box 77  |          |   |  |  |  |
| City Panguitch  |          | State UT  | Zip Code 84759                                       | Telephone (435) 676-1119   |  |
| <b>V. Facility Operator(s) Information</b>  |          |   |  |  |  |
| Legal Name of Facility Operator<br>Garfield County  |          |   |  |  |  |
| Address (mailing)<br>P.O. Box 77  |          |   |  |  |  |
| City Panguitch  |          | State UT  | Zip Code 84759                                       | Telephone (435) 676-1119   |  |
| <b>VI. Property Owner(s) Information</b>  |          |   |  |  |  |
| Legal Name of Property Owner<br>Garfield County   |          |   |  |  |  |
| Address (mailing)<br>P.O. Box 77  |          |   |  |  |  |
| City Panguitch  |          | State UT  | Zip Code 84759                                       | Telephone (435) 676-1119   |  |
| <b>VII. Contact Information</b>   |          |   |  |  |  |
| Owner Contact Brian B. Bremner  |          |   | Title Garfield County Engineer                       |  |  |
| Address (mailing)<br>P.O. Box 77  |          |   |  |  |  |
| City Panguitch  |          | State UT  | Zip Code 84759                                       | Telephone (435) 676-1119   |  |
| Email Address engineer@color-country.net  |          |   | Alternative Telephone (cell or other)                |  |  |
| Operator Contact Brian B. Bremner   |          |   | Title Garfield County Engineer                       |  |  |
| Address (mailing)<br>P.O. Box 77  |          |   |  |  |  |
| City Panguitch  |          | State UT  | Zip Code 84759                                       | Telephone (435) 676-1119   |  |
| Email Address engineer@color-country.net  |          |   | Alternative Telephone (cell or other) (435) 676-1101 |  |  |
| Property Owner Contact Brian B. Bremner   |          |   | Title Garfield County Engineer                       |  |  |
| Address (mailing)<br>P.O. Box 77  |          |   |  |  |  |
| City Panguitch  |          | State UT  | Zip Code 84759                                       | Telephone (435) 676-1119   |  |
| Email Address engineer@color-country.net  |          |   | Alternative Telephone (cell or other) (435) 676-1101 |  |  |

**Part I General Information (Continued)****VIII. Waste Types** (check all that apply)

|   |                          |                          |
|---|--------------------------|--------------------------|
| <input checked="" type="checkbox"/> All non-hazardous solid waste (see R315-315-7(3) for PCB special requirements) OR the following specific waste types: |                          |                          |
| Waste Type  | Combined Disposal Unit   | Monofill Unit            |
| <input type="checkbox"/> Municipal Waste  | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Construction & Demolition  | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Industrial   | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Incinerator Ash  | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Animals  | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Asbestos   | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> PCB's (R315-315-7(3) only)   | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Other  | <input type="checkbox"/> | <input type="checkbox"/> |

**IX. Facility Area**

|                     |                |             |
|---------------------|----------------|-------------|
| Facility Area ..... | <u>320</u>     | acres       |
| Disposal Area ..... | <u>40</u>      | acres       |
| Design Capacity     |                |             |
| Years .....         | <u>10+</u>     |             |
| Cubic Yards .....   |                |             |
| Tons .....          | <u>100,000</u> | (estimated) |

**X. Fee and Application Documents**

Indicate Documents Attached To This Application


☐ Application Fee Amount \$

Class V Special Requirements

- |  |  |   |   |
|--|--|---|---|
| <input checked="" type="checkbox"/> Facility Map or Maps | <input checked="" type="checkbox"/> Facility Legal Description | <input checked="" type="checkbox"/> Plan of Operation | <input checked="" type="checkbox"/> Waste Description   |
| <input type="checkbox"/> Ground Water Report             | <input checked="" type="checkbox"/> Closure Design             | <input checked="" type="checkbox"/> Cost Estimates    | <input checked="" type="checkbox"/> Financial Assurance |

☐ Documents required by UCA 19-6-108(9) and (10)**I HEREBY CERTIFY THAT THIS INFORMATION AND ALL ATTACHED PAGES ARE CORRECT AND COMPLETE.**

Signature of Authorized Owner Representative



Brian B. Bremner

Name typed or printed

|          |                 |
|----------|-----------------|
| Title    | Garfield County |
| Engineer |                 |

|      |                  |
|------|------------------|
| Date | January 22, 2018 |
|------|------------------|

|         |                                  |
|---------|----------------------------------|
| Address | P O. Box 77, Panguitch, UT 84759 |
|---------|----------------------------------|

Signature of Authorized Land Owner Representative (if applicable)



Leland F. Pollock


Name typed or printed

|              |                 |
|--------------|-----------------|
| Title        | Garfield County |
| Commissioner |                 |

|      |                  |
|------|------------------|
| Date | January 22, 2018 |
|------|------------------|

|         |                                 |
|---------|---------------------------------|
| Address | P O Box 77, Panguitch, UT 84759 |
|---------|---------------------------------|

Signature of Authorized Operator Representative (if applicable)



Brian B. Bremner

Name typed or printed

|          |                 |
|----------|-----------------|
| Title    | Garfield County |
| Engineer |                 |

|      |                  |
|------|------------------|
| Date | January 22, 2018 |
|------|------------------|

|         |                                  |
|---------|----------------------------------|
| Address | P.O. Box 77, Panguitch, UT 84759 |
|---------|----------------------------------|

**PERMIT RENEWAL APPLICATION  
JOHN'S VALLEY CLASS I  
SANITARY LANDFILL**

**2018**

**Prepared by**

**GARFIELD COUNTY ENGINEERING DEPT.**

## **TABLE OF CONTENTS**

### **APPLICATION**

|                                     |   |
|-------------------------------------|---|
| INTRODUCTION                        | 1 |
| RESPONSIBLE PARTIES                 | 2 |
| GENERAL DESCRIPTION                 | 2 |
| LEGAL DESCRIPTION                   | 2 |
| WASTE TYPES/AREA TO BE SERVED       | 3 |
| INTENDED SCHEDULE OF CONSTRUCTION   | 3 |
| REQUIRED FORMS                      | 4 |
| INSPECTIONS                         | 4 |
| CLOSURE AND POST CLOSURE            | 4 |
| WATER QUALITY REVIEW                | 5 |
| CONTOURING, FINAL COVER AND SEEDING | 5 |
| FINANCIAL ASSURANCE                 | 5 |

### **PLAN OF OPERATION**

|  |    |
|--|----|
| INTRODUCTION                                   | 7  |
| HANDLING PROCEDURES                            | 7  |
| INSPECTIONS AND MONITORING                     | 9  |
| FIRE/EXPLOSION CONTINGENCY PLAN                | 9  |
| CORRECTIVE ACTION FOR CONTAMINATED GROUNDWATER | 9  |
| CONTINGENCY PLAN FOR OTHER RELEASES            | 9  |
| DUST CONTROL / AIR QUALITY                     | 10 |
| LITTER CONTROL                                 | 10 |
| EQUIPMENT MAINTENANCE                          | 10 |
| EXCLUSION OF HAZARDOUS WASTE                   | 10 |
| DISEASE VECTOR CONTROL                         | 11 |
| ALTERNATIVE DISPOSAL                           | 11 |
| TRAINING AND SAFETY PLAN                       | 11 |
| RECYCLING                                      | 11 |
| FILLING SEQUENCE                               | 12 |

### **GEOHYDROLOGICAL ASSESSMENT**

|                         |    |
|-------------------------|----|
| GEOLOGY                 | 13 |
| HYDROLOGY               | 13 |
| ON-SITE SOIL PROPERTIES | 13 |
| GROUNDWATER             | 14 |
| WELLS AND WATER RIGHTS  | 14 |

|                            |    |
|----------------------------|----|
| SURFACE WATERS             | 15 |
| IMPACTS TO WATER RESOURCES | 15 |

### **PRELIMINARY ENGINEERING REPORT**

|   |    |
|---|----|
| SITING CRITERIA                             | 16 |
| FACILITY LIFE                               | 16 |
| CELL DESIGN AND OPERATION                   | 16 |
| LINER DESIGN                                | 17 |
| LEACHATE COLLECTION SYSTEM                  | 17 |
| EQUIPMENT AVAILABILITY                      | 18 |
| BORROW SOURCES                              | 18 |
| LEACHATE COLLECTION, TREATMENT AND DISPOSAL | 18 |
| LANDFILL GAS CONTROL AND MONITORING         | 19 |
| SLOPE STABILITY                             | 19 |
| RUN ON / RUN OFF CONTROL                    | 20 |

### **CLOSURE / POST CLOSURE**

|                          |    |
|--------------------------|----|
| CLOSURE SCHEDULE         | 22 |
| FINAL COVER              | 22 |
| SITE CAPACITY            | 23 |
| FINAL INSPECTIONS        | 23 |
| SITE MONITORING          | 23 |
| LAND TRANSFERS AND USES  | 24 |
| POST CLOSURE MAINTENANCE | 24 |
| RESPONSIBLE PARTY        | 24 |

### **FINANCIAL ASSURANCE PLAN**

|                              |    |
|------------------------------|----|
| CLOSURE / POST COST ESTIMATE | 26 |
| MECHANISMS                   | 27 |
| SCHEDULE OF PAYMENTS         | 28 |

## **EXHIBITS**

|             |  |
|-------------|--|
| Exhibit 1   | General Vicinity Map                       |
| Exhibit 2   | Project Location Map                       |
| Exhibit 3a  | Proof of Ownership                         |
| Exhibit 3b  | Land Use/Zoning Map                        |
| Exhibit 4a  | Daily Record Form                          |
| Exhibit 4b  | Hazardous Waste/PCB Inspection Form        |
| Exhibit 5   | Quarterly Inspection Log                   |
| Exhibit 6   | Geologic Map                               |
| Exhibit 7   | F.E.M.A. Flood Zone Map                    |
| Exhibit 8   | Phasing Plan                               |
| Exhibit 9   | Topographic Map                            |
| Exhibit 10. | Filling Sequence                           |
| Appendix A  | Slope Stability                            |
| Appendix B  | Closure / Post-Closure Financial Assurance |
| Appendix C  | Leachate Trench Calculations               |

## **APPLICATION**

### **INTRODUCTION**

This report serves as the renewal application for the John's Valley Sanitary Landfill located approximately 12 miles north of Tropic, Utah, in what is known as John's Valley. The purpose of the report is to comply with R315-310-8 Administrative Rules of the Utah Division of Solid and Hazardous Waste, Utah Department of Environmental Quality.

Three hundred twenty (320) acres have been acquired, and approximately 40 acres are currently permitted by Garfield County for a sanitary landfill operation. Although the site is centrally located to accommodate regionalization, the site is relatively isolated and has positive characteristics when considering topography, precipitation, groundwater, and soil permeability. The project is located in an area zoned agricultural or multiple use. Initial disposal operations have been initiated on a 29 acre site in the southwest corner of the property. The population within the Garfield County landfill service area is estimated at 6,200.

Waste handled by the John's Valley Sanitary Landfill is comprised of household/commercial and construction/demolition waste generated in the service area. Household waste is the residential and rural community variety which can fit in a 6- to 8-yard dumpster. No hazardous industry exists within the service area. Construction and demolition waste is subject to the County's building ordinance and disposed of on site in a designated pit. Commercial waste is basically high volume-low weight paper products. Tree limbs, grass clippings, and agricultural waste are accepted to the extent they are placed in the dumpsters. Special wastes such as dead animals, water treatment plant sludge, certain bulky wastes (car bodies, furniture, appliances) will be accepted only as generated by the service area and only after proper handling provisions have been made. Hazardous waste and bulk liquids will not be placed in the landfill facility.

A draft permit was issued to Garfield County on November 14, 1991. A public comment period was held from November 14 to December 15, 1991. Notice of the comment period was published on November 14, 1991, in the Salt Lake Tribune, Deseret News, and Garfield County News. No comments were received at the office of the Division of Solid and Hazardous Waste. The original permit (#92-05) was issued on January 16, 1992, and the facility began accepting waste June 1, 1992. The permit was renewed over the years and was last updated in 2007. Exhibit 1 is a general vicinity map included in the original permit application.

### **RESPONSIBLE PARTIES**

The applicant, property owner, and responsible party for site operation is:

Garfield County  
Garfield County Courthouse  
55 South Main  
P. O. Box 77  
Panguitch, UT 84759  
ATTN: Brian Bremner  
Phone: (435) 676-1119  
Fax: (435) 676-8239  
Email: [engineer@color-country.net](mailto:engineer@color-country.net)

*It should be noted Garfield County is continually upgrading solid waste management services. Future agreements, potential special service district creation, and alternate ownership/operation scenarios may require modification of this section of the permit. In addition, the County may contract site operations with private entities. Garfield County will notify the Executive Secretary of any changes in responsible party status at least 30 days prior to their effective date.*

## **GENERAL DESCRIPTION**

The John's Valley Landfill is currently authorized as a Class I facility and was one of the first Utah landfills permitted after the promulgation of Subtitle D. The active portion of the facility encompasses approximately 45 fenced acres with current disposal operations located on 29 acres in the southwest corner of the property. Waste volumes for the years prior to 2018 approximate 7,500 tons/year and are not anticipated to exceed the 25 tons per day figure any time in the near future.

The facility's original service area comprising western Garfield County has been expanded to include the eastern portion of the County, Piute County and State and federal facilities which cannot be serviced by other facilities.

Closure of other landfills in the area prior to 1992 has increased the waste volumes accepted at the John's Valley Landfill. As a result, and considering the need to increase protection of groundwater resources in the area, the County's 2007 renewal reclassified the landfill as a Class I facility. Operational changes resulting from the reclassification included installation of a composite liner, leachate collection, and cover modifications. A groundwater monitoring system was included as part of the original permit, and a modified groundwater protection plan was submitted in 2007.

This 2018 renewal application incorporates previous modifications and also authorizes expansion of additional disposal capacity labeled as Phase III. Phase III includes an additional cell of the same type and specifications as approved in previous permits. The cell incorporates a composite Geosynthetic Clay Liner and HDPE protection system to collect any leachate and convey it to a leachate collection trench. The additional cell is expected to accommodate the County's disposal needs for 10 years or more.



## **LEGAL DESCRIPTION**

The landfill is legally described as the southwest 3 of the southwest 3 of Section 36, Township 34 South, Range 3 West. Garfield County owns the west 2 of the Section, and will expand landfill boundaries as needed and as part of future permitting activities.

Exhibit 2 depicts the property's relationship to adjacent sections, townships and ranges. Exhibit 3a is proof of ownership for the property, and Exhibit 3b is the land use/zoning map accepted as part of the original application.

The facility's main gate is located at 112 04' 03" longitude and 37 47' 55" latitude (the southeast corner of the southwest 3 of the southwest 3 of the southwest 3, Section 36, Township 34 South, Range 3 West). The landfill is located in an area zoned for agricultural or multiple use. North and east of the site, agricultural zones extend 2 miles and 3 miles respectively before becoming multiple use lands. Adjacent land west of the site is zoned multiple use. Lands located south of the site are zoned multiple use for 1320 feet and then agricultural for 2-3/4 miles. It should be noted that Garfield County completed the public comment process to approve the landfill, and a conditional use permit was issued as part of the original permitting process. Further land use permits are not required.

## **WASTE TYPES/AREA TO BE SERVED**

Waste accepted by the John's Valley Sanitary Landfill is comprised of municipal solid waste generated within the service area. Waste includes household waste, commercial waste, nonhazardous sludge, small quantity generator waste, construction/demolition waste, and other wastes approved by the permit. Annual waste volumes during the life of this permit are expected to range from 7500 tons to 10,000 tons. Special waste shall be accepted and handled in accordance with Administration Rule R315-315 and the conditions of this permit.

The current service area for the John's Valley Landfill consists of all lands within Garfield and Piute Counties. In addition, federal, State and private entities that cannot be serviced by other facilities may contract with the John's Valley Landfill on an individual basis. Garfield County=s current population is approximately 5000, and Piute County=s population is approaching 1500.

Garfield County is the owner and operator of the landfill. Garfield County is a body politic and a local subdivision of state government. As such, Garfield County is a tax exempt division of government and cannot provide public services on a commercial basis. Revenues generated at the landfill are used only for solid waste management activities and are not used to fund other governmental activities. Receipts from entities outside Garfield County boundaries are credited to the Solid Waste Management Department budget and are used only to offset solid waste services.

## **INTENDED SCHEDULE OF CONSTRUCTION**

The John's Valley Sanitary Landfill is capable of meeting solid waste disposal needs for Garfield County for more than 50 years. The John's Valley Sanitary Landfill has been operational since the early 1990's. This application is required for renewal of the permit. Adequate capacity exists within the existing excavation for only a few more months. This application considers expansion to a third cell. Additional capacity will be incorporated in an ongoing manner as portions of the active cell attain final elevation. The intended schedule of construction listing major activities for the life of this permit is found below. The schedule may be updated as part of the regular permit review process.

|                    |   |
|--------------------|---|
| Winter 2018        | Obtain renewed permit from Solid and Hazardous Waste and initiate new cell construction.                      |
| Spring 2018        | Implement placement of composite and synthetic liner for Phase III lined cell.                                |
| Spring/Summer 2018 | Initiate disposal in Phase III.   |
| Ongoing            | Close portions of the landfill reaching final elevation and expand cell to provide additional disposal space. |

## **REQUIRED FORMS**

The daily record form used to record weights of volumes of waste received required by Subsection R315-302-2(3)(a)(i) is included as Exhibit 4a. A record form used to record inspections for hazardous waste and PCBs is included as Exhibit 4b.

## **INSPECTIONS**

The owner or operator will inspect the facility to prevent malfunctions, deterioration, operation errors, and discharges which may result in the release of wastes to the environment or a threat to human health. The owner or operator will conduct these inspections at least once each quarter and will complete the inspection log included as Exhibit 5. The inspection log will be kept for a minimum of three (3) years from the date of inspection.

The Executive Secretary or any duly authorized officer, employee or representative of the Board may, at any reasonable time the facility is open and upon presentation of acceptable credentials, enter the facility for inspection purposes. Certified copies of all sampling, monitoring, and testing records, including photographic, video, and electronic data, and all data, communications, and results of the inspection shall be furnished to the owner and to the operator within 30 days of the

inspection. A written summary of the inspection containing a list of any deficiencies and recommended actions will be furnished to the owner and to the operator as soon as practicable. In addition, the inspector may discuss potential problems and make preliminary recommendations prior to leaving the facility.

## **CLOSURE AND POST CLOSURE**

The detailed closure and post-closure plans required by Subsection R315-302-3 are included in other sections of this document. Closure operations will be performed on an ongoing basis as cells reach final elevation. Post-closure care will be performed as described below.

## **WATER QUALITY REVIEW**

The Utah Division of Water Quality issued a groundwater discharge permit for the John's Valley Landfill on February 27, 1992. Changes in State regulations now allow landfills to be permitted by rule. Therefore, renewal of the existing permit is not required. Water quality testing performed in the mid-1990s indicated an increase in concentrations of contaminants in down gradient monitoring wells. As a result, a revised groundwater monitoring plan and cell liners were developed as part of the re-permitting processes after that time. This permit renewal contemplates extension of the existing water quality monitoring program which collects samples not more than two time per year.

Use of an industrial or domestic waste water treatment facility is not contemplated for the active phase of John's Valley Sanitary Landfill. Water balance calculations submitted as part of the original application indicate a diminimus quantity of leachate will be developed at the site. Any leachate collected at the landfill will be evaporated or used in dust control and compaction operations within the active, lined area of the landfill. Leachate is often present during the initial stages after expansion. However, the initial stage leachate is reasonably dilute, passing primarily through protective cover layers. Use of an industrial or domestic wastewater facility is not anticipated through the life of the permit but may be may be considered for leachate collected as part of the post closure period.

## **CONTOURING, FINAL COVER AND SEEDING**

Closure operations will consist of leveling, contouring, placement of appropriate covers, and seeding as necessary to reduce infiltration and preserve the integrity of the completed areas of the landfill. Areas of the landfill reaching final elevation will be closed within six (6) months. Closure operations will include leveling and contouring using intermediate cover to reduce infiltration and ponding. Excess material may be stripped and utilized in other operations or left in place. After grading operations promoting drainage are complete, unlined cells will be covered with 18 inches of earthen material having a permeability of  $1 \times 10^{-5}$  cm/sec. and 6 inches of topsoil. Geosynthentic clay liners and other alternate coving systems may be used when permeability

characteristics are equal or better than earthen materials or when approved by the Executive Secretary.

For lined cells, cover will consist of composite materials with permeability rates equal to or better than  $1 \times 10^{-5}$  cm/sec. Generally, this will consist of a geosynthetic clay liner and additional earthen material to promote vegetation.

Upon completion of the covering operations, closed areas will be seeded. The seed mixture shall be developed after consultation with local range specialists and verifying availability of local seed markets. Recently closed sections of the landfill will be evaluated as part of the quarterly inspection process and will be placed on post-closure status.

### **FINANCIAL ASSURANCE**

A detailed financial assurance plan as required by R315-309 is included in other sections of this document. Federal regulations have exempted many municipal landfills from financial assurance requirements. The County's auditors have recently evaluated the requirements as part of Garfield County's annual audit. Results of the evaluation indicate the County is eligible for financial assurance exemptions. Garfield County has elected to implement the local government exemption and has completed procedures required by the State of Utah. The County will continue to use the currently approved financial assurance mechanism throughout the life of the permit. However, Garfield County reserves the right to alter the financial assurance mechanism as bonds, insurance, guarantees and other vehicles become available.

## **PLAN OF OPERATION**

### **INTRODUCTION**

This document constitutes the plan of operation for the John's Valley Sanitary Landfill and is intended to comply with the Utah Division of Solid and Hazardous Waste Administrative Rules. Technical questions and comments may be directed to:

Brian B. Bremner, P.E.  
P.O. Box 77  
Panguitch, Utah 84759  
(435) 676-1119

### **HANDLING PROCEDURES**

During the active life of the landfill municipal solid waste designated for disposal will be brought to the working face where it will be dumped, spread, and compacted. No later than the end of each day's operation, waste will be covered with a minimum of 6 inches of earthen material, or with an alternate daily cover that has been approved by the Executive Secretary. Covering operations shall minimize the possibility of infiltration. Procedures for the handling of specific wastes including but not limited to dead animals, large appliances, car bodies and asbestos are delineated below. Scavenging will not be permitted at the site.

The landfill currently accepts only non-friable asbestos waste for disposal. Although not currently planned, friable asbestos wastes may be accepted if the conditions of UAC R 315-315-2 are satisfied as follows: a) the asbestos waste is adequately wetted and properly containerized by double bagging and sealing in 6 mil or thicker plastic bags to prevent fiber release and b) asbestos waste containers are generated, and tagged with a warning label that conforms to the requirements of 40 CFR Part 61.149(2).

If properly transported and packaged, asbestos waste which meets the above criteria is received at the landfill, the operator will:

- \$ Verify the quantities of waste received, sign off on the waste shipment record, and send a copy of the waste shipment record to the generator within 30 days;
- \$ Require vehicles that have transported asbestos waste to be marked with warning signs as specified in 40 CFR Part 61.149(d)(1)(iii);
- \$ Inspect the load to verify that the asbestos waste is properly contained in leak-proof containers and properly labeled;
- \$ Place asbestos containers at the bottom of the active face with sufficient care to

- \$ avoid breaking the containers;
- \$ Cover the waste within 18 hours with a minimum of six inches of material that does not contain asbestos;
- \$ Provide barriers to limit public access to the asbestos disposal area until the waste has been covered with six inches of material which does not contain asbestos; and
- \$ Place warning signs at the entrance and around the perimeter of the asbestos disposal area which comply with 40 CFR 61.154(b).

If the attendant believes the condition of an incoming asbestos load is such that significant amounts of fiber may be released during disposal, the attendant will notify the local and regional health departments and the Executive Secretary. If the wastes are not properly containerized, and the landfill operator inadvertently accepts the load, the operator shall thoroughly soak the asbestos material with a water spray prior to unloading, rinse out the haul truck, dispose of the waste near the base of the active face, and immediately cover the waste prior to compaction with six inches of non-asbestos material in a manner sufficient to prevent fiber release.

Ash will be transported in such a manner to prevent leakage or the release of fugitive dust. The landfill operator will unload the transport vehicles at the bottom of the working face and keep the ash wetted, if necessary, to prevent fugitive emissions prior to covering; and within 24 hours, the operator will completely cover the ash with a minimum of 6 inches of other non-ash landfill waste or a minimum of 6 inches of material containing no waste or use other methods or materials, if necessary, to control fugitive dust.

Bulky waste such as automobile bodies, furniture, and appliances will be crushed and then pushed onto the working face near the bottom of the cell or into a separate disposal area. When conditions permit, appropriate bulky items may also be recycled.

The landfill will minimize liquids by prohibiting containerized liquids or waste containing free liquids in containers larger than five gallons, non-containerized liquids, and /or sludges containing free liquids. No waste treatment plant sludge, digested waste water treatment plant sludge, or septage containing free liquids will be disposed in portions of the landfill containing other solid waste. Water treatment plant sludge, digested waste water treatment plant sludge, or septage containing no free liquids will be placed at or near the bottom of the landfill working face and covered with other solid waste or other suitable cover material.

Dead animals received at the facility will be deposited onto the working face at or near the bottom of the cell with other solid waste, or into a separate disposal trench provided they are covered daily with a minimum of 6 inches of earth to prevent odors and the propagation and harborage of rodents and insects.

Areas of the landfill that have not anticipated to receive waste for a period of more than 30 days

will be covered with an intermediate cover that consists of a minimum of 12 inches of earthen material.

## **INSPECTIONS AND MONITORING**

Inspection and monitoring at the John's Valley Sanitary Landfill will be conducted in two components: (1) routine and (2) compliance. Routine inspections will be conducted on incoming material on a random basis to prohibit receipt of unacceptable wastes. In addition, random checks will be made during deposition, spreading, and covering operations to insure protection of the environment and absence of nuisances. Unacceptable waste screening inspection will be made by trained personnel; operational inspection will be made by supervisory landfill personnel.

Compliance inspections will be conducted quarterly to assess the integrity of cover, the condition of side slopes and vegetative cover, and the impacts of erosion. In addition, a detailed annual inspection will be conducted to verify compliance with all permit conditions and state and federal regulations. All inspection records will be kept at the landfill for the current calendar year. Within 30 days of the end of the calendar year, annual records will be transferred to the County Courthouse and will be stored for a minimum of three years.

## **FIRE/EXPLOSION CONTINGENCY PLAN**

In the event of a fire or an explosion that prohibits deposition of incoming waste in the existing cell, materials received at the landfill will be diverted and temporarily stored on previous cells and will be covered with an alternate daily cover approved by the Executive Secretary or 6 inches of earthen material. Upon resolution of the unexpected event and not longer than 30 days, the waste will be transported to its final disposal destination and treated as incoming waste.

## **CORRECTIVE ACTION FOR CONTAMINATED GROUNDWATER**

This section describes corrective actions to be taken by owners and operators to regain compliance with protection levels for the John's Valley Sanitary Landfill in the event concentration limits are exceeded in a down gradient compliance monitoring well.

When the concentrations of parameters in down gradient monitoring wells exceed the concentration limits as substantiated by confirmatory analyses, owners and operators of the John's Valley Sanitary Landfill will implement a corrective action program as outlined in R315-308 and in accordance with the revised groundwater monitoring plan submitted separately.

## **CONTINGENCY PLAN FOR OTHER RELEASES**

This section describes corrective actions to be taken by the John's Valley Sanitary Landfill to regain compliance with the protection levels of the permit in the event releases are discovered and acceptable concentration limits are exceeded.

When the concentration of parameters exceed acceptable limits as substantiated by confirmatory



analyses, owners and operators of the John's Valley Sanitary Landfill will implement a corrective action program approved by the Executive Secretary.

### **DUST CONTROL / AIR QUALITY**

Fugitive dust is not anticipated to reach unacceptable levels at the Johns Valley Sanitary Landfill due to the granular nature of the predominant soils. If fugitive dust exceeds acceptable levels, actions will be implemented to reduce dust. These actions may include watering access roads, developing wind breaks, altering management scenarios, or other appropriate measures.

### **LITTER CONTROL**

Litter is controlled through use of best management practices. Active areas and working faces are limited; waste is covered shortly after deposition; and blowing trash is confined as much as practical. In addition, litter control fencing has been established along the perimeter of the active area. However, high winds occasionally occur at the landfill. Any litter escaping the perimeter of the landfill will be periodically picked up by hand.

### **EQUIPMENT MAINTENANCE**

Active collection systems for explosive gases are not proposed for the John's Valley Sanitary Landfill. Therefore, no maintenance will be required for these items. Maintenance of groundwater collection systems and equipment used in day-to-day operations will be performed by landfill employees or contracted mechanics in accordance with manufacturers' recommendations and industry practices.

### **EXCLUSION OF HAZARDOUS WASTE**

As a small rural landfill, the John's Valley facility is in a favorable position regarding exclusion of hazardous waste. During periods when the landfill is open, waste will be observed as it is removed from the collection vehicle. The waste will be further examined for hazardous materials as it is being spread by the operator and compacted. If hazardous materials are found, the collection vehicle driver will be notified and the unacceptable substance will be removed from the landfill.

In addition to the daily inspection procedure, at least one percent of all vehicles ( private citizen and route collection ) and other suspicious loads will be will be examined to prohibit unauthorized waste. Vehicles subject to inspection will be directed to dispose of their material near the working face. The waste generator will be detained while the load is inspected. For large loads, the waste will be spread and landfill operators will walk through the waste. If prohibited hazardous waste or prohibited waste containing PCB=s are encountered, they will not be accepted. In addition, the Executive Secretary, the hauler, and the generator will be notified within 24 hours. Other appropriate authorities will be contacted as needed. Considering population served, waste volumes

generated, and complexity of the solid waste stream, these measures are considered to be adequate.

A section documenting the results of the formal inspections outlined above has been included as part of the daily record forms (see Exhibit 4b). Including hazardous/ PCB waste on the record forms will allow landfill managers to incorporate inspections in their daily routine and will permit regular reviews and inspections to be added efficiently while examining waste volumes.

### **DISEASE VECTOR CONTROL**

The primary method for disease vector control at the John's Valley Sanitary Landfill will be providing appropriate cover at the close of each day's operation. The cover will consist of a 6-inch minimum layer of earthen material or an alternate daily cover approved by the Executive Secretary.

Rodents and other vermin will not be permitted to burrow in the active area of the landfill; and trapping or extinction methods will be implemented to protect the integrity of the disease vector control program.

### **ALTERNATIVE DISPOSAL**

Alternative waste handling procedures for periods when the landfill is not in operation will be similar to procedures for fires and explosions. Waste will be deposited in the alternate disposal site and covered with an alternate daily cover approved by the Executive Secretary or 6 inches of earthen material. Procedures will continue in this manner until operations at the landfill can return to normal.

In the event of equipment breakdown that cannot be repaired in a reasonable time, equipment will be borrowed from contributing entities or leased from local distributors. It is the intent of owners and operators to have dedicated equipment at the landfill and, over a period of time, acquire appropriate backup equipment.

### **TRAINING AND SAFETY PLAN**

Currently at least 3 employees involved with the John's Valley Sanitary Landfill have completed the Manager of Landfill Operations Training Course and the Waste Screening Training Course provided by the Solid Waste Association of North America (SWANA). Limited training and educational experience exists for operators of rural landfills; however, employees will be encouraged to attend appropriate seminars and training as time and budgets permit.

Safety procedures will conform to OSHA guidelines; and personnel will be encouraged to participate in additional landfill management, waste screening, safety, and first aid workshops.

### **RECYCLING**

No formal recycling programs are planned for the Johns Valley Landfill. Currently, private collection services in the County collect certain metals in selected locations. When feasible, bulky items are also set aside and recycled. However, due to low volumes and unstable markets, neither of these operations is considered permanent.

### **FILLING SEQUENCE**

The first lift of the Phase III cell will begin in the Southeast corner of the lined cell and will be deposited near the end of the cell slope. Equipment used for compaction and cover operations will move onto the cell from the East, and waste will be carefully pushed off the end of the construction pad and covered. Operators will exercise care to avoid pushing waste through the earthen protective cover. Landfill personnel will continue to deposit and spread waste material in a westerly direction until sufficient area is present to accommodate incoming trucks. Subsequent loads will be brought onto the previous waste and carefully deposited, pushed and covered. Waste material will be added in successive lifts until final elevation is reached. The process will then be repeated. Additional lifts will begin at the toe of slope at the Southeast corner and progress in a westerly direction to cover the bottom area of the cell. Operations will continue in this manner progressing in a westerly and then northerly direction until the lined cell is completely full of waste.

## **GEOHYDROLOGICAL ASSESSMENT**

### **GEOLOGY**

The John's Valley sub-basin lies between Flake Mountain and the head of Black Canyon north of Bryce Canyon, Utah. The sub-basin comprises an area of approximately 30,000 acres and is bounded by sedimentary and volcanic formations on all sides. The Paunsaugant fault separates the valley from the Table Cliffs and Aquarius plateaus along much of the eastern valley margin and is the main structural element forming the sub-basin. The East Fork of the Sevier River flows through John's Valley and is the predominant topographic feature.

Site specific geology for the John's Valley Landfill indicates alluvium containing interbedded layers of dense sands, gravels, silts and clays. Permeability of the material decreases with depth, and ranges from 83 feet per year 10 feet below the surface to 6 feet per year 50 feet below the surface. Detailed geologic maps and information were submitted as part of the original Landfill Permit and Groundwater Discharge Permit applications and are on file with the Utah Department of Environmental Quality.

Due to the sedimentary nature of the valley, no significant geologic features, faults, or unstable areas exist within the landfill boundaries. Exhibit 6 is a geologic map for the site.

### **HYDROLOGY**

The climate in the area is dry, high mountain desert. The seasons are well defined, and there is a fairly wide daily range in temperature. The average length of the growing season at Bryce is 138 days, or from May 17 (the date of the last killing frost in the spring) to October 2 (the date of the first frost in the fall). In any given year the length of the growing season may vary considerably from the average. Average annual precipitation at Bryce is approximately 12 inches. The largest amount of precipitation is during August and September, and the least during May and June. Data kept by the weather bureau on the velocity of wind near the landfill are not available for the area. It would appear, however, that the windiest part of the year is in the spring and the early summer. The prevailing winds are usually dry and blow from the south to southwest.

Maps for the 24 hour 25 year and 100 year precipitation events were examined. Estimated rainfall totals were 2.8 inches and 3.4 inches respectively.

### **ON-SITE SOIL PROPERTIES**

On-site soils consist primarily of interbedded layers of sands and gravels and occasional clay/silt lenses. Density and impermeability of the soils increase with depth and range from 34 blows and 83 feet per year at 10 ft. depth to 75 blows and 6 feet per year at 50 ft. depth. The material is clean and free from foreign matter.

The top 6 to 12 inches is described by the U.S. Soil Conservation Services as notter loam comprised of gravelly, sandy and clayey material. On-site experience indicates a predominance of fine grained material that can readily be compacted to a permeability of  $1 \times 10^{-5}$  cm/sec.

In addition to on-site soils, Garfield County has acquired 40 acres (the southeast 3 of the southeast 3 of Section 36, Township 34 South, Range 3 West) for use as a borrow site. Laboratory analysis of borrow site materials indicates permeabilities between  $1 \times 10^{-5}$  cm/sec and  $1 \times 10^{-7}$  cm/sec and be achieved with densities of 90%-95% maximum laboratory compaction. The material is silty to clayey in nature and should be available for use, at the landfill.

## **GROUNDWATER**

Groundwater is under water table conditions throughout the John's Valley sub-basin. Initial sampling of the landfill site indicated no groundwater to a depth of approximately 80 feet. However, installation and operation of three groundwater monitoring wells indicates groundwater closer to the surface, especially during spring months near the eastern property boundary. Historic groundwater levels indicate a minimum depth of approximately 50 ft. (elev. 7342) under the lined cell. The lowest elevation in Phase II exists at the bottom of the leachate collection trench (elev. 7360), eighteen feet above historic high groundwater levels. Preliminary analysis indicates Phase III also exceeds the five foot separation between the liner and groundwater as required by the Solid and Hazardous Waste Administrative Rules.

Groundwater has been analyzed on a quarterly basis since 1992 as part of the original groundwater discharge permit. The Groundwater Discharge Permit Application, original permit, monitoring well as built report and quarterly monitoring results are on file at the Utah Division of Water Quality. As part of the original permit and in an effort to provide greater protection to groundwater, Garfield County has constructed three groundwater monitoring wells. The wells are currently sampled not more than twice each year for constituents extracted from the original groundwater discharge permit. Recent testing indicates the water table is in need of additional testing. The Johns Valley Landfill will monitor groundwater in accordance with the requirements of Administrative Rule R315-308. Groundwater monitoring will continue as required for constituents identified in Table R315-308-4. The Executive Secretary may alter the constituents and or sampling schedule based on the nature of the groundwater or site specific conditions.

The flow rate of groundwater has not been determined. However, the general direction is north to northeast, with some northerly fluctuation along the eastern property boundary during the spring. As landfill construction progresses, additional monitoring well data will be collected and evaluated to verify the landfill meets regulatory requirements.

## **WELLS AND WATER RIGHTS**

The only known wells in the vicinity are groundwater monitoring wells associated with the

landfill. As part of the original permit, contact was made with the State Engineer's office to determine quantity, location, and construction of any private and public wells within 2,000 feet of the proposed site during the initial permitting process. No wells existed in the immediate proximity of the proposed landfill. The State Engineer's office indicated no wells existed in the proposed landfill section. Furthermore, no wells existed in the surrounding 8 sections. The nearest well was located more than 3 miles from the proposed site and is hydrologically upgradient. Known uses of the well are irrigation and domestic. It should also be noted that the closest well is located in a different geologic structure than the aquifer underlying the proposed landfill.

### **SURFACE WATERS**

The proposed site is free from natural watercourses, washes, and run-on type surface waters. No live streams or intermittent water courses traverse the proposed site. Approximately 2 mile east of the proposed site is the East Fork of the Sevier River drainage channel. The channel is dry during a significant portion of the year. The 100-year flood plain has been mapped by the Federal Emergency Management Agency (F.E.M.A.) and does not fall within the proposed landfill. Maximum elevations for the 100 year flood do not exceed 7350 feet above mean sea level. A copy of the Federal Insurance Rate Map is on file with the Department. In addition to avoiding the flood plain, the proposed site will be further protected from flooding by the gently sloping terrain, perimeter roads, and berm-style stockpiling of cover material around the perimeter of the working area.

Although the proposed site is free from natural surface drainage channels, an irrigation ditch runs in an easterly direction through property acquired by Garfield County for future expansion of the landfill. The ditch is located approximately 2 mile north of the active area. Any impacts associated with the ditch are well beyond the life of the permit.

If future relocation of the ditch becomes unfeasible, the ditch would be encased in pipe at its present location, and a 50 foot buffer zone would be developed on each side of the pipe. No excavation, deposition, or landfill activities would occur within the buffer zone.

### **IMPACTS TO WATER RESOURCES**

The Johns Valley Sanitary Landfill has been in operation for approximately 25 years. During that time, surface flows from the active area have been nonexistent. Therefore, there have been no impacts to surface waters. The groundwater monitoring program is described above.

## **PRELIMINARY ENGINEERING REPORT**

### **SITING CRITERIA**

The John's Valley Sanitary Landfill complies with siting criteria currently mandated by Subtitle D and recognized by the State of Utah Solid and Hazardous Waste Committee. Specifically, no airport is located within 10,000 feet of the proposed landfill. The site is free from unstable areas and is not located within a 100-year flood plain or in any wetland. No residences, or federally designated parks, monuments, recreation areas, or wilderness areas exist within 1000 feet of the landfill. In addition to federal mandated criteria, the site is compatible with existing land uses, long-term landfill operation and is in a remote area free from dwellings and other incompatible structures such as churches, schools, hospitals, etc. At the time of construction, approximately 25 years ago, no scientifically significant areas or endangered species existed within the property boundaries. The active area has been previously disturbed, and landfill operations are not anticipated to exceed previously disturbed limits during the life of this permit. Cultural resources within the landfill have not been encountered. If discovered, cultural resources will be mitigated in accordance with SHPO requirements. Exhibit 7 is a copy of the F.E.M.A. flood zone map.

### **FACILITY LIFE**

The anticipated facility life for the Johns Valley Landfill cannot be accurately estimated. Estimates conducted by The Division of Solid and Hazardous Waste during the landfill's initial stages predicted a life in excess of 300 years. As of January 1, 2018 approximately 3% of the entire property is being used for active landfill operations, and managers are only approaching initial closure procedures. Based on the overall size of the property, relatively low waste volumes, and current efficiencies, facility life is estimated well in excess of 50 years.

### **CELL DESIGN AND OPERATION**

The John's Valley Sanitary Landfill is designed to minimize active areas and to reach final elevation as soon as practical in order to minimize infiltration and leachate generation. The individual lifts in each cell are designed to accommodate from two to five years of waste and to expand in an orderly fashion from south to north.

Cells are approximately 50 - 80 feet in total depth, and bottom widths have been excavated to approximate 400 feet. The width of progressive lifts will vary with volumes of waste, season of the year, and soil stockpile needs but are anticipated to be less than 100 feet. Current excavations provide a minimum of one-year capacity for growth and unexpected problems. The cell will continue in a northerly direction as needed. Interior side slopes will approximate 4:1 and will be developed as part of the daily covering operations. Exterior fill slopes will also be 4:1 and may extend above natural ground by 60 feet or more. Updated concept and construction plans are included with this application.

Existing cells are nearing final elevation. As viable segments of the cells reach final elevation they will be contoured and prepared to receive final cover. As areas are prepared, final cover will be installed on a regular basis. This permit contemplates the installation of final cover on an ongoing basis.

Near the close of each working day, waste will be spread, compacted and covered with 6 inches of native soil or an alternate daily cover approved by the Executive Secretary. The alternate daily cover may consist of a plastic blanket meeting Executive Secretary requirements. If used, the blanket will be removed at least weekly, and waste will be covered with a minimum of 6 inches of earthen material. Historic use of the blanket has demonstrated it controls vectors, odors, blowing litter, and scavenging. The weekly application of 6 inches of earthen material creates a fire barrier to control fires. Cells which do not receive waste for more than 30 days will be covered with an intermediate cover consisting of a minimum of 12 inches of earthen material.

The 50 - 80 foot cell height described earlier is a nominal maximum dimension and does not consider final slopes necessary to promote drainage or additional covering requirements. Cells are anticipated to consist of solid waste compacted in lifts ranging from 7 feet to 12 feet and covered with 6 inches to 12 inches of daily or intermediate cover material. Seven to ten lifts may be accommodated in the nominal height. A phasing plan is included as Exhibit 8.

### **LINER DESIGN**

Currently John's Valley Landfill operates with a) an unlined cell that is at capacity and is ready for closure and b) a lined cell that is nearing capacity and will be closed as it reaches final elevation. Operation in the unlined cell is anticipated to reach final elevation concurrent with permit renewal, and closure operations will begin as soon as practical.

Approximately 10 years ago landfill was upgraded to Class I status and as part of the permit renewal process, a composite liner was implemented. The design consisted of suitable subgrade material to provide structural support and prevent ruptures to the liner, a geosynthetic clay liner, a 60 mil high density polyethylene liner, a geosynthetic drainage net and 24 inches of earthen protective cover to prevent damage to the liner when material is deposited. The prepared subgrade was to be free from protrusions and objects that could damage the liner, and protective covers consist of 6 inches of 1 ½ inch minus material and 18 inches of pit run material were placed in areas where waste could be in contact with the liner.

An identical design will be incorporated in the Phase III cell. Geosynthetic clay and plastic liners will meet minimum state standards. A quality assurance/quality control program has been developed as part of the construction process, and approval by the Executive Secretary is being sought as part of the permitting process. Approval is required prior to the work.

### **LEACHATE COLLECTION SYSTEM**

A leachate collection system has been sized and designed in accordance with water balance



calculations and other accepted engineering principles. The system allows the discharge of leachate into a collection trench where it will be extracted and recirculated in lined cells. The system prevents the development of no more than one foot of leachate in the bottom of landfill cells. Landfill cells have been constructed with slopes draining to the north. Slopes in the bottom of the cell are 2% or greater. Composite liners will be covered with geosynthetic drainage net and permeable, granular materials. Leachate will be collected in a trench bordering the north edge of the active cell. The collection trench will have 4:1 side slopes and will have a bottom width of at least 32 feet. With a depth ranging from 4 ft. to 6 ft., the trench has the capacity to contain twice the total volume of leachate produced by the 25 year storm event and 1.5 times the leachate volume produced by the 100 year storm. Leachate will be allowed to collect in the trench until it encroaches on the freeboard required to accommodate the 25 year event, at which time the leachate will be pumped and recirculated. Recirculation efforts will occur via water distribution trucks or portable pumps and sprinklers as needed. The collection system will be accompanied, as needed, with access piping to protect the trench liner during extraction operations. Recirculated leachate will be used in dust control and compaction operations only in the active, lined areas. Design calculations have been included in Appendix C.

The collection and treatment option described above includes best management practices which minimize water infiltration. Components of the best management practices may include: (1) diversion of intermittent washes for storms smaller than the 25-year event, (2) berm-style construction and stockpiling operations, (3) final cover as described above placed as soon as practical after final elevation, (4) sloping of the final cover to promote run-off, (5) use of alternate daily covers which resist infiltration, and (6) providing adequate compaction to reduce void space and leachate development. Considering annual precipitation rates, proposed liner design, and water balance estimates, other leachate collection and treatment options may not be practical.

In anticipation of extraordinary events or severe storms which could occur during the initial stages of operation, analysis was conducted on granular material to be used in the protective cover operations. Conservative analysis indicates more than 20% of back to back 25 year storm events will be held in protective layer pore spaces. Capacity of the leachate trench exceeds quantity derived from required back to back storm events. Prior to final closure of the landfill an evaporation pond will be designed and constructed in accordance with state requirements. Post closure leachate will be collected in the pond and allowed to evaporate or disposed in an authorized wastewater facility

## **EQUIPMENT AVAILABILITY**

Equipment operating at the John's Valley Sanitary Landfill includes a bulldozer, a landfill compactor, a loader, and a scraper. In addition, backhoes, graders, loaders and other construction equipment owned by Garfield County may be used from time to time at the landfill. A variety of industrial equipment, vacuums, and pumps are also available on site. In addition, the landfill has access to the Public Works Department's full compliment of equipment.

## **BORROW SOURCES**

For day to day operations requiring borrow, the John's Valley Landfill will utilize on-site sources. For construction of low grade impermeable covers and liners, a 40-acre borrow source has been acquired near the Landfill. Garfield County will utilize the borrow source as needed. Current estimates indicate that approximately 750,000 cubic yards of material is available at the borrow site. More than 10 million yards of native material is available within the property boundaries. If for any reason existing borrow sites become unsuitable, alternate borrow sources will be obtained.

## **LEACHATE COLLECTION, TREATMENT AND DISPOSAL**

The John's Valley Sanitary Landfill is being permitted as a Class I facility located in an arid region with favorable soil conditions. Water balance calculations indicate a diminimus volume of leachate will be generated at the landfill. HELP Model simulations submitted as part of the original permit indicate an area left open to precipitation for 5 years would be at wilting point during October of each year. The model also demonstrated an absence of leachate during the 5-year simulation.

All leachate and run off liquids that contact waste and are developed within the landfill will be contained and collected on site. No off site collection, treatment and/or disposal are planned for the active phases of the facility=s life. Insufficient data exists to determine the volume of leachate generated during the post closure period of the landfill. Sufficient area exists for development of an evaporation pond, and Panguitch City has indicated that post closure leachate could be placed in the Panguitch City wastewater facility. Garfield County will collect leachate generation data as part of its regular inspection program at the landfill. In future phases, evaporation ponds will be designed and constructed to accommodate post closure leachate or formal agreements will be reached with local government wastewater facilities for disposal of leachate.

## **LANDFILL GAS CONTROL AND MONITORING**

Due to the arid nature of the climate at the John's Valley Sanitary Landfill, permeability of predominant soils and the low volume of waste accepted at the facility, landfill gas concentrations are not anticipated to reach significant levels. The large area of the proposed facility is designed to accommodate dissipation of any landfill gases prior to reaching the property boundary.

Monitoring for landfill gases will be conducted as part of the quarterly inspections performed by landfill managers. Concentration will be measured at each on-site structure. In addition, landfill gas concentration will be evaluated at southwest corner of the property boundary and, for information purposes only, Garfield County may also measure gas concentrations randomly in the active area. Results will be recorded on quarterly inspection forms.

Garfield County has purchased a portable gas monitor and will be installing the unit in the facility weigh shack. As a safety precaution, landfill personnel will be instructed to check the detection device prior to entering the facility. This practice will continue to be a voluntary action by

Garfield County and is aimed at encouraging safety-sensitive operations.

Should unacceptable levels of landfill gases be detected, contingency plans described in other areas of this permit will be implemented. If gas levels exceed 25% of the lower explosive limit in structures or the 100% of the lower explosive limit at property boundaries, immediate action will be taken to protect human health, and the Executive Secretary will be contacted within 24 hours. Additional state regulations, including operating record notations within seven days and implementation of a remediation plan within sixty days, will be completed.

### **SLOPE STABILITY**

A stability analysis has been completed for the proposed Johns Valley landfill cells with excavations approximately 20 feet in depth and side slopes of four horizontal to one vertical. The landfill will be excavated into soils classified as well graded gravel with cobbles. Groundwater is projected to be at least 20 feet below the bottom of the landfill excavation and will not be closer than 5 ft.

The analysis was completed for the excavation side slopes for the newly constructed case, prior to deposition of any waste material. This will be the most critical configuration since there will not be any waste material to provide lateral support of the slopes. The well graded gravel material was modeled using a friction angle of 36 degrees and a cohesion value of 100 psf to account for slight cementation. A saturated unit weight of 130 pcf was also used.

Stability analyses were completed utilizing a Modified Bishop method. The program used performs a search for the lowest safety factors by generating 20 potential failure surfaces from 20 initiation points (total of 400 surfaces). The 10 circles or random surfaces with the lowest factors of safety are shown on the output. For this analysis two conditions were modeled: (1) stability under static conditions and (2) stability under pseudostatic (seismic) conditions. For the pseudostatic condition a horizontal acceleration value ranging from 0.4g to 0.5g was used. Algrmissen (1991) identified a horizontal acceleration of 0.4g for the area with a 90 percent probability of not being exceeded in 250 years. Figure R301.2(2) of the 2000 International Residential Code puts the area in a seismic design category D1, with 0.5g.

Graphical outputs of the stability analyses with the locations of the 10 failure surfaces with the lowest factors of safety were developed. Based on the analyses, the stability under static and seismic conditions are well within the generally accepted minimum safety factors. Results of the stability analysis are summarized below.

| Side Slope Configuration | Safety Factor (Static) | Safety Factor (Pseudostatic) | Minimum Required Factor of Safety |
|--------------------------|------------------------|------------------------------|-----------------------------------|
| 4H:1 V                   | 3.74                   | 1.12 (0.5g) /<br>1.32 (0.4g) | 1.5 (static)<br>1.0 (earthquake)  |

The final cap over the landfill consisting of 12 inches of soil overlain by a geosynthetic clay liner, or a 60 mil HDPE liner, and 12 to 30 inches of protective soil cover was also evaluated. The results indicated that due to the limited thickness of the soil cover, the cap will be more susceptible to erosion than to instability during seismic events. In order to maximize stability, the analysis recommended the cap extend beyond the excavation footprint.

Slope stability analysis was also requested at the waste working face near the top edge of the leachate collection trench. A similar analysis was performed at the Wasatch Regional Waste Facility. In a copyrighted report published by Kleinfelder Inc. and available on the Utah Solid and Hazardous Waste website, the evaluation considered waste placed on a 3:1 slope with a friction angle of 0 degrees and a cohesion value of 500 psf. Kleinfelder determined the waste slope is stable under both static and seismic conditions with minimum factors of safety of 1.7 and 1.3 respectively. Slopes at the working face of the Johns Valley Landfill will be flatter than 3:1 and will have a greater factor of safety.

#### **RUN ON / RUN OFF CONTROL**

Run on and run off control are implemented through a series of best management practices and topographic features. A county road runs along the exterior southern and western perimeter of the active cells. This road prevents surface waters from entering the facilities. Inside property boundaries, interior perimeter roads and berm style stockpiling further prevent surface flows from contacting waste. Operational characteristics, contouring, ditching, and permeability of the waste contain precipitation which contacts waste within the active area. Surface flows from the 25 year storm which contact waste are prevented from entering or leaving the facility.

## **CLOSURE / POST CLOSURE**

### **CLOSURE SCHEDULE**

Closure operations at the John's Valley Sanitary Landfill will be performed on an ongoing basis. Adequate capacity exists at the landfill to continue operation for many years. A final closing date cannot be determined at this time. Ongoing closure operations will generally be performed from April to November, or as weather permits. No area larger than 8 acres that has achieved final elevation will remain open longer than 6 months. Within 60 days of final receipt of waste in a landfill unit, Garfield County will notify the Executive Secretary of their intent implement the closure plan. Landfill operators will implement closure operations within 30 days of receipt of final waste volumes. If weather or size limitations make closure operations impractical, closed units will be covered with a total of at least 12 inches of earthen materials and final closure will be implemented as soon as practical. Closure activities will be completed within 180 days of their actual starting date. Additionally, within 90 days of completion of closure operations, owners / operators of the Johns Valley Landfill will submit to the Executive Secretary as built drawings and certifications signed by a professional engineer indicating the unit has been closed according to the approved closure plan and modifications authorized by the Executive Secretary.

This renewal process contemplates obtaining authorization to implement closure activities. Portions of the Phase I, unlined cell are nearing or have reached a condition suitable for closure. Additional portions of the Phase I cell and the southernmost portion of the Phase II cell are approaching elevations where closure is imminent. Those portions of the Phase I cell that are suitable for closure will be closed as soon as practical following completion of Phase III construction. The northern portion of the unlined cell and the southern portion of the Phase II cell will continue in operation until they reach their design elevation and the new Phase III cell is operational. Landfill operators will initiate closure of these areas when they achieve final design elevation. Authorized closure plans will be initiated within days of final receipt of waste.

The new cell constructed as described in this permit is anticipated to operate for a minimum of ten years. However, landfill operations may be conducted in a manner that facilitates on going closure of short sections of disposal areas that reach final elevation. Each new lined cell will be closed as the subsequent cell is brought into operation. Consequently, closure operations will be cyclic, of short duration and will occur every few years. It is anticipated that approval of this renewal application also authorizes ongoing closure of cells reaching final elevation.

### **FINAL COVER**

Unlined cells are to be covered with 18 inches of earthen material having a permeability of  $1 \times 10^{-5}$  cm/sec. and 6 inches of topsoil. Landfill operators have encountered difficulty constructing earthen covers while meeting stringent quality assurance guidelines. For this reason, an engineered earthen cover, (a geosynthetic clay liner or a 60 mil HDPE liner) may be used when permeability characteristics are equal or better than earthen materials. At present, a geosynthetic liner with a minimum of 1 ft. of earthen material is designed to meet permeability requirements for

unlined cells at the Johns Valley Landfill. Based on ease of construction, favorable permeability characteristics and reliable technology, Garfield County anticipates adopting the geosynthetic clay liner as the preferred method for final cover at the Johns Valley landfill. One foot of earthen material which includes a 6 inch layer of material suitable for vegetation will be placed on top of the geosynthetic clay liner.

Over lined cells, cover will consist of materials with permeability rates equal to or better than  $1 \times 10^{-7}$  cm/sec. Generally, Garfield County will implement a cover design consisting of a geosynthetic clay liner or a synthetic liner and additional earthen material to develop impermeable rates, protect non earthen materials and promote vegetation. In as much as lined units of the Johns Valley Landfill have leachate collection capabilities, no Abathtub effect will occur." Data will be evaluated throughout the life of the landfill; and post closure care for leachate collection and disposal will accommodate any precipitation which permeates the final cover.

Landfill covers may trap unwanted gasses and create internal pressure on the cover. In order to alleviate this potential situation, passive vents will be installed at the landfill crown at distances not more than 200 ft. Vents will be screened and capped to prevent intrusion by small animals or precipitation. Considering the landfill's native cover material, it is anticipated that landfill gasses will migrate to the crown. Passive vents will be monitored as part of the post closure inspections.

### **SITE CAPACITY**

Site capacity for the entire John's Valley Sanitary Landfill cannot be accurately estimated. Assuming full development Phases II and III within the existing fenced parcel and an average density of approximately 600 lbs. per cubic yard, waste volumes can be estimated well in excess of 1,062,000 cubic yards or 320,000 tons. Sufficient capacity exists to continue operations well beyond the life of this permit.

### **FINAL INSPECTION**

The Johns Valley Landfill is anticipated to operate well beyond the life of this permit. At least 60 days prior to any final closure, the Division of Solid and Hazardous Waste will be contacted, and a final inspection will be scheduled. The Executive Secretary will be informed of incremental closure of individual cells through routine state inspections, annual reports, and renewal applications. In addition, a QA/QC plan will be submitted for approval prior to final closure operations. Within 90 days of unit and/or facility closure, as built plans signed by a professional engineer shall be forwarded to the Executive Secretary.

Landfill owners and operators shall allow the Executive Secretary of the Utah Solid and Hazardous Waste Control Board or an authorized representative, including representatives from the local District Health Department, upon representation of credentials, to enter during operating hours and/or inspect at reasonable times any facilities, equipment, practices, or operations regulated or required under this permit.

A record of the inspection may be made by photographic, videotape, electronic or other reasonable means, and a copy of any such record shall be provided to the owner and the operator within a reasonable time.

## **SITE MONITORING**

The only permanent monitoring devices proposed for the John's Valley Sanitary Landfill are the leachate collection system and the groundwater monitoring wells that have already been constructed. The John's Valley Sanitary Landfill has an expected life well in excess of 100 years. Sufficient data should be available by that time to limit groundwater monitoring samples to an annual basis or less. Data should also be available for leachate production and treatments. Sometime in the distant future, beyond the life of this permit, additional wells may be necessary to evaluate groundwater, but the wells are not anticipated to be needed in the foreseeable future.

A lysimeter formerly functioned in the southeast corner of the active area. Having served its useful purpose, it was abandoned in 2007 and no longer provides data. Therefore, it will not be considered in the post-closure plan. Landfill gas in closed sections will be monitored as described in the preliminary engineering report for active areas. Surface waters in closed portions of the landfill are evaluated as part of the annual inspection. Monitoring will be limited to eliminating situations which promote infiltration.

## **LAND TRANSFERS AND USES**

Plats and a statement of fact concerning the location of any disposal site shall be recorded as part of the record of title with the County Recorder not later than 60 days after certification of closure. Upon recording, proof of the record of filing will be submitted to the Executive Secretary.

## **POST CLOSURE MAINTENANCE**

Post-closure care of inactive sections of the landfill will consist of maintaining the integrity of the final and vegetative covers. Any areas subject to erosion will also be corrected; and appropriate measures will be implemented to identify and eliminate the source. No active or technical devices are proposed to control run-on and run-off systems at the John's Valley Sanitary Landfill. Best management practices will be implemented to minimize infiltration and assure the integrity of the run-on/run-off system. Evaluation of the system will be made during the quarterly inspections, and corrective measures, if any, will be implemented. Run-on and run-off from events smaller than the 25-year storm will be controlled.

Design changes and expansion of the Johns Valley Landfill to a Class I facility as part of the permit renewal process of 2007 have resulted in the construction of lined cells and the development of a leachate collection trench. As part of the future, final phase of the landfill and closure design process, leachate generation data will be evaluated, and an evaporation pond

capable of dissipating leachate that will be generated over the closed period will be designed and constructed. Leachate management options may also include disposal at an approved wastewater treatment facility. Closed portions of the landfill will be inspected as part of the quarterly reviews performed by the landfill operator. Closed areas will also be inspected as part of the in-depth annual inspection. Any deficiencies will be repaired as soon as practical. For those failures which jeopardize the environmental integrity of the facility or permit the uncontrolled infiltration of significant amounts of moisture, corrective measures will be initiated immediately.

No alternate land use for closed sections has been developed to date. Closed cells will remain under the jurisdiction of the landfill manager. If alternate land use plans are developed they will be addressed during the permit renewal process, or a separate permit modification may be processed.

### **RESPONSIBLE PARTIES**

The applicant, property owner, and responsible party for the post closure care period is:

Garfield County  
Garfield County Courthouse  
55 South Main  
P. O. Box 77  
Panguitch, UT 84759  
Phone: (435) 676-8826  
Fax: (435) 676-8239

It should be noted Garfield County is continually upgrading solid waste management services. Future agreements, potential special service district creation, the extended life of the landfill, and alternate ownership/operation scenarios may require modification of this section of the permit. In addition, the County may contract site operations with private entities. Garfield County will notify the Executive Secretary of any changes in responsible party status at least 30 days prior to their effective date. Other changes to the information listed above will be provided in annual reports and permit renewal documents.



## **FINANCIAL ASSURANCE PLAN**

This section of the permit describes compliance with Subsection R315-309, Financial Assurance of the Solid Waste Permitting and Management Rules. Cost estimates consider the most expensive option during the period and are based on a third party performing closure and post-closure care.

### **CLOSURE / POST CLOSURE COST ESTIMATE**

Closure and post-closure cost estimates were developed considering the largest area of the disposal facility requiring final cover during the operating period and using projections for a third party to perform the work. Estimates were developed using Utah State guidance, historical costs, project records and standardized rates for Garfield County. The worst case scenario for estimating closure costs varies during the life of the permit. Prior to accepting waste in the newly permitted lined cell, the worst case scenario considers closure of the existing facility. This is described as Phase I. Phase II exists when the existing unlined cell is closed and future closure activities consider only the lined cell. The size of the lined cell is smaller than the existing facility, so closure costs may be reduced by as much as \$70,000 to a total of \$130,000. A cost estimate summary identifying closure and post-closure components for each phase is included below, and detailed information regarding closure and post-closure costs is included as an Appendix.

#### **Closure Costs Phase I**

|                          |                  |
|--------------------------|------------------|
| Survey / Site Evaluation | \$ 3,830.00      |
| Project Management       | 24,746.00        |
| Site Repair              | 6,006.00         |
| Grading                  | 7,732.00         |
| Geosynthetic Cover       | 99,180.00        |
| Soil Cover               | 20,000.00        |
| Erosion Layer            | 7,500.00         |
| Vegetation               | 2,400.00         |
| Gas Collection           | 4,480.00         |
| Groundwater Monitoring   | <u>1,324.00</u>  |
| Subtotal                 | \$177,198.00     |
| Contingency              | <u>22,802.00</u> |
| TOTAL                    | \$200,000.00     |

Closure Costs Phase II

|                          |                  |
|--------------------------|------------------|
| Survey / Site Evaluation | \$ 3,830.00      |
| Project Management       | 10,000.00        |
| Site Repair              | 4,800.00         |
| Grading                  | 3,600.00         |
| Geosynthetic Cover       | 120,000.00       |
| Soil Cover               | 12,000.00        |
| Erosion Layer            | 4,500.00         |
| Vegetation               | 1,200.00         |
| Leachate Collection      | 5,000.00         |
| Gas Collection           | 2,000.00         |
| Groundwater Monitoring   | <u>2,000.00</u>  |
| Subtotal                 | \$168,930.00     |
| Contingency              | <u>16,070.00</u> |
| TOTAL                    | \$185,000.00     |

Closure Costs Phase III

|                          |                  |
|--------------------------|------------------|
| Survey / Site Evaluation | \$ 3,830.00      |
| Project Management       | 10,000.00        |
| Site Repair              | 3,800.00         |
| Grading                  | 3,600.00         |
| Geosynthetic Cover       | 125,000.00       |
| Soil Cover               | 10,000.00        |
| Erosion Layer            | 3,500.00         |
| Vegetation               | 1,200.00         |
| Leachate Collection      | 4,000.00         |
| Gas Collection           | 2,000.00         |
| Groundwater Monitoring   | <u>2,000.00</u>  |
| Subtotal                 | \$168,930.00     |
| Contingency              | <u>16,070.00</u> |
| TOTAL                    | \$185,000.00     |

### Post-Closure Costs

|                              |                 |
|------------------------------|-----------------|
| Engineering                  | \$ 18,000.00    |
| Groundwater Monitoring       | 36,000.00       |
| Landfill Gas Monitoring      | 12,000.00       |
| Cover Maintenance            | 600.00          |
| Groundwater Well Maintenance | 3,000.00        |
| Leachate Collection System   | 3,000.00        |
| Plugging Wells               | 4,000.00        |
| General Maintenance          | <u>3,000.00</u> |
| Subtotal                     | \$ 79,600.00    |
| Contingency                  | <u>7,400.00</u> |
| TOTAL                        | \$ 87,000.00    |

Phase I is anticipated to reach final elevation sometime in calendar year 2018. Closure operations for Phase I will begin upon completion of Phase III construction and are anticipated to be complete prior to January 1, 2019. Closure operations for Phase II will be initiated when a reasonable amount of the cell reaches final elevation and will continue as waste deposition progresses. It is anticipated that a significant portion of Phase II closure operations will be completed prior the end of calendar year 2020. Due to the ongoing nature of closure operations at the Johns Valley Landfill, closure costs vary significantly over the life of the permit. The maximum closure cost after an initial 18 month period less than \$280,000. Post closure costs are not anticipated to be necessary during the life of the permit.

### **MECHANISM**

The financial assurance mechanism proposed for use at the John's Valley Sanitary Landfill was originally a dedicated escrow/capital improvement account. However, the landfill complies with financial assurance requirements based on: 1) an outstanding general bond rating of Baa issued by Moody's; 2) financial statements prepared in conformity with Generally Accepted Accounting Principles for governments audited by an independent certified public accountant; and 3) references to the closure and post closure costs in the current and subsequent comprehensive annual financial reports. Garfield County has chosen and has been approved to use the local government financial assurance method. The John's Valley Sanitary Landfill may alter the mechanism to include insurance, surety bonds, trust funds, governmental exemptions, or other options as they become feasible.

### **SCHEDULE OF PAYMENTS**

A schedule of payments is not required for the local government financial assurance method.

## **EXHIBITS**

Exhibit 1 General Vicinity Map

Exhibit 2 Project Location Map

Exhibit 3a Proof of Ownership

Exhibit 3b Land Use/Zoning Map

Exhibit 4a Daily Record Form

Exhibit 4b Hazardous Waste/PCB Inspection Form

Exhibit 5 Quarterly Inspection Log

Exhibit 6 Geologic Map

Exhibit 7 F.E.M.A. Flood Zone Map

Exhibit 8 Phasing Plan

Exhibit 9 Topographic Map

Exhibit 10. Filling Sequence

Appendix A Slope Stability (on file)

Appendix B Closure / Post-Closure Financial Assurance (on file)

Appendix C Leachate Trench Calculations (on file)

**JOHN'S VALLEY SANITARY LANDFILL**  
Weight, Volume, and Vehicle Record

Month \_\_\_\_\_ Week \_\_\_\_\_ Page \_\_\_\_ of \_\_\_\_\_

| Date | Time | Name/<br>Vehicle<br># | Gross<br>Weight (lbs.) | Tare<br>Weight (lbs.) | Net<br>Weight<br>(lbs.) | Tons | Origin/Waste type |
|------|------|-----------------------|------------------------|-----------------------|-------------------------|------|-------------------|
|      |      |                       |                        |                       |                         |      |                   |
|      |      |                       |                        |                       |                         |      |                   |
|      |      |                       |                        |                       |                         |      |                   |
|      |      |                       |                        |                       |                         |      |                   |
|      |      |                       |                        |                       |                         |      |                   |
|      |      |                       |                        |                       |                         |      |                   |
|      |      |                       |                        |                       |                         |      |                   |
|      |      |                       |                        |                       |                         |      |                   |
|      |      |                       |                        |                       |                         |      |                   |
|      |      |                       |                        |                       |                         |      |                   |
|      |      |                       |                        |                       |                         |      |                   |
|      |      |                       |                        |                       |                         |      |                   |
|      |      |                       |                        |                       |                         |      |                   |
|      |      |                       |                        |                       |                         |      |                   |
|      |      |                       |                        |                       |                         |      |                   |
|      |      |                       |                        |                       |                         |      |                   |
|      |      |                       |                        |                       |                         |      |                   |
|      |      |                       |                        |                       |                         |      |                   |
|      |      |                       |                        |                       |                         |      |                   |

Comments: \_\_\_\_\_  
 \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_ JOHN'S VALLEY SANITARY LANDFILL

**JOHN'S VALLEY SANITARY LANDFILL**  
Hazardous/PCB Record Form

Date \_\_\_\_\_ Time \_\_\_\_\_ Vehicle \_\_\_\_\_

No. \_\_\_\_\_

Random Selection: Yes\_\_\_/No\_\_\_ Suspicious Load: Yes\_\_\_/No\_\_\_ Other: \_\_\_\_\_

Vehicle Owner: \_\_\_\_\_  
Name Address

City State Phone

Waste Origin: \_\_\_\_\_ Waste Type \_\_\_\_\_

Describe any hazardous or PCB wastes encountered: \_\_\_\_\_

\_\_\_\_\_

Action Taken: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

If hazardous waste or PCB waste is encountered, contact the Division of Solid and Hazardous Waste at (801) 538-6170.

Signature \_\_\_\_\_

Date \_\_\_\_\_

# JOHN'S VALLEY SANITARY LANDFILL

## Quarterly Inspection Log

This document is the official form required for compliance with R315-301-7(5)(a) for the John's Valley Sanitary Landfill.

Date \_\_\_\_\_ Time \_\_\_\_\_ Weather \_\_\_\_\_

Inspection Team: \_\_\_\_\_

Observations: \_\_\_\_\_

Explosive Gas readings (% LEL) Structures \_\_\_\_\_ SW Corner \_\_\_\_\_  
(25% max) (100% max)

Other Locations / Readings \_\_\_\_\_

Leachate Depth: Current \_\_\_\_\_ inches Estimated Quarterly Maximum \_\_\_\_\_ inches

Date and Nature of Repairs/Corrective Action: \_\_\_\_\_

---

\_\_\_\_\_

---

---

Other: \_\_\_\_\_

---

---

---

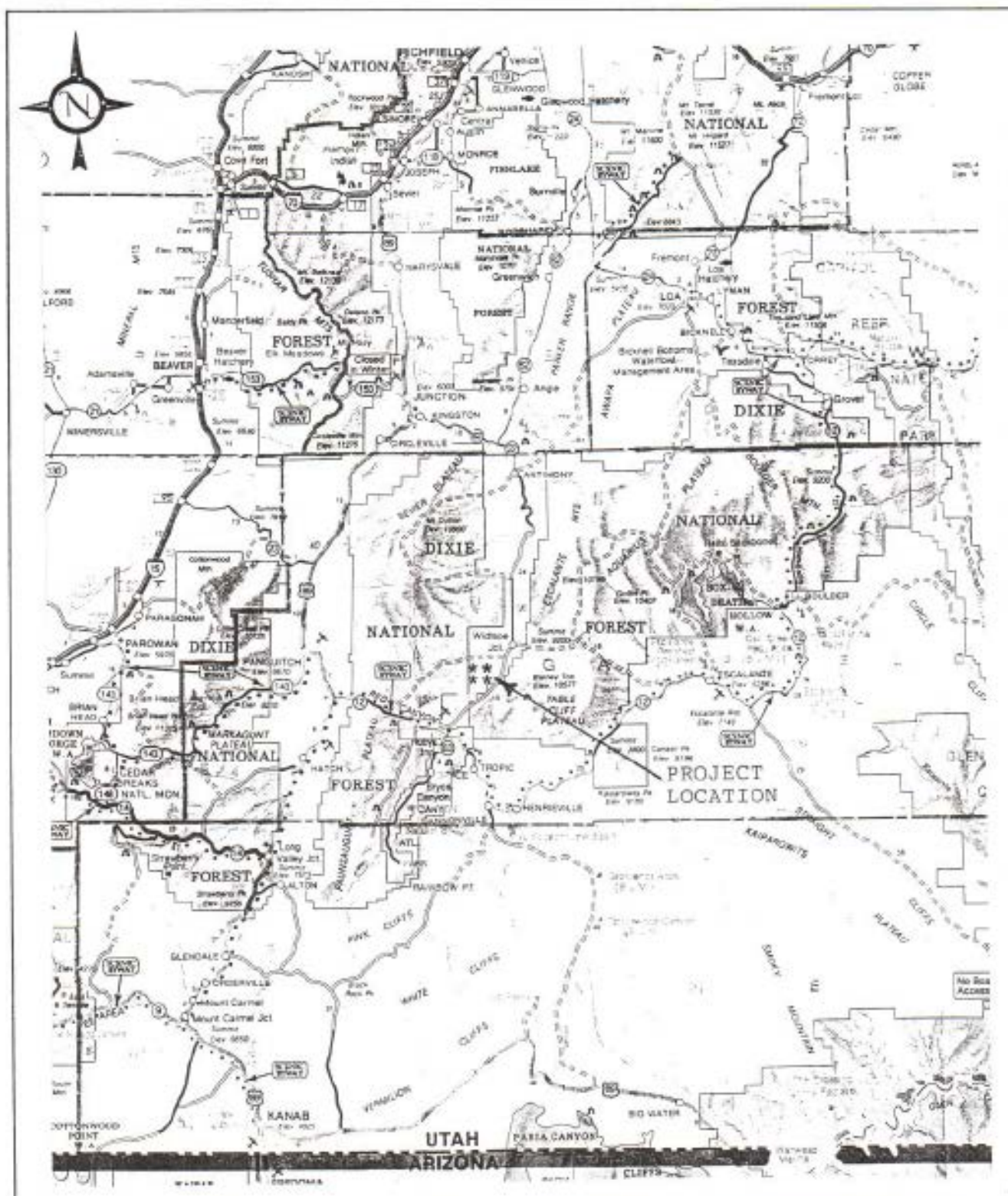
Name of Inspector

Signature

This form shall be kept on site (or at another convenient location if no permanent office facilities exist) for a minimum of 3 years.

## John's Valley Sanitary Landfill - Exhibit 5 - Quarterly Inspection Log





JOHNS VALLEY SANITARY LANDFILL

Exhibit 1. General Vicinity Map



201920  
WHEN RECORDED, MAIL TO: ENTRY NO. RECORDED 8-24, 1989 AT 2:00 PM  
MICHAEL GOTTFREDSON AT REQUEST OF Garfield Co  
B48 SOUTH SECOND EAST FEE -- Mammie D. Hotal  
SALT LAKE CITY, UTAH 84111 RECORDED GARFIELD COUNTY, UTAH  
Space Above for Recorder's Use

## Warranty Deed

MICHAEL GOTTFREDSON, grantor,  
of Salt Lake City, County of Salt Lake, State of Utah,  
hereby CONVEYS and WARRANTS to GARFIELD COUNTY

of Panguitch, County of Garfield, State of Utah,  
for the sum of TEN AND NO/100----- DOLLARS,

the following described tract of land in Garfield County, State of Utah, to-wit:

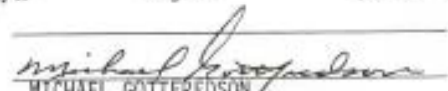
The West half of Section 36, Township 34 South,  
Range 3 West, Salt Lake Base and Meridian.

EXCEPTING THEREFROM all coal, oil, gas, mines, metals,  
gravel and all other minerals of whatsoever nature or  
kind in, on, or under said land, together with the right  
of ingress and egress for the purpose of exploring and/or  
removing the same.

Subject to existing rights-of-way and easements.

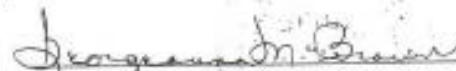
WITNESS the hand of said grantor, this 22nd day of August, 19 89  
Signed in the presence of

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

  
MICHAEL GOTTFREDSON  
\_\_\_\_\_  
\_\_\_\_\_

STATE OF UTAH } ss.  
COUNTY OF }

On the 22nd day of August, 19 89, personally appeared before me  
MICHAEL GOTTFREDSON, the signer of the above instrument,  
who duly acknowledged to me that he executed the same.

  
Notary Public

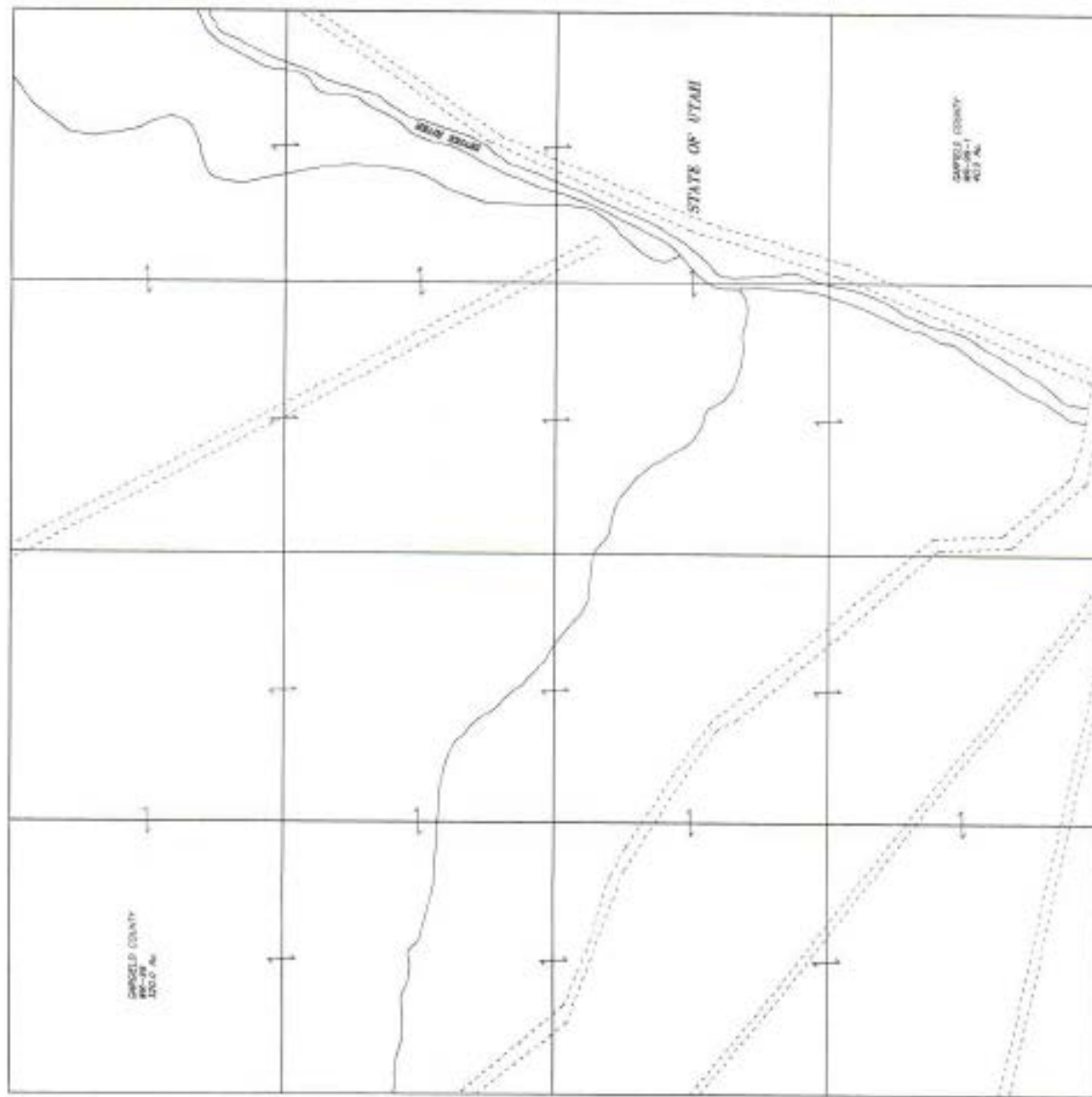
My Commission Expires: 10 July 1991

Residing at: Salt Lake City, Utah

FORM 303 - WARRANTY DEED - Kelly Co., 35 W. North South, S.L.C., Utah

BOOK 301 PAGE 147

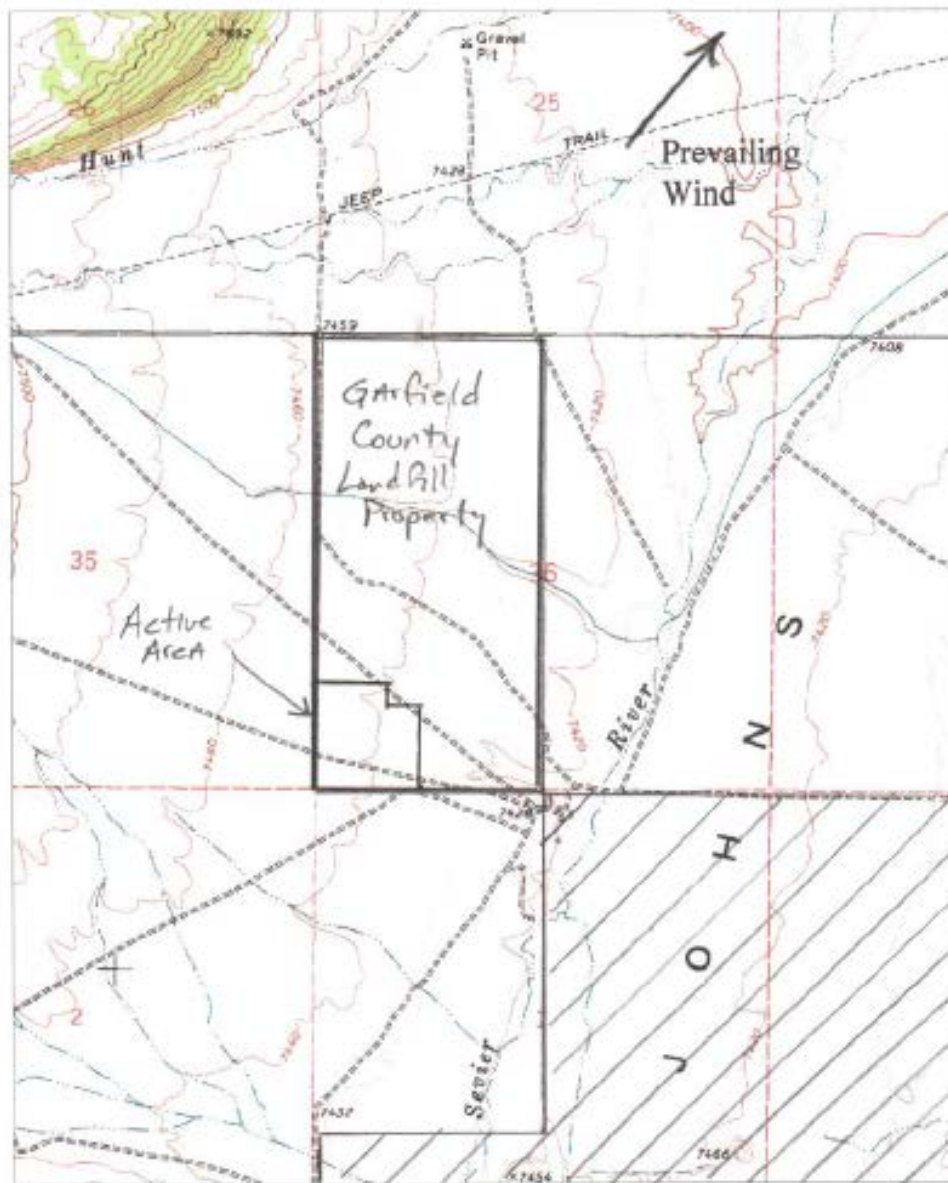




FILE: 24037735

| REVISIONS | INITIAL | DATE | NOTES: | U.S.T.C. APPROVAL (DATE) | PLAT DEPARTMENT      | STATE                 | FED |
|-----------|---------|------|--------|--------------------------|----------------------|-----------------------|-----|
|           |         |      |        |                          | CARBIDE COUNTY, UTAH | SEC. 36 T.36S. R.03W. |     |
|           |         |      |        |                          |                      | REMARKS: SEE 4-10     |     |
|           |         |      |        |                          |                      |                       |     |

JOHNS VALLEY SANITARY LANDFILL  
Exhibit 3a. Proof of Ownership



Agricultural Zoned  
All other property Multiple Use

No residences, parks, monuments, recreation area or wilderness within  
1000 Ft of Garfield Co. Property

UTM  
12 North  
NAD 1927 (Conus)



Scale 1:24,000



8/14/2007

GPS Pathfinder<sup>®</sup> Office



JOHNS VALLEY SANITARY LANDFILL  
Exhibit 3b. Land Use / Zoning Map

# JOHN'S VALLEY SANITARY LANDFILL

## Weight, Volume, and Vehicle Record

Month \_\_\_\_\_ Week \_\_\_\_\_ Page \_\_\_\_\_ of \_\_\_\_\_

| Date | Time | Name/<br>Vehicle # | Gross<br>Weight (lbs.) | Tare<br>Weight<br>(lbs.) | Net Weight<br>(lbs.) | Tons | Origin/Waste type |
|------|------|--------------------|------------------------|--------------------------|----------------------|------|-------------------|
|      |      |                    |                        |                          |                      |      |                   |
|      |      |                    |                        |                          |                      |      |                   |
|      |      |                    |                        |                          |                      |      |                   |
|      |      |                    |                        |                          |                      |      |                   |
|      |      |                    |                        |                          |                      |      |                   |
|      |      |                    |                        |                          |                      |      |                   |
|      |      |                    |                        |                          |                      |      |                   |
|      |      |                    |                        |                          |                      |      |                   |
|      |      |                    |                        |                          |                      |      |                   |
|      |      |                    |                        |                          |                      |      |                   |
|      |      |                    |                        |                          |                      |      |                   |
|      |      |                    |                        |                          |                      |      |                   |
|      |      |                    |                        |                          |                      |      |                   |
|      |      |                    |                        |                          |                      |      |                   |
|      |      |                    |                        |                          |                      |      |                   |

Comments: \_\_\_\_\_  
\_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

**JOHN'S VALLEY SANITARY LANDFILL**

Hazardous/PCB Record Form

Date \_\_\_\_\_ Time \_\_\_\_\_ Vehicle No. \_\_\_\_\_

Random Selection: Yes\_\_\_/No\_\_\_ Suspicious Load: Yes\_\_\_/No\_\_\_ Other: \_\_\_\_\_

Vehicle Owner: \_\_\_\_\_  
Name Address

\_\_\_\_\_  
City State Phone

Waste Origin: \_\_\_\_\_ Waste Type: \_\_\_\_\_

Describe hazardous or PCB wastes encountered: \_\_\_\_\_

\_\_\_\_\_

Action Taken: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

If Hazardous waste or PCB waste is encountered, contact the Utah Division of Waste Management and Radiation Control at (801) 536-0200.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

# JOHN'S VALLEY SANITARY LANDFILL

## Quarterly Inspection Log

This document is the official form required for compliance with R315-301-7(5)(a) for the John's Valley Sanitary Landfill.

Date \_\_\_\_\_ Time \_\_\_\_\_ Weather \_\_\_\_\_

Inspection Team \_\_\_\_\_

Observations: \_\_\_\_\_

Explosive Gas readings (% LEL) Structures \_\_\_\_\_ SW Corner \_\_\_\_\_  
(25% max) (100% max)

Other Locations / Readings \_\_\_\_\_

Leachate Depth: Current \_\_\_\_\_ inches Estimated Quarterly Maximum \_\_\_\_\_ inches

Date and Nature of Repairs/Corrective Action: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Other: \_\_\_\_\_

\_\_\_\_\_

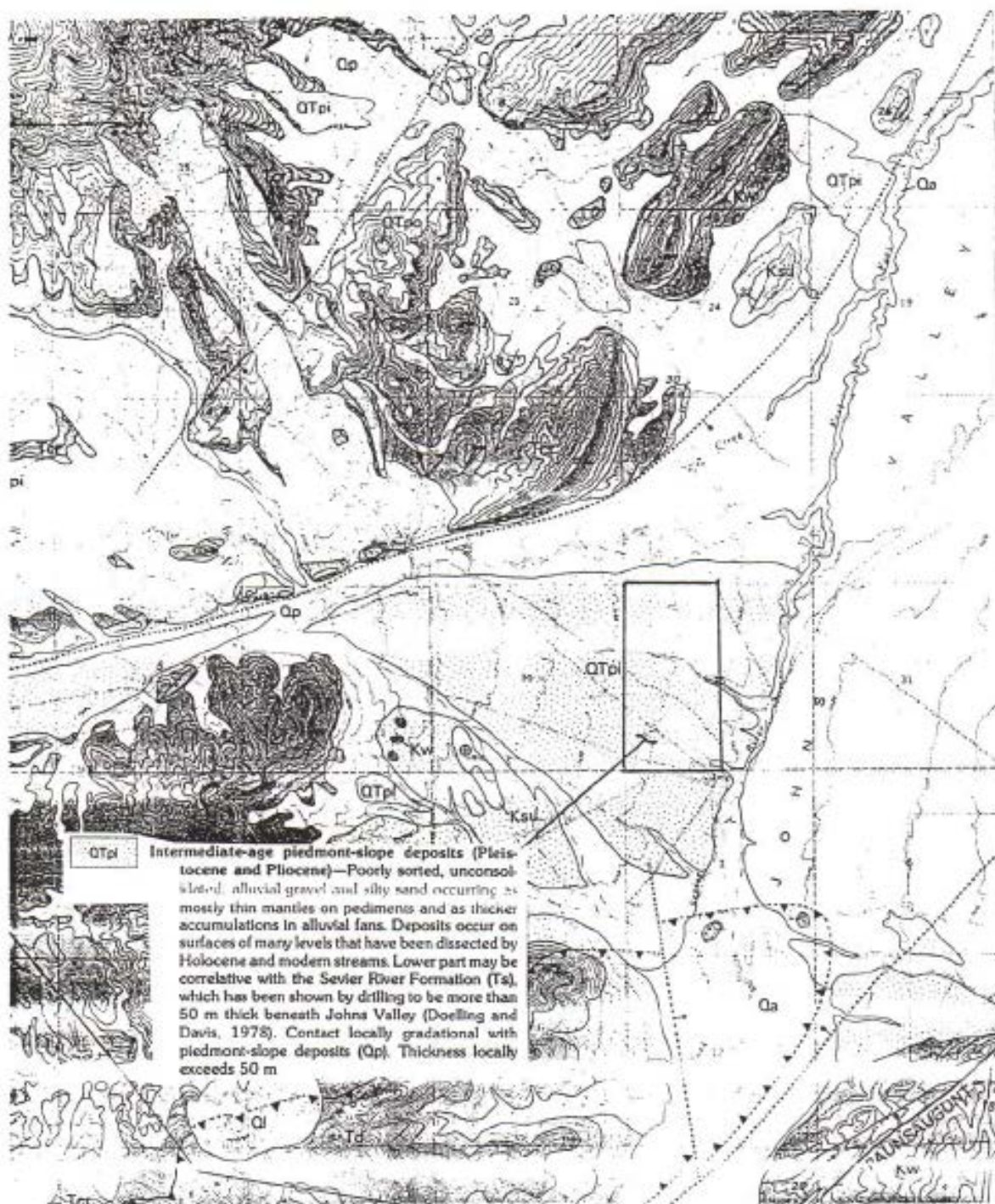
\_\_\_\_\_

\_\_\_\_\_  
Name of Inspector

\_\_\_\_\_  
Signature

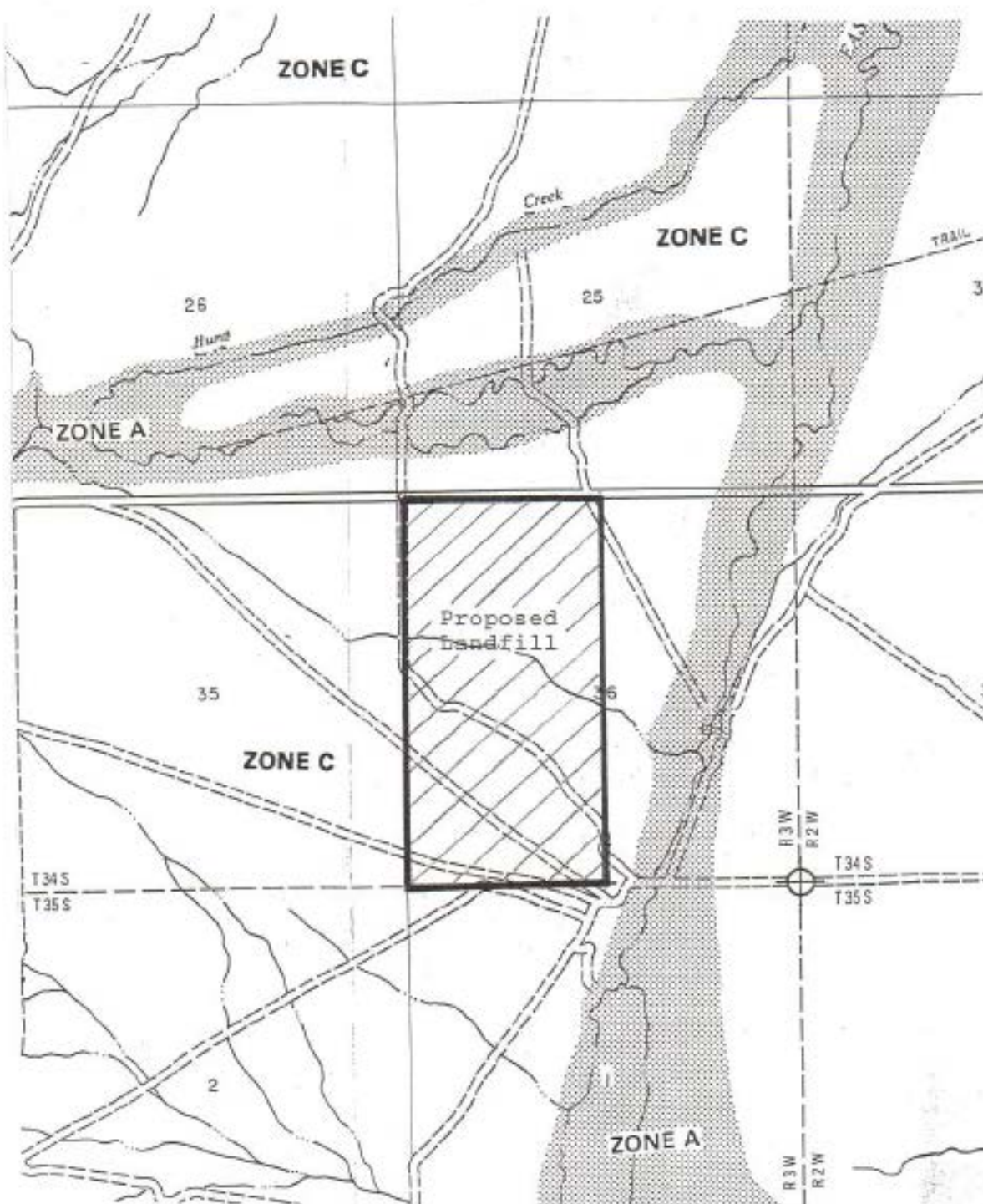
This form shall be kept on site (or at another convenient location if no permanent office facilities exist) for a minimum of 3 years.





# JOHNS VALLEY SANITARY LANDFILL

## Exhibit 6. Geologic Map & Description



JOHNS VALLEY SANITARY LANDFILL

Exhibit 7. Floodplain Map

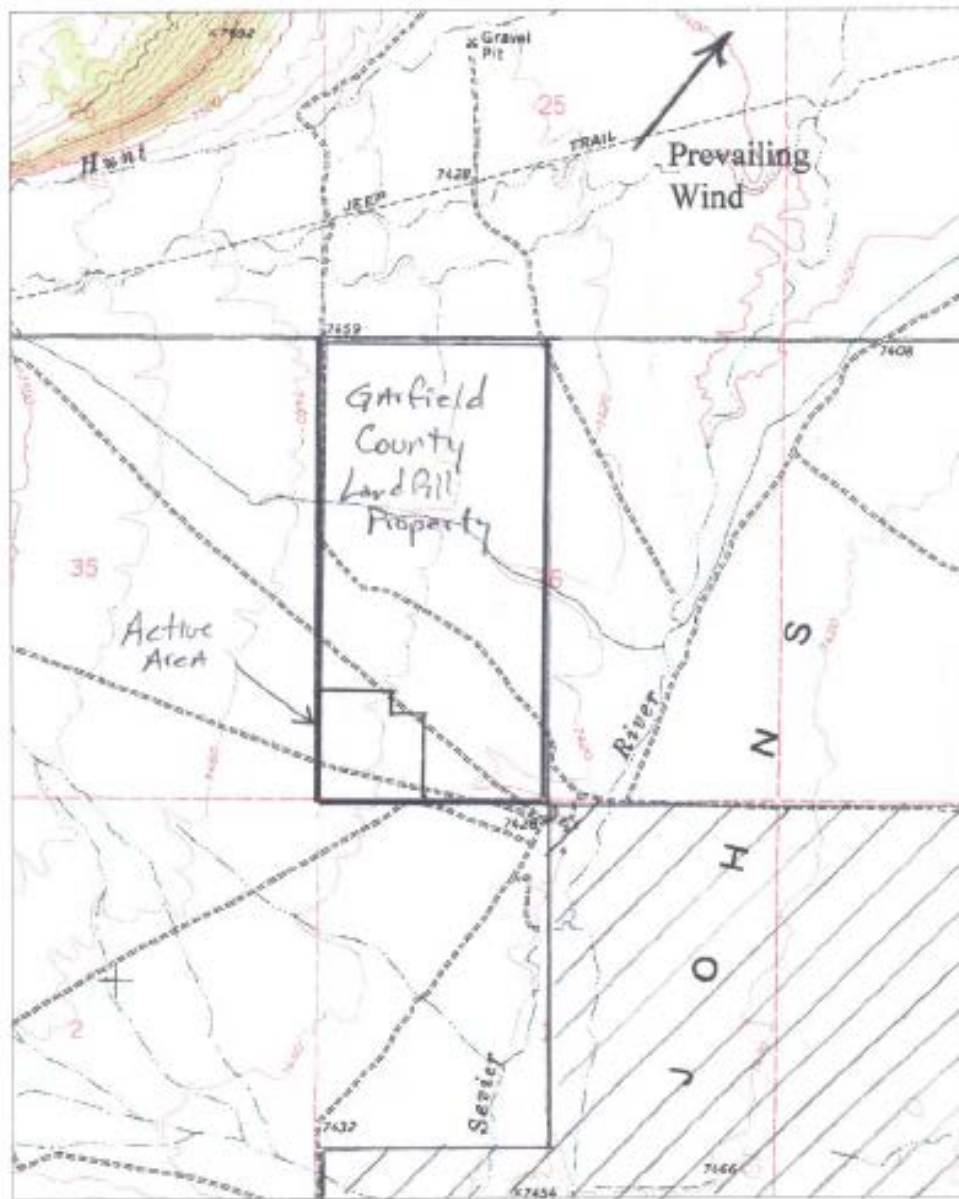


BLM Brush Cap Corp.  
P.O. Box 200  
Troy, N.Y. 12180



Quarantined (as above) - Con-  
fined (Sec. 361)

JOHNS VALLEY SANITARY LANDFILL  
Exhibit 8. Phasing Plan



Agricultural Zoned

All other property Multiple Use

No residences, parks, monuments, recreation area or wilderness within 1000 Feet of Garfield Co. Property

UTM  
12 North  
NAD 1927 (Conus)



Scale 1:24,000



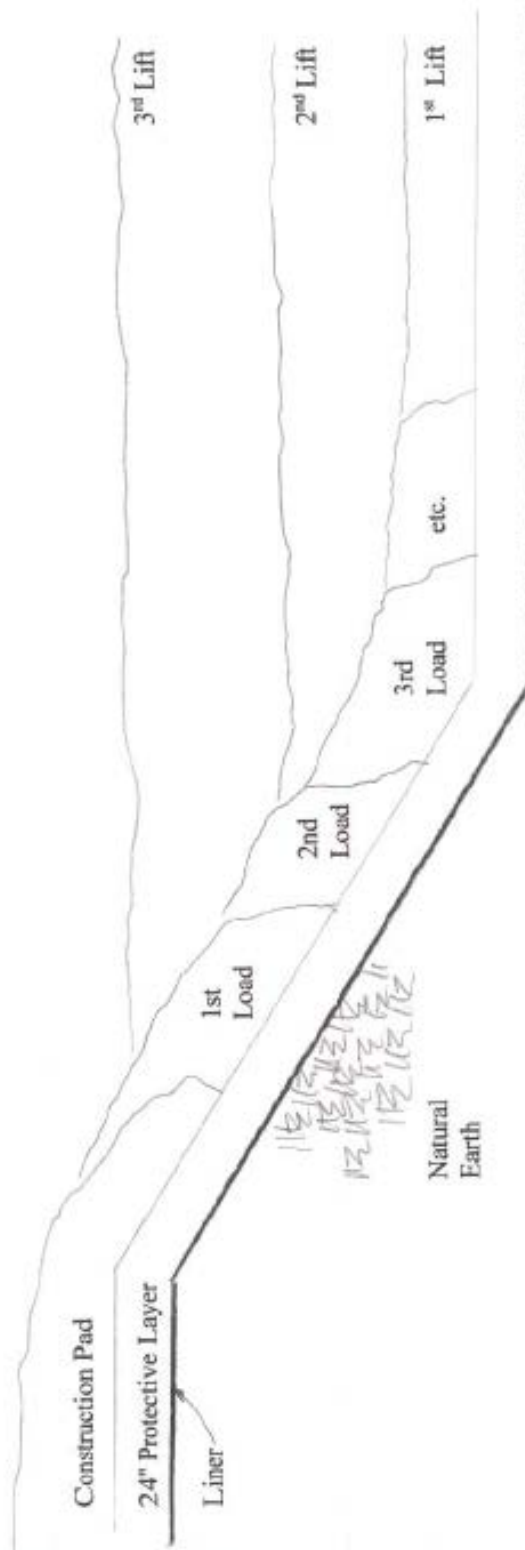
8/14/2007

GPS Pathfinder<sup>®</sup> Office



JOHNS VALLEY SANITARY LANDFILL  
Exhibit 9. Topographic Map

JOHNS VALLEY SANITARY LANDFILL  
Exhibit 10. Filling Sequence



### Filling Sequence

The first lift will begin in the Southeast Corner of the lined and will be deposited near the end of a construction pad. Waste will then be carefully pushed off the end of the pad and covered. Subsequent loads will be brought onto the previous waste and carefully deposited, pushed and covered. Operations will continue in this manner progressing in a westerly and northerly direction until the lined cell is covered with one lift of waste.

Additional lifts will begin at the toe of slope at the Southeast corner and progress in a westerly and northerly direction to cover the bottom area of the cell. When waste reaches natural ground level, operations will begin moving from west to east and / or construction of Phase II b will be initiated.