SW103

BOUNTIFUL

City of Beautiful Homes and Gardens

JOE L JOHNSON
MAYOR

HAND DELIVERED

OCT 28 2010

UTAH DIVISION OF
SOLID & HAZARDOUS WASTE
2010.03448

39720

October 25, 2010

Phil Bums
State of Utah
Department of Environmental Quality
Division of Solid and Hazardous Waste
P O Box 144880
Salt Lake City, Utah 84114-4880

RE Bountiful Sanitary Landfill Solid Waste Permit Renewal (Current Permit# 9426R1)

Dear Mr Bums

Enclosed is our permit renewal application for the Bountiful Sanitary Landfill The permit renewal application form is included along with the reports, technical data, and maps concerning the landfill We will submit an additional copy of the complete application upon your request

If you need any further information or have any questions please feel free to contact me

Sincerely,
Bountiful City Engineering Dept

Todd Christensen

Todd Christensen, P E
Staff Engineer

enclosures as stated

Todd G Christensen, P E
Bountiful City Engineering Department
790 South 100 East • Bountiful, Utah 84010 • (801) 298-6125 • FAX (801) 298 6033 • toddc@bountifulutah gov

Bountiful Sanitary Landfill

Permit Renewal Application
Class I Landfill

Submitted to

State of Utah
Department of Environmental Quality
Division of Solid and Hazardous Waste

October 2010

Prepared by

Bountiful City Engineering Department

TABLE OF CONTENTS

UTAH CLASS I AND V LANDFILL PERMIT APPLICATION

Utah Class I and V Landfill Permit Application Form

Part I General Information APPLICANT PLEASE COMPLETE ALL SECTIONS

I Landfill Type	☒ Class I ☐ Class V	**II Application Type**	☐ New Application ☒ Renewal Application	☐ Facility Expansion ☐ Modification

For Renewal Applications Facility Expansion Applications and Modifications Enter Current Permit Number 9426

III Facility Name and Location

Legal Name of Facility: Bountiful Sanitary Landfill					
Site Address (street or directions to site): 1300 West 1600 North				County: Davis	
City: West Bountiful		Zip Code: 84087		Telephone: 801-298-6169	
Township: 2 N	Range: 1 W	Section(s): 14	Quarter/Quarter Section:		Quarter Section:
Main Gate Latitude: degrees 40 minutes 54 seconds 30			Longitude: degrees 111 minutes 55 seconds 0		

IV Facility Owner(s) Information

Legal Name of Facility Owner: Bountiful City Corporation			
Address (mailing): 790 S 100 E			
City: Bountiful	State: UT	Zip Code: 84010	Telephone: 801-298-6125

V Facility Operator(s) Information

Legal Name of Facility Operator: SAME AS FACILITY OWNER			
Address (mailing):			
City:	State:	Zip Code:	Telephone:

VI Property Owner(s) Information

Legal Name of Property Owner: SAME AS FACILITY OWNER			
Address (mailing):			
City:	State:	Zip Code:	Telephone:

VII Contact Information

Owner Contact: Todd G Chnstensen P E		Title: Staff Engineer	
Address (mailing): 790 S 100 E			
City: Bountiful	State: UT	Zip Code: 84010	Telephone: 801-298-6125
Email Address: toddc@bountifulutah gov		Alternative Telephone (cell or other): 8017262004	
Operator Contact: SAME AS OWNER CONTACT		Title:	
Address (mailing):			
City:	State:	Zip Code:	Telephone:
Email Address:		Alternative Telephone (cell or other):	
Property Owner Contact: SAME AS OWNER CONTACT		Title:	
Address (mailing):			
City:	State:	Zip Code:	Telephone:

Utah Class I and V Landfill Permit Application Form

Part I General Information (Continued)

VIII Waste Types (check all that apply)

☐ 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
☒ Municipal Waste	☒	☐
☒ Construction & Demolition	☒	☐
☐ Industrial	☐	☐
☐ Incinerator Ash	☐	☐
☒ Animals	☒	☐
☐ Asbestos	☐	☐
☐ PCB s (R315 315 7(3) only)	☐	☐
☐ Other ________	☐	☐

IX Facility Area

Facility Area	150	acres
Disposal Area	100	acres
Design Capacity		
Years	____	
Cubic Yards	9million tot	
Tons	____	

X Fee and Application Documents

Indicate Documents Attached To This Application ☐ Application Fee Amount $

☒ Facility Map or Maps ☒ Facility Legal Description ☒ Plan of Operation ☒ Waste Description
☒ Ground Water Report ☒ Closure Design ☒ Cost Estimates ☒ Financial Assurance

Class V Special Requirements

☐ 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: Thomas R Hardy Thomas R Hardy Name typed or printed	Title City Manager Address 790 S 100 E Bountiful UT 84010	Date 10/25/10
Signature of Authorized Land Owner Representative (if applicable) Name typed or printed	Title Address	Date
Signature of Authorized Operator Representative (if applicable) Name typed or printed	Title Address	Date
Email Address	Alternative Telephone (cell or other)	

Utah Class I and V Permit Application Checklist

Important Note: The following checklist is for the permit application and addresses only the requirements of the Division of Solid and Hazardous Waste. Other federal, state, or local agencies may have requirements that the facility must meet. The applicant is responsible to be informed of, and meet, any applicable requirements. Examples of these requirements may include obtaining a conditional use permit, a business license, or a storm water permit. The applicant is reminded that obtaining a permit under the *Solid Waste Permitting and Management Rules* does not exempt the facility from these other requirements. Please take note of the heading of each section for the facilities that the section applies to.

An application for a permit to construct and operate a landfill is the documentation that the landfill will be located, designed, constructed, operated, and closed in compliance with the requirements of Rules R315-302, R315-303, R315-308, R315-309, and R315-315 of the *Utah Solid Waste Permitting and Management Rules* and the *Utah Solid and Hazardous Waste Act* (UCA 19-6-101 through 123). The application should be written to be understandable by regulatory agencies, landfill operators, and the general public. The application should also be written so that the landfill operator, after reading it, will be able to operate the landfill according to the requirements with a minimum of additional training.

Copies of the *Solid Waste Permitting and Management Rules,* the *Utah Solid and Hazardous Waste Act,* along with many other useful guidance documents can be obtained by contacting the Division of Solid and Hazardous Waste at 801-536-0200. Most of these documents are available on the Division's web page at www.hazardouswaste.utah.gov. Guidance documents can be found at the solid waste section portion of the web page.

When the application is determined to be complete, the original complete application and one copy of the complete application are required along with an electronic copy.

Part II **Application Checklist**

I. **Facility General Information**	
Description of Item	Location In Document
Ia. Information Required - All Class I and V Landfills	
Completed Part I General information Form (See form above)	Right after Table of Contents
General description of the facility (R315-310-3(1)(b))	General Report, General Facility Description (p. 7)
Legal description of property (R315-310-3(1)(c))	General Report, General Facility Description (p. 7)
Proof of ownership, lease agreement, or other mechanism (R315-310-3(1)(c))	Appendix A
Area served by the facility including population (R315-310-3(1)(d))	General Report, General Facility Description (p. 7)
If the permit application is for a class I landfill a demonstration that the landfill is not a commercial facility	General Report, General Facility Description (p. 7)
Waste type and anticipated daily volume (R315-310-3(1)(d))	Permit Application Form Part I.VIII Gen Rpt., Closure Plan, Site Cap (p. 27)
Ib. Information Required - All New Or Laterally Expanding Class I and V Landfills	***This Section is Not Applicable to Bountiful***
Intended schedule of construction (R315-302-2(2)(a))	
Name and address of all property owners within 1000 feet of the facility boundary (R315-310-3(2)(a)(i))	
Documentation that a notice of intent to apply for a permit has been sent to all property owners listed above (R315-310-3(2)(ii))	
Name of the local government with jurisdiction over the facility site (R315-310-3(2)(iii))	

I. **Facility General Information**	
Description of Item	Location In Document
Ic. Location Standards – All New Or Laterally Expanding Class 1 and V Landfills (R315-302-1)	***This Section is Not Applicable to Bountiful***
Documentation that the facility has meet the historical survey requirement of R315-302-1(2)(f)	
Land use compatibility (R315-302-1(2)(a))	
Maps showing the existing land use, topography, residences, parks, monuments, recreation areas or wilderness areas within 1000 feet of the site boundary	
Certifications that no ecologically or scientifically significant areas or endangered species are present in site area	
List of airports within five miles of facility and distance to each	
Geology (R315-302-1(2)(b))	
Geologic maps showing significant geologic features, faults, and unstable areas	
Maps showing site soils	
Surface water (R315-302-1(2)(c))	
Magnitude of 24 hour 25 year and 100 year storm events	
Average annual rainfall	
Maximum elevation of flood waters proximate to the facility	
Maximum elevation of flood water from 100 year flood for waters proximate to the facility	
Wetlands (R315-302-1(2)(d))	
Ground water (R315-302-1(2)(e))	
Id. Plan of Operations Requirements - All Class I And V Landfills (R315-310-3(1)(e) and R315-302-2(2))	
Forms and other information as required in R315-302-2(3) including a description of on-site waste handling procedures and an example of the form that will be used to record the weights or volumes of waste received (R315-302-2(2)(b) And R315-310-3(1)(f))	Appxs. D,H; Gen Rpt., Plan of Operation, Haz Waste Exclusion (p 20) Gen. Rpt., Plan of Operation, Gen. Training & Safety Plans (p. 20) Gen. Rpt., Plan of Operation, Solid Waste Handling Procedures (p. 11)
Schedule for conducting inspections and monitoring, and examples of the forms that will be used to record the results of the inspections and monitoring (R315-302-2(2)(c), R315-302-2(5)(a), and R315-310-3(1)(g))	Appx. D Gen. Rpt., Plan of Operation, Monitoring Sch. (pp. 12-14); Gen. Rpt., Plan of Operation, Contingency Plans (pp. 16-17)
Contingency plans in the event of a fire or explosion (R315-302-2(2)(d))	Gen. Rpt., Plan of Operation, Contingency Plans (pp. 16-17)
Corrective action programs to be initiated if ground water is contaminated (R315-302-2(2)(e))	Gen. Rpt., Plan of Operation, Assessment (p. 15)
Contingency plans for other releases, e.g. explosive gases or failure of run-off collection system (R315-302-2(2)(f))	Gen. Rpt., Plan of Operation, Contingency Plans (pp. 16-17)
Plan to control fugitive dust generated from roads, construction, general operations, and covering the waste (R315-302-2(2)(g))	Technical Data, BSL Specifications, Operations, Dust Control (p. 44); Appx. M

***I.* Facility General Information**	
Description of Item	Location In Document
Plan for litter control and collection (R315-302-2(2)(h))	Technical Data, BSL Specifications, Blowing Paper (p. 38)
Description of maintenance of installed equipment (R315-302-2(2)(i))	Gen. Rpt., Plan of Operation, Maintenance of Monitoring Equip (p 18)
Procedures for excluding the receipt of prohibited hazardous or PCB containing wastes (R315-302-2(2)(j))	Gen. Rpt., Plan of Operation, Haz. Waste Exclusion (p. 19)
Procedures for controlling disease vectors (R315-302-2(2)(k))	Gen. Rpt., Plan of Operation, Disease Vector Control (p. 18)
A plan for alternative waste handling (R315-302-2(2)(l))	Gen. Rpt., Plan of Operation, Alternate Waste Handling Procedures (p 17)
A general training plan for site operations (R315-302-2(2)(o))	Gen. Rpt., Plan of Operation, General Training and Safety Plans (p. 20)
Any recycling programs planned at the facility (R315-303-4(6))	Gen. Rpt., Plan of Operation, Recycling Program (p. 22)
Closure and post-closure care Plan (R315-302-2(2)(m))	Gen. Rpt., Closure Plan (pp. 26-28); Gen. Rpt., Post-Closure Plan (pp. 29-30)
Procedures for the handling of special wastes (R315-315)	Gen. Rpt., Gen. Facility Descr (p. 7); Gen. Rpt., Plan of Operation, Hazardous Waste Exclusion (p. 19) and Disease Vector Control (p18)
Plans and operation procedures to minimize liquids (R315-303-3(1))	Gen. Rpt., Plan of Operation, Haz. Waste Exclusion (p. 19)
Plans and procedures to address the requirements of R315-303-3(7)(c) through (i) and R315-303-4	Gen. Rpt., Plan of Op., SW Handling Proc. (pp. 11-12); Tech. Data, BSL Specs., Prep. of Site (pp. 34-37); Tech. Data, Operations, Limited Access (p. 37)
Any other site specific information pertaining to the plan of operation required by the Director (R315-302-2(2)(p))	N/A ... continued from above Tech. Data, Operations, Vector Control (pp. 43-44) and Unloading of Refuse (p. 37)
***Ie.* Special Requirements - New Or Laterally Expanding Class V Landfill (R315-310-3(2))**	***This Section is Not Applicable to Bountiful***
Submit information required by the *Utah Solid and Hazardous Waste Act* Subsections 19-6-108(9) and 19-6-108(10) (R315-310-3(2)(a))	
Approval from the local government within which the solid waste facility sits	

***II* Facility Technical Information**	
Description of Item	Location In Document
***IIa.* Maps - All Class I and V Landfills**	
Topographic map drawn to the required scale with contours showing the boundaries of the landfill unit, ground water monitoring well locations, gas monitoring points, and the borrow and fill areas (R315-310-4(2)(a)(i))	Technical Data, Topographic Map (p. 34)
Most recent U.S. Geological Survey topographic map, 7-1/2 minute series, showing the waste facility boundary; the property boundary; surface drainage channels; any existing utilities and structures within one-fourth mile of the site; and the direction of the prevailing winds (R315-310-4(2)(a)(ii))	Technical Data, USGS Topographic Map (p. 32)
***IIb.* Geohydrological Assessment - All Class I and V Landfills (R315-310-4(2)(b))**	
Local and regional geology and hydrology including faults, unstable slopes and subsidence areas on site (R315-310-4(2)(b)(i))	Geohydrological Assessment Report, Geology (pp. 47-50) and Hydrogeology (pp. 50-54) and Seismicity (pp. 54-55)
Evaluation of bedrock and soil types and properties including permeability rates (R315-310-4(2)(b)(ii))	Geohydrological Assessment Report, Geology (pp. 47-50); Appx. J

***II* Facility Technical Information**	
Description of Item	Location In Document
Depth to ground water (R315-310-4(2)(b)(iii))	Appx. J
Direction and flow rate of ground water (R315-310-4(2)(b)(iv))	Geohydrological Assessment Report, Hydrology (pp. 47-54); Appx. J
Quantity, location, and construction of any private or public wells on-site or within 2,000 feet of the facility boundary (R315-310-4(2)(b)(v))	Appx. K
Tabulation of all water rights for ground water and surface water on-site and within 2,000 feet of the facility boundary (R315-310-4(2)(b)(vi))	Appx. K
Identification and description of all surface waters on-site and within one mile of the facility boundary (R315-310-4(2)(b)(vii))	Geohydrological Assessment Report, Surface Water (p. 56)
Background ground water and surface water quality assessment and, for an existing facility, identification of impacts upon the ground water and surface water from leachate discharges (R315-310-4(2)(b)(viii))	Geohydrological Assessment Report, Groundwater Quality (pp. 57-58) Appx. J
Ground Water Monitoring (R315-303-3(7)(b) and R315-308)	Gen. Rpt., Plan of Operation, Monitoring Sch. (pp. 12-13)
Statistical method to be used (R315-308-2(8))	Gen. Rpt., Plan of Operation, Assessment (pp. 14-15);
Calculation of site water balance (R315-310-4(2)(b)(ix))	Geohydrological Assessment Report, Site Water Balance, (p. 59); Appx. J
IIc. **Engineering Report - Plans, Specifications, And Calculations - All Class I and V Landfills**	
Documentation that the facility will meet all of the performance standards of R315-303-2	Gen. Rpt., Plan of Op., Monitoring Sch. (pp. 12-14) and Contingency Plans (p. 17); Tech. Data, BSL Specs., Operations, Dust Ctrl. (p. 44) & Drainage of Surface Water (p. 45); Appx M
Engineering reports required to meet the location standards of R315-302-1 including documentation of any demonstration or exemption made for any location standard (R315-310-4(2)(c)(i))	Engineering Report, Location Standards (pp. 62-65)
Anticipated facility life and the basis for calculating the facility's life (R315-310-4(2)(c)(ii))	Gen. Rpt., Plan of Op., Schedule of Const. (pp. 8-11); Appx. C
Cell design to include liner design, cover design, fill methods, elevation of final cover including plans and drawings signed and sealed by a professional engineer registered in the State of Utah (R315-303-3(3), R315-303-3(6) and (7)(a), R315-310-3(1)(b) and R315-310-4(2)(c)(iii))	Gen. Rpt., Plan of Op., Schedule of Const. (pp. 8-11); Engineering Report, Landfill Design and Operation (pp. 65-66); Appx. B
Leachate collection system design and calculations showing system meets the requirements of R315-303-3(2)	Engineering Report, Landfill Design and Operation (pp. 65-67) and Leachate Collection, Treatment, and Disposal System (p. 67)
Equipment requirements and availability (R315-310-4(2)(c)(iii))	Gen. Rpt., Plan of Op , Solid Waste Handling Proc. (pp. 11-12), Appx. E
Identification of borrow sources for daily and final cover and for soil liners (R315-310-4(2)(c)(iv))	Engineering Report, Landfill Design and Operation (pp. 66-67)
Run-On and run-off diversion designs (R315-303-3(1)(c), (d) and (e))	Engineering Report, Run-On/Runoff Ctrl. System (p. 67); Appx. B
Leachate collection, treatment, and disposal and documentation to show that any treatment system is being or has been reviewed by the Division of Water Quality (R315-310-4(2)(c)(v) and R315-310-3(1)(i))	Engineering Report, Leachate Collection, Treatment, and Disposal System (p. 67)

***II* Facility Technical Information**	
Description of Item	Location In Document
Ground water monitoring plan that meets the requirements of Rule R315-308 including well locations, design, and construction (R315-310-4(2)(b)(x) and R315-310-4(2)(c)(vi))	Gen. Rpt., Plan of Op., Maint. Schedule (pp. 12-13); Geohydrological Assessment Rpt, Conceptual Design of GW Monitoring Sys., (pp. 59-61)
Landfill gas monitoring and control plan that meets the requirements of Subsection R315-303-3(5) (R315-310-4(2)(c)(vii))	Gen. Rpt., Plan of Operation, Monitoring Schedule (pp. 12-14) and Contingency Plans (pp 16-17)
Slope stability analysis for static and under the anticipated seismic event for the facility (R315-310-4(2)(b)(i) and R315-302-1(2)(b)(ii))	Engineering Report, Location Standards, Unstable Areas (pp. 63-64); Appx. L
Design and location of run-on and run-off control systems (R315-310-4(2)(c)(viii))	Engr. Report, Run-On/Runoff Ctrl. System (p. 67); Appx. B
IId. **Closure Plan - All Class I and V Landfills (R315-310-3(1)(h))**	
Closure Plan (R315-302-3(2) and (3))	Gen. Rpt., Closure Plan (pp. 26-28); Engineering Report, Closure & Post-Closure Design (p. 68).
Closure schedule (R315-310-4(2)(d)(i))	Gen. Rpt., Closure Plan (pp. 26-28)
Design of final cover (R315-303-3(4) and R315-310-4(2)(c)(iii))	Gen. Rpt., Closure Plan (pp. 26-28)
Capacity of site in volume and tonnage (R315-310-4(2)(d)(ii))	Gen. Rpt., Closure Plan (pp. 26-28)
Final inspection by regulatory agencies (R315-310-4(2)(d)(iii))	Gen. Rpt., Closure Plan (pp. 26-28)
IIe. **Post-Closure Care Plan - All Class I and V Landfills (R315-310-3(1)(h))**	
Post-Closure Plan (R315-302-3(5) and (6))	Gen. Rpt., Post Closure Plan (pp 29-30); Engineering Report, Closure & Post-Closure Design (p. 68)
Site monitoring of landfill gases, ground water, and surface water, if required (R315-310-4(2)(e)(i))	Gen. Rpt., Post Closure Plan (pp. 29-30)
Changes to record of title, land use, and zoning restrictions (R315-310-4(2)(e)(v))	Gen. Rpt., Post Closure Plan (pp. 29-30)
Maintenance activities to maintain cover and run-on/run-off control systems (R315-310-4(2)(e)(iii))	Gen. Rpt., Post Closure Plan (pp. 29-30)
List the name, address, and telephone number of the person or office to contact about the facility during the post-closure care period (R315-310-4(2)(e)(vi))	Gen. Rpt., Post Closure Plan (pp. 29-30)
IIf. **Financial Assurance - All Class I and V Landfills (R315-310-3(1)(j))**	
Identification of closure costs including cost calculations (R315-310-4(2)(d)(iv)) and (R315-302-2(2)(n))	Gen. Rpt, Financial Assurance Plan (pp. 23-25); Appx. H
Identification of post-closure care costs including cost calculations (R315-310-4(2)(e)(iv))	Gen. Rpt, Financial Assurance Plan (pp. 23-25); Appx. H
Identification of the financial assurance mechanism that meets the requirements of Rule R315-309 and the date that the mechanism will become effective (R315-309-1(1))	Gen. Rpt, Financial Assurance Plan (pp. 23-25); Appx. H

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GENERAL REPORT

GENERAL FACILITY DESCRIPTION,
RELATIONSHIP TO COUNTY, SOLID WASTE PLAN, AND OWNERSHIP

The Bountiful Sanitary Landfill (Previously called the Bay Area Refuse Disposal site (BARD)) occupies approximately 150 acres on the east shore of the Great Salt Lake, west of West Bountiful, Utah The landfill began receiving municipal wastes in about 1962, while it was operated by a group of six east shore cities, and Davis County which constituted the Bay Area Refuse Disposal District The Bay Area Refuse Disposal District consisted of the following public entities

1. Bountiful City
2. Centerville City
3. Farmington City
4. City of North Salt Lake
5. West Bountiful City
6. Woods Cross City
7. Davis County (unincorporated areas)

Starting July 1987, all of the public entities except Bountiful joined the Davis County Solid Waste Management District and began transferring their refuse to the Davis County "Bum Plant" near Hill Air Force Base in North Davis County Since that time the landfill has been operated solely by the City of Bountiful

Use of the facility is limited to residents of the City of Bountiful The landfill receives residential and commercial wastes and construction debris produced within Bountiful City, which has a total area of nearly 13 square miles (Population 41,301 as of 2000 Census) Hazardous wastes, asbestos, and PCB contaminated wastes and old tires are not allowed in the landfill

The property upon which the landfill is located is owned by the City of Bountiful, and is located in the North 1/2 Sec 14 T 2 N R 1 W SLB&M The front gate is located at latitude 40°54'30" and Longitude 111°55'00" Proof of ownership is attached in appendix A

PLAN OF OPERATION

Schedule of Construction

Upgrading and implementation of operational changes at the Bountiful Sanitary Landfill began in 1987 when Bountiful City became sole owner and operator of the facility These changes were the beginning of the process required in order to come into compliance with State of Utah Solid Waste Permitting and Management Rules Barton/Stone Creek, which prior to 1992 was unlined and traversed the south portion of the landfill, was realigned and concrete lined in an attempt to isolate refuse from surface and ground water A large pond was also excavated south and west of the landfill that serves several purposes One of the important purposes was to obtain low permeability clay cover material to use at the landfill Much of the soil excavated was used to re-contour the south half and the east side of the north half of the landfill to promote runoff and reduce infiltration into the refuse This cover soil reaches fourteen feet thick in some areas Current plans are to excavate cells from this cover and continue filling refuse in these areas when the fill plan progresses to that point

In spring of 1996, landfill personnel completed the excavation and lining of the runoff retention/evaporation pond to retain runoff of storm water from the active face of the landfill during a 24-hour 25 year intensity storm Landfilling is being accomplished in a manner such that the working face and surrounding areas drain toward the pond in order to retain any runoff from the active face within the pond

Additional upgrades at the site include implementation and enlarging of the recycling program at the landfill site to complement the current recycling program operated by the City of Bountiful Bins have been placed where recyclable materials can be deposited Steel, aluminum, batteries, carpet pad (urethane), and e-waste are all recycled

As a means of waste reduction the city has also implemented operations to reduce the amount of yard waste deposited in the landfill In 1996 the City began to produce and stockpile wood chips from tree limbs and branches delivered to the landfill for disposal These chips are useful for various public and private projects, including disease vector control and daily cover at the landfill This program has developed into a composting program using the excess wood chips along with other yard waste delivered to the landfill to produce high quality mulch which is sold back to the public

The 1996 site improvements included a new scale, scale house, operations center/office building, and a new equipment storage building at the landfill site In order to accommodate the Legacy Parkway project, the portion of the property occupying these improvements was sold to the Utah Department of Transportation These facilities were demolished and replaced with new facilities that were completed in 2007 Culinary water, natural gas, power, phone lines, and sanitary sewer service the facility

A layout of the site improvements is included in Appendix B

Fill Plan

This fill plan was developed in an attempt to provide the most efficient use of landfill space and available cover material by making haul distances as short as possible The fill plan is divided into four major phases These phases are briefly described as follows

> **Phase I** This is the area that was currently being filled with refuse at the time of the initial permit application in October 1994 As indicated on the figure in Appendix B, it is located near the center and west end of the north half of the landfill Quantity and volume calculations indicated that this phase had a life of approximately 2 5 years beginning fall of 1994 This phase was completed around the end of 1996
>
> **Phase II** This is the area currently being filled This phase will attempt to make maximum use of the entire north half of the landfill As indicated on the drawings in Appendix B, fill began at approximately elevation 4220, and will continue to progress in an orderly manner across the phase Fill will progress in an area fill manner, in lifts approximately 10 feet thick Grading will provide drainage away from the active face and

toward the run-off retention pond Each lift will be well compacted, and receive daily cover The top of each lift will receive 12 inches of interim cover, and be sloped at a mmimum of one percent to promote storm water runoff and minimize infiltration The interim cover will be left in place for a maximum of two years Sometime during the first two years, either an additional lift of refuse will be placed over the area, or the temporary cover will be changed to intermediate cover, with the thickness increased to at least eighteen inches m order to minimize infiltration The eighteen inch thick layer will be monitored for erosion on a regular basis as part of the regular maintenance and momtoring activities at the landfill When the first lift has covered the entire north half or reached daylight matching contours from phase I, filling activities will commence on another lift The same fill sequence will be followed for subsequent lifts Upon completion of this phase, side slopes will be approximately twenty percent on all sides of the north half of the landfill The north, east, and west slopes of the north half of the landfill will receive final cover, top soil, and re-vegetation as the area is filled When Phase II is completed, the final cover, topsoil, and vegetation will be in place and prepared for eventual closure

Phase III This phase will be very similar to phase II, but will be performed on the south half of the landfill The main difference will be that the south half currently has excess cover material, (up to 14 feet thick) which will be excavated and stockpiled for use as final cover on the landfill The first lift will resemble a trench fill procedure as the excess cover material is reclaimed After the excess clay cover is excavated, and the first lift is placed, subsequent lifts will be placed in an area fill manner Upon completion of this phase, side slopes will be at twenty percent The south, east, and west slopes will have final cover, topsoil, and be re-vegetated as the fill is being placed

Phase IV This will be the final phase of refuse fill at the site In this phase the center "valley" between phase II and phase III will be filled In order to provide drainage toward the retention pond, fill will begin on the east end of the valley and will progress toward the west in an area fill manner with lifts of between five and ten feet thick Access to the working face will be provided by traversing the north half of the landfill and approaching the working face from the west Fill on the east end of the phase will slope at twenty percent to match the slopes on the east side of phases II and III As fill is placed, final cover, top soil, and re-vegetation will be ongomg

In January 2008, a Remaimng Life Study was performed for the landfill, using surveyed data for volumes, and scale records for weight of waste landfilled This study found that the landfill is achieving waste-m-place density of about 1750 lb/cy, after the waste has been in place for some time and allowed to settle Quantity and volume calculations m this study mdicate that Phase II will be completely filled in about year 2037 Phase III has a life of approximately 14 years, and Phase IV has a life of approximately 18 years Based on the conclusions from the Remaimng Life Study with current waste disposal rates and practices, it has been calculated that the landfill's life will end m approxmiately year 2089 However, small changes in variables mvolved in calculating landfill life can make it nearly impossible to anticipate capacity over that long of a time frame Therefore our current estimate of the end of landfill life for planmng and reporting is year 2050 The Remaimng Life Study is mcluded in Appendix C

Sohd Waste Handlmg Procedures

As solid waste is transported on site, the transport vehicle must pass the scale house Every commercial load of refuse delivered to the site will be weighed to determine the weight of refuse deposited In addition, all construction and demolition waste will be weighed regardless of the hauler Individual private citizens hauling municipal solid waste (pick-up trucks) will be charged a umform fee and the tonnage will be estimated based on a calculated average weight This information will be recorded using a computer database that will report on the ticket and various forms as shown m Appendix D The database and reports will be retained m landfill records The scale house operator will be trained to recogmze potential hazardous waste, and will question the transporter as to the origin of the wastes to be deposited All suspicious loads will be inspected by trained personnel, and if determined to contain hazardous material will not be allowed to unload at the landfill At least one percent of all loads delivered to the landfill will be inspected at random For more information on load inspections, see the section below, "Load Inspection" Any recyclable materials will be separated by the transporter, and deposited m the recyclıng bıns prıor to progressıng to the workıng face of the landfill for dısposal Transporters haulıng yard clıppıngs and tree lımbs wıll be dırected to the compostıng area for unloadıng

After the solıd waste ıs unloaded at the workıng face of the landfill, landfill operators wıll move the refuse to the locatıon necessary m order to obtaın the desıred lıft thıckness and slope The refuse wıll then be compacted to a mımmum densıty of 29 6 pounds per cubıc foot (800 pounds per cubıc yard) by makıng several passes over the refuse wıth the compactıon equıpment After the refuse ıs compacted to the desıred densıty, lıft thıckness, and slope, an approved daıly cover wıll be placed over the refuse ın order to control vectors, fire, odor, blowıng lıtter, and scavengıng The entıre workıng face wıll be covered at the end of each workıng day

The equıpment used for refuse dıstrıbutıon, compactıon, daıly cover, cell excavatıon, and dust/fire control ıs lısted below

2 Compactors
1 Dozer
2 Loaders
4 Dump Trucks
1 Excavators
2 Water Trucks
1 Backhoe
1 Leafer (lıtter vacuum)

A complete equıpment lıst wıth the antıcıpated replacement schedule ıs attached ın appendıx E

Monıtormg Schedule

Ground Water - Hıstory Bountıful Cıty has been samplıng the groundwater at the landfill on a quarterly schedule sınce September 1996 when the new background and complıance wells were completed Imtıally, the reason for samplıng quarterly was to quıckly produce sufficıent data to develop background concentratıons for the groundwater constıtuents Upon obtaımng sufficıent background data to perform the approprıate statıstıcal analyses, a statıstıcally sıgnıficant ıncrease m arsemc concentratıons ın well BSL-3 was dıscovered These results were reported to the Utah Dıvısıon of Solıd and Hazardous Waste m the annual Statıstıcal Analysıs Report for that year dated January 19, 1999

As proposed ın the report an assessment momtorıng program was ınıtıated whıch ıncluded takıng one sample from well BSL-2 and one sample from well BSL-3 and havıng them analyzed for all constıtuents lısted as Appendıx II ın 40 CFR Part 258, 1991 ed None of the Appendıx II constıtuents were detected m any of the samples tested Based on thıs, Bountıful receıved authorızatıon to test only for constıtuents lısted ın Sectıon R315-308-4 but were requıred to contmue testıng on a quarterly basıs

Current Program The above testıng schedule was followed untıl June of 2001 when authorızatıon was gıven by the Dıvısıon of Solıd and Hazardous Waste to agaın amend the momtormg schedule, whıch was amended agaın ın Feb 2009 wıth authorızatıon Currently, orgamc and ınorganıc constıtuents are sampled and analyzed on a semıannual basıs ın all wells Metals are sampled and analyzed semıaımually ın up gradıent well BSL-1 and quarterly m wells BSL-2 and BSL-3 In July 2010, formal authorızatıon was gıven to contınue to analyze metals usıng filtered samples, whıch began ın 2002

Thıs momtorıng schedule allows accurately trackıng the qualıty of the groundwater at the sıte and wıll not compromıse the envıronmental ıntegrıty of our landfill operatıons

Methane Perımeter methane momtorıng wıll be conducted on a quarterly basıs Calm-weather days wıll be chosen so that worst case condıtıons can be determıned Perımeter methane readmgs wıll be taken at random locatıons along the boundarıes of the landfill Methane readıngs wıll also be taken m each of the ground water momtorıng wells ımmedıately upon removal of the cap from the well The methane concentratıons ın some of the wells are expected to be hıgh, and wıll be for our ınformatıon only Samplıng poınts for complıance wıll be at random locatıons around the perımeter of the landfill

Methane momtonng in the buildings at the landfill will be conducted quarterly Readings will be taken immediately upon arrival Monday mommg after the buildings have been shut up with no activity over the weekend This will likely produce a worst case situation, which will allow detection of methane problems m the buildings

Self mspections of the momtormg systems, equipment, and operations will be conducted at least quarterly at the landfill to prevent malfunctions and deterioration, operator errors, or discharges which may cause or lead to the release of waste to the environment, or to a threat to human health

Forms

Database reporting forms and other forms for keepmg an operating record are attached m Appendix D This includes weights, types of waste received each day, number of vehicles entering each day, any deviations from approved plan of operation, random load inspections, self-inspections, and results of groimdwater, stormwater, and gas momtonng Training certificates are attached in Appendix F

Assessment

Three new momtonng wells were placed at the site m spring of 1996 The new well locations were chosen m order to provide better compliance with section R315-308-2 (1-2), and to address concerns with well location and screen depth One up-gradient well was placed at a location on landfill property, in an area unaffected by landfill operations This is used to determine upgradient quality of the ground water The property upon which this well is located has since been acquired by UDOT, but the well (which was retrofit mto a manhole) is still being used Two down-gradient wells were placed at a location far enough from the landfill area to be sure that it does not penetrate areas filled with refuse, these are the compliance wells

Bountiful City maintains a software license agreement with NIC Solutions for *Sanitas* for Groimdwater, and has an engineer who is trained in the use of the *Sanitas* software *Sanitas* is a statistical analysis program specifically designed for analysis of groundwater data for regulatory compliance and MSW landfills It provides various options for ground water analysis based on site specific conditions and statistical distribution of data The license agreement with NIC solutions ensures that the latest version of the software is being used and any necessary software support is received Bountiful city plans to continue the use of *Sanitas* for Groundwater as a means of statistical analysis compliance

The Engineering Staff at Bountiful City are monitoring the quality of the groundwater at the Landfill site on a regular basis The results of the groundwater monitoring and statistical analysis of the data are used to verify that the landfill is in compliance with the regulations for groundwater (R315-308) The results are also reported annually to the Division of Solid and Hazardous Waste with the Landfill Annual Report Additional reporting is given if any of the groundwater constituents are found to be at a 95% confidence level above the compliance limit
As new results of the groundwater monitoring program and the statistical analysis of the data become available, decisions regarding the quality of the groundwater within and surrounding the landfill will be adapted Any new site the information will be submitted to the Executive Secretary along with our plans for implementing or expanding Assessment Monitoring activities if necessary

The steps set forth in R315-308-2 will be followed in evaluating the groundwater monitoring data and determining if the implementation of additional monitoring is to be done, and whether a corrective action program at the site is necessary

In the 2009 Landfill Annual Report, Bountiful City notified the Division that the arsenic level in one of the groundwater compliance wells (BSL3) for the Bountiful Sanitary Landfill had exceeded the compliance limit for arsenic Bountiful City believes that the arsenic is naturally occurring for several reasons stated in the 2009 Statistical Analysis Report Bountiful has contracted with Environmental Resources Management (ERM) to evaluate potential source(s) of arsenic in the shallow groundwater surrounding the landfill in according to (UAC) R315-308-2(13) Two new wells have been placed for this study, according to the work plan, and the evaluation of arsenic is in process

Contingency Plans

The design of the Bountiful Sanitary Landfill has been performed using sound engineering practice with factors of safety, and other design standards in an effort to minimize the potential hazards due to fire, explosion, release of explosive gases, or failure of the run-off containment system Emergency evacuation of the site will probably not be necessary given the nature of the waste materials stored and processed The probability of fire, explosion, or toxic vapor generation is remote

Fire or explosion The hazard caused by a fire or explosion is intensified in the presence of discarded household chemicals, paints, fuels, etc , or other hazardous materials Monitoring and inspection of waste loads is intended to exclude these substances from the waste stream, and therefore reduce the hazard caused by accidental fires Because burning of any kind is not allowed at the landfill, any fire intentionally ignited is considered vandalism, and will be pursued and prosecuted as such by landfill operators Foreseeable means by which accidental fires or explosions may occur at the site include spontaneous combustion in refuse containers, or more likely, by hot ashes or sparks delivered to the landfill within the refuse stream Landfill operators are trained in recognizing loads which contain hot ashes and will be instructed to prevent their disposal among other flammable refuse

If a fire or explosion occurs at the site, the on-site Landfill Manager will be responsible to determine if there is any immediate danger to personnel If it is determined that any immediate danger exists, the site will be evacuated immediately The signal for evacuation will be three long blasts from an automobile horn If an evacuation is initiated at any time, all personnel will immediately demand all patrons to leave the site and will then leave the site themselves and meet for a head count outside the entrance gate When danger to on-site personnel exists, the South Davis Metropolitan Fire District will be summoned to fight the fire

If it is determined that no immediate danger exists, the on-site Manager will determine and implement a procedure to fight the fire These procedures may include isolating the burning area from the working face and covering with on-site soil, use of the on-site water truck, use of the on-site fire hydrant, and fire extinguishers for small fires, and/or obtain support from the South Davis Metropolitan Fire District All fires not immediately controlled by Landfill personnel will be reported to the Utah Division of Solid and Hazardous Waste

Explosive Gas Release Monitoring for explosive gasses will occur on a quarterly basis at the landfill boundaries, and in the buildings at the landfill If it is determined that there are unsafe levels of explosive gasses during any of the monitoring activities, emergency evacuation of the landfill site will occur and immediate actions will be taken to reduce the levels of explosive gas In the buildings, gas levels will be reduced by increasing the ventilation in the buildings This will be accomplished by opening doors and windows, and if necessary by placing fans so that fresh air is forced into the building The South Davis Metropolitan Fire District will be alerted to the high explosive gas levels, and their support in ventilating the building will be summoned if necessary

If high explosive gas levels are discovered at the landfill boundaries, operators will immediately notify occupants of nearby structures, and where possible, test the air in nearby structures for explosive gas to determine if any immediate danger exists If so, ventilation procedures of the buildings will be performed using procedures similar to those above

Alternative Waste Handling or Disposal
The two foreseeable reasons that may require implementation of alternative waste handling at the landfill site are equipment breakdown and inclement weather Landfill operators plan to keep equipment in top working condition by following manufacturer's recommendations for regular maintenance, and inspection of parts for the purpose of replacing parts receiving wear and tear through use

If a piece of equipment breaks down it can be efficiently repaired in the on-site shop, and while being repaired, the landfill will keep sufficient equipment on site to cover for a broken down piece For example, the dozer can temporarily be used as a compactor if necessary, and the compactor can be used to move and place refuse

In the case of inclement weather or other emergency which would interrupt normal disposal of refuse, it is the opinion of the landfill operators, that due to the large size of the landfill, and available fill area, if an area cannot be used for disposal, landfilling activities can be moved to another more accessible or useable area within the landfill

If emergency conditions exist that do not allow use of any part of the landfill on a temporary basis, large bulk containers will be placed near the landfill, and a transfer station type operation will be temporarily employed When conditions return to normal, the refuse will be placed in the landfill and compacted and covered as normal

Maintenance of Monitoring Equipment

Maintenance of installed monitoring equipment will occur on an as needed basis Ground water monitoring wells will be visually inspected during all sampling events and all regularly scheduled inspections Any noted damage or wear to the monitoring systems will be assessed and repaired

The suitability of the monitoring systems to accomplish their desired purpose will be continually monitored Upgrades and improvements will be made as warranted

Disease Vector Control

The primary means of controlling disease vectors at the landfill will be to provide a daily cover over the working face of the disposal area at the end of each day The cover will be provided in an attempt to prevent the propagation and harborage of rodents and insects, and to prevent odors which attract rodents and insects to the site

Dead Animals Because refuse deposited in the landfill is limited only to that produced within the City of Bountiful limits, the need to dispose of dead animals is uncommon If it becomes necessary to dispose of a dead animal, it will be deposited onto the working face at or near the bottom of the cell with other solid waste It will be covered with at least six inches of earth to prevent odors, and the propagation and harborage of rodents and insects

Tires. Waste tires, which tend to provide habitat for mosquito breeding, and harborage of other vectors such as rats, will be excluded from the landfill

Hazardous Waste Exclusion

The Bountiful Sanitary Landfill will not knowingly dispose, treat, store, or otherwise handle hazardous waste or waste containing PCBs This includes, but is not limited to, toxic and pathological/infectious waste, liquid waste, chemical wastes, and asbestos-containing wastes White goods containing chlorofluorocarbons will not be landfilled, they will be recycled after the refrigerant is removed, which is done on site using a device for which a certification form has been submitted to the EPA

Both the person at the gate and the person at the working face of the landfill will be trained in recognizing suspicious loads, including liquid wastes, drums, sealed containers, red bag wastes, and unusual markings or odors All such waste will be refused

As a means of keeping small quantity household hazardous wastes from being disposed of at the Bountiful Sanitary Landfill to the greatest degree possible, Bountiful City regularly conducts a household hazardous waste collection program Under this program, the city accepts household hazardous waste from Bountiful residents and properly disposes of them This both allows residents to be rid of hazardous materials, and also keeps them out of the landfill A copy of the most recent flyer advertising this program is attached in Appendix G

Load Inspection All suspicious loads will be inspected by landfill personnel Also, random inspections of loads will be performed by landfill operators Random inspections will be performed at a frequency of approximately one load for every one hundred loads entering the landfill The random inspections will be performed in addition to inspections of suspicious loads Load inspections will be performed at an area near the landfill working face, but away from public access

If hazardous materials are discovered during the inspection process, the load will be denied access to the landfill, and notifications will be made as described in the section below for "Notification Procedures " Access to the area will be restricted, and the hauler will be asked to park the load until a decision can be made as to the appropriate disposal options for the hazardous waste

If no hazardous materials are discovered in the load, the waste will be allowed to progress to the working face The Landfill Manager will have ultimate authority to decide whether to accept or reject waste material If a question exists as to the acceptability of refuse, the load will most likely be rejected and not allowed to unload at the site The form attached in Appendix D will be used to keep record of each load inspection

Notification Procedures If hazardous waste or waste containing PCBs is discovered at the Bountiful Sanitary Landfill, the landfill operators will

1 determine if any immediate threat to human health or the environment is present or imminent, if so, contact the 911 for emergency response from the South Davis Fire District,

2 request that the hauler park the truck (to be parked until the County Health Department can make a decision as to proper handling of the waste),

3 notify the Davis County Health Department immediately,

4 notify the Utah Department of Environmental Quality Executive Secretary within 24 hours,

5 secure the area, and restrict the area from public access and from facility personnel,

General Training and Safety Plans

Training of landfill supervisors, managers, and on-site workers, will consist of a combination of classroom training and on-the-job training The Landfill Superintendent and on-site Landfill

Manager are certıfied by the Solıd Waste Assocıatıon of North Amenca (SWANA) as a Certıfied Managers of Landfill Operatıon Full tıme on sıte Landfill Operators have completed the SWANA Landfill Operator Traımng Course whıch covered samtary landfill operator traımng and waste screemng at munıcıpal solıd waste facılıtıes Thıs or sımılar trammg wıll be provıded for all landfill personnel responsıble for mspectmg and ıdentıfyıng hazardous waste Copıes of all certıficates of completıon and tramıng are attached m Appendıx F

Traımng of new employees and contınuıng traımng of current employees wıll be under the dırectıon of the Landfill Manager Inıtıal traınıng of new employees wıll be completed durıng the first three months of employment, and wıll ınclude yearly revıews of basıc waste management skılls The specıfic schedule for traımng wıll be as follows

A Introductory traınıng Overvıew Plan of Operatıons, Solıd Waste Regulatıons, and Record Keepıng

Requıred	All personnel
Method	On-the-Job Traımng / Semınars
Revıew	Annual

B Polıcıes and Procedures Securıty, ınspectıons, momtorıng, and emergency response

Requıred	All Personnel
Method	On-the-Job Traımng, lecture, vıdeo medıa
Revıew	Annual

C Safety Personal protectıon, hazardous waste recognıtıon and exclusıon, hazardous materıals handlıng, emergency response, and first aıd

Requıred	All Personnel
Method	Lecture, vıdeo, semınars
Revıew	Annual

Recychng Program

The City of Bountiful currently has an active recycling program Bountiful City has a contract with Waste Management to provide curbside recyclmg for Bountiful residents Items that are accepted paper, cardboard/paperboard, metals, and plastics (PETE and HDPE) A copy of the Recycling Information is attached in Appendix G

Large recyclmg bays are available at the landfill near the scale building These are used to separate recyclables from the waste stream including aluminum, steel, batteries, e-waste, and white goods (appliances) Also, a recycling bin for used carpet padding is m use at the landfill

Bountiful City also operates an aggressive green waste composting operation Residents and haulers are encouraged to separate the green waste that they deliver to the Landfill for disposal Green waste is processed into compost and sold back to the public in order to divert a portion of the flow of refuse into the landfill, and to provide a great product to consumers

FINANCIAL ASSURANCE PLAN

From 1962 to 1987 the Bountiful Sanitary Landfill operated under an Interlocal Cooperation Act Agreement as the Bay Area Refuse Disposal (BARD) by Davis County and six cities in the area A "reserve fund" generated by tipping fees at the landfill was developed in order to cover closure costs There was for a time, litigation regarding the future use of this fund Because this fund was generated while all cities were members of BARD, the entities who no longer used the landfill felt that part of the money in the fund belonged to them, and therefore should be removed from the fund and returned to them Bountiful City contended that since all entities had used the landfill, all should be partially responsible for closure, post closure, and any necessary corrective action at the site On December 20, 1989 a *"Settlement Agreement"* was completed and submitted to the six cities and Davis County which was signed by all This agreement was accepted and became effective on January 10, 1990 A copy of the *"Settlement Agreement"* is attached in Appendix H

The agreement includes a section dealing with the fund developed, and states

> *"Payment of BARD Fund "* Defendants hereby transfer, convey, and assign to Bountiful all of their rights, title, and interest to and in all monies currently deposited in Public Treasurer's Investment Fund, , including accrued interest (herein referred to as the "BARD Fund"), the cash amount of which is approximately \$1,862,642 12 The BARD Fund is held and managed by the State Treasurer pursuant to the State Money Management Act of 1974, Utah Code Ann Section 51-7-1 (1953 as amended)

The agreement also includes provisions for Davis County to help in providing clay cover material, and does not release the other cities from a share of financial responsibilities which may come from any necessary corrective action, or other necessary improvements due to past landfill operation

According to a January 22, 1992 amendment to the Settlement agreement, a portion of the fund has been used to perform design and operational upgrades These include improving cover and grading over existing landfill areas to prevent infiltration and promote runoff, and realignment and lining of Barton Creek in an attempt to keep additional moisture from infiltrating into the refuse The remainder of the fund is reserved for closure, post-closure, and corrective action financial assurance The current balance in the fund is approximately $790,000 (September, 2010) Interest to the fund continues to accrue, but no additional deposits into the fund are planned

In addition to the above described fund, Bountiful City has established a Landfill Closure Fund Prior to November 1996 contributions were appropriated annually and the amount varied each year In November 1996, Bountiful City Entered into an "Escrow Agreement" with The Executive Secretary, Utah Solid and Hazardous Waste Control Board Department of Environmental Quality At that time the Closure Fund was fully funded in the amount of $1,200,000 00 In December 2005, another "Escrow Agreement" was entered into with the Division of Solid and Hazardous Waste to update the 1996 Escrow Agreement No additional deposits are planned to this fund, but interest continues to accrue The current balance to this fund is approximately $2,220,000 (December 2009) A copy of the current Escrow Agreement and a copy of recent Statements of Account from the Utah Public Treasurers' Investment Fund are included in Appendix H

Because closure and post closure operations are planned to be performed "in house" by Bountiful City, no withdrawal of these funds for routine closure and post closure activities is planned This will ensure that the funds will be available if corrective action ever becomes necessary, or if it ever becomes necessary for a third party to perform closure and/or post closure activities

The largest area that may require closure at any one time is the first lift on the north half of the landfill If closure were to become necessary at this point in landfill operations, approximately 50 acres would require final cover

Current closure and post closure costs are estimated for activities included in the current Closure and Post Closure Plans for the Landfill Calculations are based on the unit costs and multipliers contained in the Utah Division of Solid and Hazardous Waste Guidance Document entitled

"Preparation of Solid Waste Facility Closure and Post Closure Cost Estimates" Estimated closure and post closure costs, in current dollars, is detailed in a cost calculation included in Appendix H A summary of estimated cost totals are as follows

Total Estimated Closure Cost	$1,038,165
Total Estimated Post-Closure Cost	$ 888,800
Combined Total	$1,926,965

Bountiful City currently has sufficient balance in a Closure Fund to meet the regulatory financial assurance requirements

CLOSURE PLAN

This closure plan has been designed to minimize the need for future maintenance, minimize threat to human health and the environment from post closure escape of solid waste constituents, leachate, landfill gasses, contaminated runoff or waste decomposition products to the ground, ground water, or surface water, and prepare the facility for the post closure period Estimated costs for closure needs have been tabulated and are included in appendix H

Final Cover Installation

Final Cover will be placed on finished areas at the end of each phase of landfilling (for phases II, III, and IV) At least 18 inches of well compacted, low permeability cover material will be placed on each area where no additional filling is planned Stringent compaction specifications will ensure that the final cover is no more permeable than the underlying soil Our intent is to ensure that the layer to minimize infiltration achieves an equivalent reduction in infiltration as the layer specified in Subsection R315-303-3(4) A Final Cover Plan including and QA/QC procedures will be submitted to the Division of Solid and Hazardous Waste, work on the final cover will not commence until the Division gives approval of the plan

Fifteen inches of topsoil will be placed over the compacted final cover in order to sustain growth of vegetation and provide protection from frost and erosion The topsoil will be seeded with grass, or other shallow rooted vegetation which will not completely penetrate the topsoil layer The topsoil and vegetation will be placed as soon as possible after placement of the final cover soil during an appropriate season of the year that will allow the seeds to germinate and grow on the slope (always within six months) Fifteen inches of top soil is being specified as opposed to the six inches required in the rules in order to provide protection to the underlying clay layer from dessication due to frost penetration Our site specific frost penetration analysis can be found in Appendix I of this application

Site Capacity

The fill plan at the landfill site and compaction specifications have been designed to maximize the useable area of the landfill site, and to provide as much life as possible, while still providing for a stable, and sound engineered landfill The site has been determined based on side slopes of approximately 20%, and a minimum top slope of 2%

Assumptions Site capacity of the landfill has been calculated using the following assumptions

1 Refuse handled currently averages approximately 60,000 tons per year (200 tons per day It is assumed that waste reduction and recycling programs, including composting operations, will offset increased population, to produce no increase in quantity of refuse handled at the landfill above current levels

2 The compacted refuse density is 1750 Ib/yd^3, after the waste has been in place for some time and initial settlement has occurred This is based on volumes derived from three detailed comprehensive surveys along with scale records of waste acceptance This density accounts for daily cover and intermediate cover, soil is used for both

3 The airspace will be filled according to the fill perimeter, slopes, and top elevations as shown on the fill plans The volumes available for refuse have been adjusted to account for final cover

Calculations Calculations of remaining available space were made as of August 2007 At this time, approximately 2 103 x 10^6 yd^3 of landfill space were available for refuse (1 840 x 10^6 tons at 1750 Ib/yd^3) Based on the above assumptions this phase can provide operation until about 2037

Phase III has approximately 2 354 x 10^6 yd^3 of landfill space available for refuse (2 060 x 10^6 tons at 1750 lb/yd^3) Based on the above assumptions, this area will provide about 14 years of operation

Phase IV has approximately 1 229 x 10^6 yd^3 of landfill space available (1 075 x 10^6 tons at 1750 lb/yd^3) Based on the above assumptions, this area will provide about 18 years of operation

Based on the conclusions from the Remaining Life Study with current waste disposal rates and practices, it has been calculated that the landfill's life will end in approximately year 2089 However, small changes in variables involved in calculating landfill life can make it nearly impossible to anticipate capacity over that long of a time frame Therefore our current estimate of the end of landfill life for planning and reporting is year 2050 More details can be found in a 2008 Remaining Life Study that was performed for the landfill, included in Appendix C

Final Inspection

As closure of each phase of the landfill has been completed, landfill operators will submit, to the Solid and Hazardous Waste Division of the Utah Department of Environmental Quality, copies of the as built, approved unit closure plan sheets signed by a professional engineer registered in the state of Utah Certification will be provided by the landfill operator and a registered professional engineer that the unit has been closed in accordance with the approved closure plan Operators will then request a final inspection of the closed portion by applicable regulators Upon approval of the closure of each section, post closure monitoring and maintenance will begin

POST CLOSURE PLAN

Thıs post closure plan has been desıgned to provıde contınued facılıty maıntenance and momtorıng of gasses, land, and ground water for 30 years, or as long as regulators requıre for the facılıty to become stabılızed and to protect human health and the envıronment

Monıtorıng

Semı-annual ground water momtormg and quarterly gas monıtorıng wıll contınue as stated under the landfill specıficatıons and plan of operatıons untıl evıdence exısts that lıttle or no gas ıs beıng produced or becomıng concentrated ın dangerous amounts, and ıt ıs consensually determıned by landfill operators and the Department of Envıronmental Qualıty that further momtorıng ıs not necessary

Maıntenance

Quarterly ınspectıons of the monıtorıng systems, the facılıty, the facılıty structures, final cover, and run-on/run-off systems wıll be conducted at the landfill throughout the post closure care perıod Any deterıoratıon of any of the facılıtıes, or systems wıll be noted on the ınspectıon report and repaıred promptly

Implementatıon

As dıscussed above, post closure care actıvıtıes wıll begın upon completıon of closure actıvıtıes at each sectıon of the landfill

Indıvıdual phases of the landfill may be ın dıfferıng stages of post closure care at the same tıme When closure on the final stage of the landfill ıs completed, ıt ıs antıcıpated that part of the landfill (phases I, and II) may be nearıng completıon of the requıred post closure actıvıtıes Contınued post closure activities on phases III, and IV will provide for limited extended post closure activities on the entire landfill in order to maintain necessary facilities

Record of Title, Land Use, and Zoning

No specific plans have been outlined as to the future use of the land at the landfill site However, it is anticipated that Bountiful City will retain ownership of the property Keeping in mind that the future refuse disposal needs of Bountiful City must be addressed, plans at the landfill site may include operation of a transfer station, which could be expanded to provide for disposal needs even after the landfill is closed Some possible recreational uses have also been speculated

Regardless of the future use of the landfill site, changes to the record of title indicating that the property had been used as a sanitary landfill will be performed, and appropriate zoning restrictions will be proposed

Post Closure Costs

The cost for post closure care that is performed during operation of later phases of the landfill is planned to be incorporated into regular landfill operating costs, and therefore will be minimal No withdrawal of funds is anticipated during this time

Post closure care that is performed after regular operations at the landfill have ceased will be under the supervision of the Public Works Director and will be performed by trained Bountiful City Employees Maintenance will be performed when necessary with equipment owned by Bountiful City Estimated costs for these operations are included in appendix H

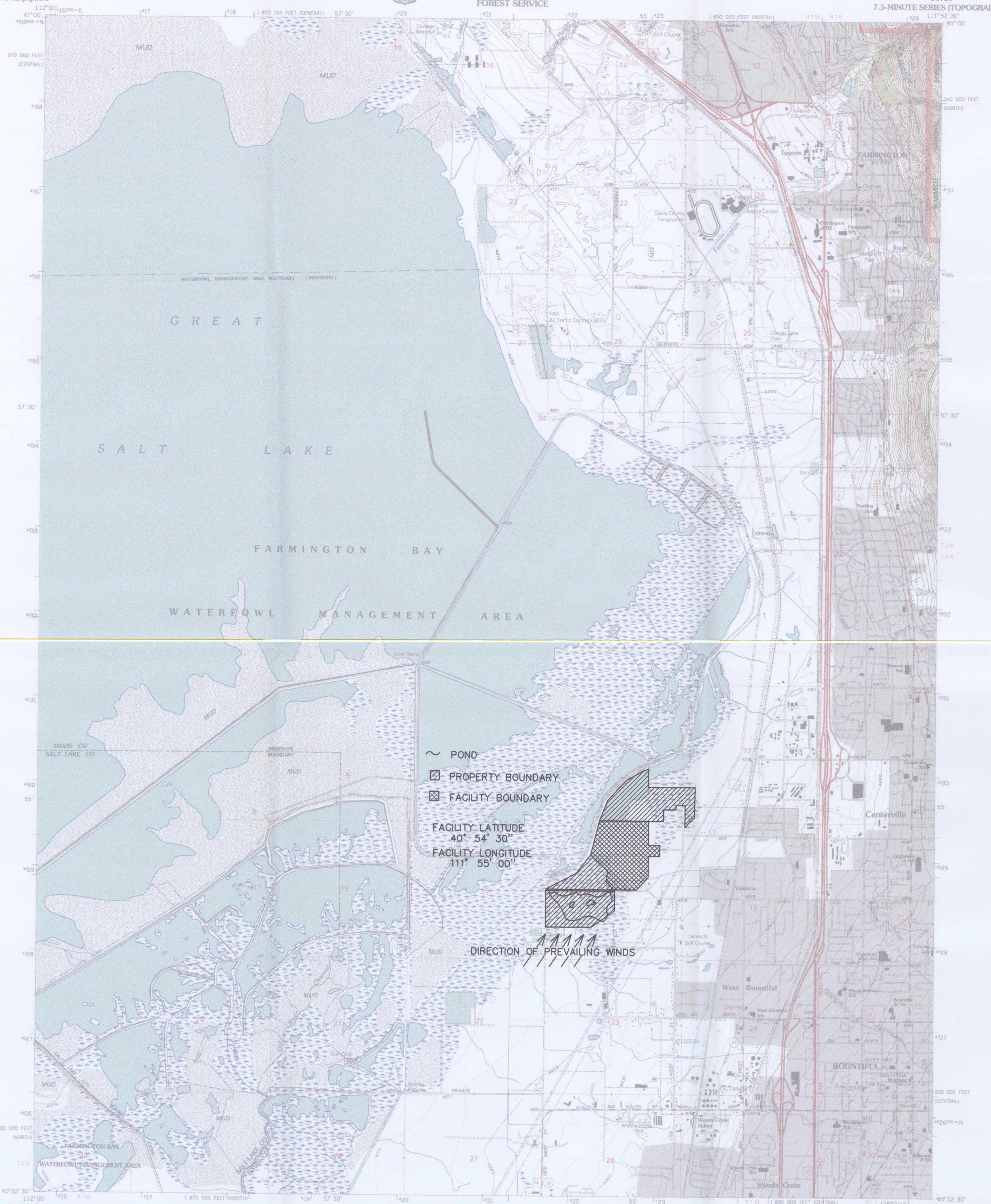
TECHNICAL DATA

USGS TOPOGRAPHIC MAP 7-1/2 MINUTE SERIES

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

FARMINGTON QUADRANGLE
UTAH
7.5-MINUTE SERIES (TOPOGRAPHIC)



Produced by the United States Geological Survey 1975
Revision by USDA Forest Service 1998

Topography compiled 1926. Planimetry derived from imagery taken 1997 and other sources. Public Land Survey System and survey control current as of 1998

North American Datum of 1927 (NAD 27). Projection: Utah coordinate system, north zone (Lambert conformal conic)
10 000-foot ticks: Utah coordinate system north and central zones
Blue 1000-meter Universal Transverse Mercator ticks, zone 12

North American Datum of 1983 (NAD 83) is shown by dashed corner ticks
The values of the shift between NAD 27 and NAD 83 for 7.5-minute intersections are obtainable from National Geodetic Survey NADCON software

Non-National Forest System lands within the National Forest
Inholdings may exist in other National or State reservations

This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands

Landmark buildings verified 2000

UTM GRID AND 1998 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
SUPPLEMENTARY CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO CONVERT FROM FEET TO METERS, MULTIPLY BY 0.3048

QUADRANGLE LOCATION

ADJOINING 7.5' QUADRANGLES
1 Clearfield
2 Kaysville
3 Peterson
4 Saltair NE
5 Bountiful Peak
6 Saltair
7 Salt Lake City North
8 Fort Douglas

INTERIOR-GEOLOGICAL SURVEY, RESTON VIRGINIA 2001

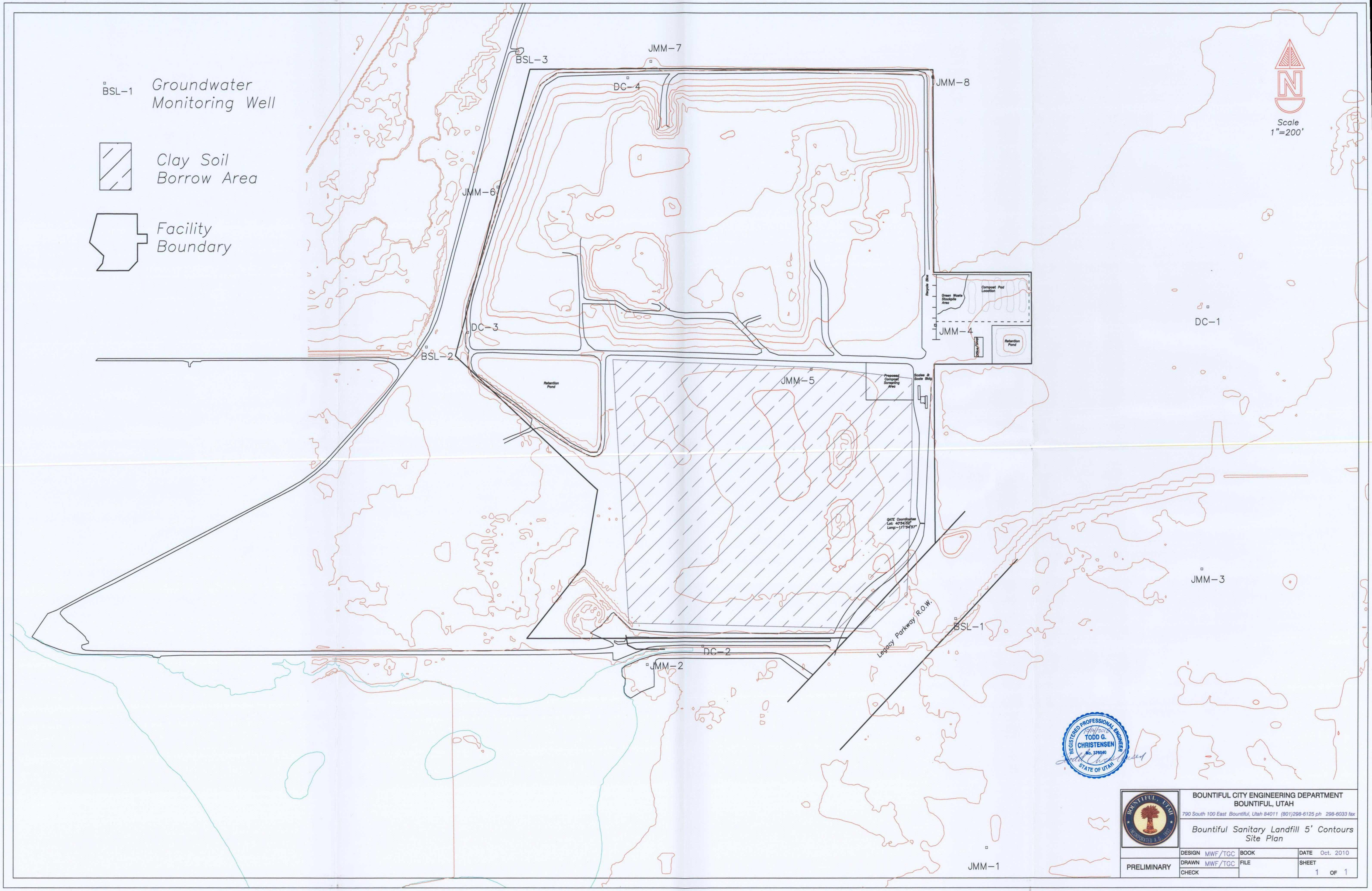
HIGHWAYS AND ROADS

Interstate
U. S.
State
County
National Forest, suitable for passenger cars
National Forest, suitable for high clearance vehicles
National Forest Trail
Primary highway
Secondary highway
Light-duty road
Composition: Unspecified
Paved
Gravel
Dirt
Unimproved; 4 wheel drive
Trail
Gate; Barrier

FARMINGTON, UT
1998
NIMA 3665 IV NW-SERIES V897

ISBN 0-607-97244-0

TOPOGRAPHIC MAP 1" = 200 '


BSL-1 Groundwater Monitoring Well
Clay Soil Borrow Area
Facility Boundary
Scale 1"=200'
N
BSL-3
JMM-7
DC-4
JMM-8
JMM-6
DC-3
BSL-2
Retention Pond
JMM-5
Recycle Bins
Green Waste Stockpile Area
Compost Pad Location
JMM-4
Office/Shop
Retention Pond
Proposed Compost Screening Area
Scales & Scale Bldg
DC-1
GATE Coordinates
Lat: 40°54'32"
Long: -111°54'57"
JMM-3
Legacy Parkway R.O.W.
BSL-1
DC-2
JMM-2
JMM-1
REGISTERED PROFESSIONAL ENGINEER
10/14/2010
TODD G. CHRISTENSEN
No. 375040
STATE OF UTAH
BOUNTIFUL, UTAH
INCORPORATED A.D. 1892
BOUNTIFUL CITY ENGINEERING DEPARTMENT
BOUNTIFUL, UTAH
790 South 100 East Bountiful, Utah 84011 (801)298-6125 ph 298-6033 fax
Bountiful Sanitary Landfill 5' Contours
Site Plan
DESIGN MWF/TGC
BOOK
DATE Oct. 2010
PRELIMINARY
DRAWN MWF/TGC
FILE
SHEET 1 OF 1
CHECK

BOUNTIFUL SANITARY LANDFILL SPECIFICATIONS

Specifications for the Bountiful Samtary Landfill have been prepared in an attempt to ensure continued operation of the landfill in a safe, efficient, and samtary manner Based on observations made of current operational procedures, and on apparent operations in the recent past, few, if any, operational changes will be necessary beyond those already implemented in order to be in compliance with these specifications

Preparation of Site

1. Access In order to avoid needless expense, it is important that collection vehicles are not delayed at the collection site and that all refuse is unloaded only at the working face Because the refiise hauling time is unproductive for the refuse collectors, any unnecessary delays are costly, and can result in unfinished collection routes

   Therefore, access roads to the site and within the site will be designed and constructed so that traffic will flow smoothly and will not be interrupted by ordmary inclement weather All-weather access roads will be provided from the entrance gate to the working face of the landfill Maintenance will be provided on the access roads as needed to keep the roads in good condition

   Fencing limits access so that indiscriminate unloading of refuse and accident hazards are minimized Therefore, access to the site will continue to be limited by suitable fencing

2. Equipment Shelter Protection of equipment from the weather reduces deterioration and maintenance Shelter is also necessary for equipment servicing,

for routine maintenance, and for storage of tools, service equipment, spare parts, and other supplies

Therefore, a permanent or temporary shelter of suitable size is provided to accommodate landfill equipment and other necessary supplies

3. **Employee Facilities.** Shelter is necessary for protection of the landfill employees from inclement weather Toilet and washing facilities, are necessary for good personal hygiene of the landfill employees and patrons Therefore, shelter and restrooms are provided with safe drinking water, sanitary washing and toilet facilities, electricity, heating facilities, and proper ventilation

4 **Weighing Facilities.** A method of measuring incoming refuse is necessary to provide reliable quantity data, to determine trends, and to estimate future disposal needs Experience has shown that refuse quantities should be based on weight rather than volume if the data are to be reasonably accurate for comparative purposes Weighing provides an equitable basis for establishing fees for refuse disposal Weighing also provides the basis for cost analysis of landfill operations In addition, weighing provides a means for the constant surveillance of collection crews and encourages the delivery of adequate payloads by each truck

Therefore, suitable scales are provided and operational during the hours that the landfill is open All commercial loads are weighed prior to unloading to determine net weights delivered Weights of small loads are estimated based on the nature of the truck and/or trailer hauling the load The scales are calibrated regularly, and are registered with the State Department of Agriculture and Food

5. **Communications** Communications are necessary at the landfill site, especially in cases of emergency Personnel at the working face of the landfill, the scale

house, and the operations center should be able to convemently commumcate with each other Telephone commumcation should be available at the site for the purpose of commumcating with emergency services if needed

Therefore, two way radios are installed in landfill vehicles, scale house, and operations center Telephone communication is established and maintained at the operations center of the landfill and at the scale house

6 **Fire Protection** Fires endanger hfe and property Smoke and odors create nuisances to surrounding property owners, violate state and federal air quality standards, and interfere with landfill operations

Therefore, no fires are permitted at the landfill site Any fire which occurs at the landfill is aggressively extinguished This is accomplished by any combination of the following

a An adequate supply of water under pressure This includes, a portable water truck or tank, and/or a standard fire hydrant connected to a suitable water supply

and/or,

b A stockpile of earth is maintained reasonably close to the working face of the fill

and/or,

c A nearby orgamzed fire department shall provide immediate service whenever called

Suitable fire extinguishers, maintained in working order, are kept in all landfill vehicles, on all landfill equipment, and in both landfill buildings

Operations

1 Limited Access If public use of a sanitary landfill is allowed when no attendant is on duty, scavenging and indiscriminate dumping commonly occur It then becomes necessary to divert men and equipment to policing the area to restore sanitary conditions When only authorized persons are permitted access to the site during operating hours, traffic and other accident hazards are minimized

Therefore, the following procedures are employed to limit access to the landfill

a The gate shall be open only when an attendant and equipment operator is on duty The gate shall be locked at all other times

b Hours of operation and other limitations to access shall be displayed prominently on a sign at the entrance gate

c An attendant shall be on duty at the scales near the landfill entrance during operating hours and will be responsible for preventing unauthorized persons from entering the area

2. Unloading of Refuse Systematic placement of refuse, restricted to a small unloading area and coordinated with spreading and compacting operations, reduces work, minimizes scattering of refuse, and expedites unloading of collection vehicles

Therefore, the following are performed at the landfill

a Appropriate signs are posted to indicate clearly where vehicles are to unload

b An attendant is on duty near the working face during operating hours to direct unloading of refuse

c Unloading of refuse is confined to as small of an area as possible

d A maximum of two small working faces will be active at the landfill This will be to expedite unloading of vehicles hauling refuse and to separate commercial and private hauling vehicles

3. **Blowing Paper** The purpose of a sanitary landfill is to dispose of the refuse in a sanitary and nuisance-free manner If papers and other light materials are allowed to be scattered by wind, then litter, fire hazards and other nuisances are created

Therefore, blowing paper and litter is controlled in the following manner

a Temporary and portables fence are placed near the unloading and spreading area to catch windblown paper and other light materials

b The portable fence and surrounding area are policed regularly and all scattered material collected and placed in the fill

c The perimeter fence surrounding the landfill is primarily for the purpose of access control, but also serves as an interceptor to blowing paper and other litter It is the final defense against the lıtter leavıng the landfill sıte The penmeter fence ıs polıced regularly, and all scattered matenal ıs collected and placed ın the fill

4 Spreadıng and Compactıng of Refuse. A successful samtary landfill operatıon depends upon the adequate compactıon of the refuse Settlement wıll be excessıve and uneven when the refuse ıs not well compacted Such settlement creates dramage problems and severely lımts the usefulness of the finıshed area

Compactıon ıs better ımtıated by spreadıng the refuse evenly ın shallow layers than placıng the matenal ın a sıngle deep lıft Further compactıon ıs provıded by the repeated travel of landfill equıpment over the layers and by the use of specıal compactıng equıpment Addıtıonal compactıon also can be achıeved by routıng collectıon trucks so that they travel repeatedly over the finıshed portıon of the fill These procedures result ın the greatest compactıon and the least ultımate settlement, provıdıng the most useful fimshed fill and best utılızıng the capacıty of the sıte

Therefore spreadıng and compactıng the refuse ıs accomplıshed by ıncorporatıng the followıng

a Addıtıons of refuse ıs spread evenly by repeated passage of landfill equıpment

b Each layer ıs compacted thoroughly to a depth not greater than 2-3 feet

c The refuse fill ıs contınued to the total depth of lıft by repeatıng (a) and (b) above

5. **Depth of Lifts in Fill.** The total depth of a landfill is governed by the characteristics of the site, the desired elevation of the completed fill and good engineering practice Construction of a fill in well compacted lifts of not more than ten feet in depth minimizes settlement, surface cracking, and release of odors

Therefore all lifts are ten feet or less in depth

6 **Daily Cover.** Daily covering of the refuse is necessary to prevent fly and rodent attraction, blowing of litter, production of odors, fire hazards, and an unsightly appearance

Therefore the working face of the landfill operation will be covered at the end of each working day As an alternative to the common means of daily soil cover, other materials are often acceptable accomplish the purpose of the daily cover These alternate methods may be desirable because they decrease the amount of cover material necessary to be imported to the landfill site, and also conserve significant amounts of available landfill airspace

Via this permit renewal application, Bountiful City is requesting approval to use the following procedures as acceptable daily cover

> Soil At least six inches (measured perpendicularly to the surface of the compacted refuse) of well compacted soil cover material shall be placed daily to completely cover all refuse deposited that day
>
> **Wood Chips.** An alternate material available for use as daily cover is wood chips produced in the landfill chipping operation If this material is used, at least six inches (measured perpendicular to the surface of the

compacted refuse) of well compacted chips shall be placed daily to cover completely all refuse deposited that day The wood chips should only be used for cover if no other beneficial use of the chips is available or if the amount of chips produced is in excess of the amount that can be used beneficially In other words, if excess chips are to be disposed of in the landfill, they are acceptable for use as daily cover rather than simply disposing of them in the landfill cell

7. **Intermediate Cover.** More than one foot of soil cover is wasteful in a landfill where there is a clear intention to provide additional lifts in the future Under such circumstances, a one foot layer of properly compacted and maintained cover will prevent health hazards or nuisances until the next lift is placed

Therefore, intermediate cover will be applied as follows

a At least one foot (measured perpendicularly to the surface of the compacted refuse) of well compacted cover material shall be placed daily on all surfaces of each lift on which another lift will be constructed, except where six inches of daily cover are provided as specified above

b The entire surface of the intermediate cover will be observed regularly and all cracked, eroded, and uneven areas will be repaired

8 **Final Cover.** A minimum final cover of **18** inches of compacted earth will prevent the emergence of insects from the compacted refuse, minimize escape of odors and gases, prevent infiltration of water and leachate production and prevent rodent burrowing This cover also provides adequate bearing surface for vehicles and sufficient thickness for cover integrity in the event of settling or erosion

Erosion of the final cover layer can be prevented by placing topsoil and vegetation over the compacted final cover

Therefore, final cover shall meet the following specifications

a The soil constituting the final cover, when compacted, shall be capable of producing permeabilities for water of not more than the natural sub-soils present below the landfill

Because the soil used for cover material is the same soil as the natural sub-soils present at the site, stringent compaction specifications will be specified in an attempt to ensure that the final cover is no more permeable than the underlying soil The stringent compaction specifications will ensure that the layer designed to minimize infiltration achieves an equivalent reduction in infiltration as the layer specified in Subsection R315-303-3(4)(b)

b At least 18 inches (measured perpendicularly to the surface of the compacted refuse) of well compacted cover material shall be placed after the completion of each the final lift

c At least fifteen inches of fertile topsoil shall be placed over the compacted final cover in order to sustain growth of vegetation The topsoil shall be seeded with grass, other shallow rooted vegetation which will not penetrate the topsoil layer The topsoil and vegetation shall be placed as soon as possible after placement of the final cover soil (always within six months), but should be done during an appropriate season of the year that will allow the seeds to germinate and grow on the slope The additional nine inches of top soil specified is to prevent frost penetration and dessication of the underlying clay layer

d Until closure and post closure activities are complete at the landfill, the entire surface of the final cover shall be inspected monthly and all cracked, eroded, and uneven areas shall be repaired

9. **Equipment Maintenance.** Equipment breakdowns of a day or more may result in the accumulation of refuse as in an open dump with all the attendant health hazards or nuisances Systematic, routine maintenance of equipment reduces repair costs, increases life expectancy, and helps to prevent breakdowns that interrupt landfill operations In event of breakdown, prompt repair of equipment or immediate procurement of standby equipment insures continuity of operations Special advance arrangements for making major repairs and for providing standby equipment will materially reduce down time Prompt repair of equipment and availability of standby equipment insure continuity of operations

Therefore, equipment maintenance includes

a Routine maintenance and inspection of landfill equipment is performed on a schedule that meets or exceeds the recommendations of the equipment manufacturer

b Inoperative equipment will be repaired as soon as possible Multiple pieces of equipment are kept at the landfill that can work in place of a compactor or a dozer that is under repair

10 **Vector Control** While operation of a sanitary landfill according to these specifications will reduce insect and rodent problems to a minimum, any lapse in

proper operating procedures or even changes in climatic conditions may result may result in attraction and rapid production of insects and rodents Supplemental vector control measures may occasionally be necessary to prevent health hazards or nuisances

Therefore, proper maintenance of daily, intermediate, and final cover, adequate drainage, and compliance with other landfill standards shall be performed promptly and in a systematic manner

If it becomes apparent that vectors are present on the landfill site in uncontrolled numbers, supplemental vector control in the form of professional extermination or pesticides placed under the direction of a professional exterminator will be performe

11 **Dust Control** Excessive dust violates air quality regulations, slows operations, creates accident hazards and aesthetic problems, and may cause eye and respiratory irritation or other injury to landfill personnel or users Therefore, suitable measures shall be taken to control dust wherever necessary on the site or on the access roads These measures may include moisture conditioning the dusty areas with a water truck, portable water tank, or fire hydrant and hose

The Fugitive Dust Control Plan is attached in Appendix M

12 **Drainage of surface water.** Runoff from above the fill and rain falling on the fill may, unless diverted, leach into the fill and pollute ground or surface water with the leachate Cover soil may be removed by erosion Standing water may permit mosquito breeding and interfere with the operation of the landfill

Therefore, the followıng means are employed to promote draınage of surface water from the landfill area

a Constructıon of the landfill shall proceed ın a manner whıch causes all runoff from the actıve face of the landfill to draın toward the borrow dıtch areas along the maın haul road ın the center of the landfill, (see Runoff Control Plan ın Appendıx B) The borrow dıtch adjacent to the hall road wıll move the runoff water to the storm water retentıon pond where ıt wıll be allowed to evaporate

b The surface of ıntermedıate covered fill shall be smooth and graded to a mınımum slope of **1**%

c The surface of the final covered fill shall be smooth and graded to a mmımum slope of 2%

d Maxımum slope of the sıdes or toe of the completed fill shall not be greater than **30**% and the slope shall be adequately protected from erosıon by vegetatıon or rıp-rap The bottom of the slope shall also be protected from ravelıng The slopes shall be constructed to provıde surface draınage that prevents pondmg

e Regular ınspectıons shall be made for standıng water on the sıte and on the access roads All accumulatıons of water outsıde of the run-off collectıon/evaporatıon pond shall be elımınated

13. Supervısıon of Operatıons The operatıon of a landfill so that no health, nuısance, or aesthetıc problems result ıs best accomplıshed when the work ıs directed by a responsible person who is both able to understand and to implement the plans and specifications

Therefore, the landfill operation shall be directed by an individual deemed qualified as a *Certified Manager of Landfill Operations* by the Solid Waste Association of North America, or similar certification by a similar organization

14 Accident Prevention and Safety The use of heavy earth-moving equipment, the maneuvering of collection trucks and other vehicles, and the occasional hazardous materials that may be present in the refuse can create accident-prevention problems at landfills The relatively remote location of the landfill makes it particularly important that personnel be oriented to accident hazard, trained in first aid, and provided with first aid supplies For reasons of safety, access should be limited to those authorized to use the site for disposal of refuse

Therefore, the following shall be employed at the landfill to promote accident prevention and safety

a At least one person with formal first aid training shall be on site during operating hours

b An educational program shall be maintained on safety and first aid

c Adequate first aid supplies shall be available at the site at all times

d Access to the site shall be limited as specified above

GEOHYDROLOGICAL ASSESSMENT REPORT

This section of the permit application presents a summary of the regional geologic and hydrogeologic setting around the Bountiful Samtary Landfill and the local soil and ground water conditions at the landfill The information was generated from published material by the U S Geological Survey (USGS), the Utah Geological and Mineral Survey (UGMS), and other publications, combined with two reports prepared for the City of Boimtiful by pnvate consultants One of the reports was prepared by EMCON Associates entitled "Geotechnical Investigation and Waste Management Studies, BARD Disposal Site" The other was prepared by James M Montgomery, Consulting Engineers, entitled "Groundwater Quality Assessment Report for the BARD Landfill "

Geology

Regional Conditions The Bountiful Samtary Landfill lies on the eastern shore of the Great Salt Lake, which is situated m the Basin and Range physiographic province The Basin and Range Province is characterized by parallel northwest-trending mountain ranges separated by alluvium filled valleys The Great Salt Lake Basin consists of a broad, flat valley bordered by the Wasatch Mountains on the east, and the Oquirrh Mountams on the West The Basin and Range physiographic provmce is further characterized by internal drainage to closed depressions in the valley bottoms The Great Salt Lake is the largest of these depressions in northern Utah

The eastern margin of the Basin and Range physiographic province is the Wasatch Fault located at the base of the Wasatch Mountains approximately 2 miles east of the landfill area Areas east of the Wasatch Fault he within the Middle Rocky Mountains physiographic province, which is characterized by generally high mountain ranges and plateaus transected by deeply incised erosional valleys

The Wasatch Mountains in the area of Bountiful are composed mainly of metamorphic and granitic rocks These materials are typically Precambrian in age (greater than 600 million years old) although some Tertiary age (approximately 50 million years old) gravels are located south of Bountiful The Principal rock type is highly metamorphosed gneiss assigned to the Farmington Canyon Complex Formation The Gravels south of Bountiful are found on the surface of the mountainsides and consist of angular pebbles, cobbles, boulders, sand and silt sized grains eroded from nearby parts of the Wasatch Range

Sediments in the Salt Lake Valley were deposited by prehistoric Lake Bonneville as lacustrine sediments These soils are typically interbedded silty clays and clayey silts with some sandy and gravelly layers Some layers, especially the clay deposits, are laterally continuous The coarser grained deposits tend to grade finer toward the west, and the thickness of these coarse grained layers generally decreases and tend to eventually pinch out Thickness of the valley fill in the area north of the landfill is estimated to be greater than 2000 feet

Local Conditions. Soil and ground water conditions at the site were investigated by reviewing the logs from existing ground water monitoring wells, test borings, and examining excavation cut slopes associated with on-going landfill operations The excavation cut slopes provided detailed data on soils in the shallow zone beneath disposal areas Test boring information, together with logs of existing monitoring wells, supplied information on the nature of the subsurface soil and ground water underlying the disposal site

The natural slope of the site is very slight (generally less than 1%) toward the west For this reason, natural unstable slopes do not exist Slope failure in excavation cuts and mounds created during the landfilling process may present slope stability concerns if they are over-steepened or become saturated

Ground subsidence at the site is not anticipated However, differential settlement of the refuse fills, and underlying clay soils due to increased overburden pressure from the weight of the refuse and cover materials should be anticipated and included in landfill design parameters

Excavatıon cut slopes and the logs from exploratory borıngs and ground water momtorıng wells confirmed that subsurface soıl condıtıons beneath the sıte are generally consıstent wıth the regıonal condıtıons descrıbed earlıer The test borıng logs revealed the sıte ıs underlaın by sılty and sandy clays wıth occasıonal thm (generally less than 1 5 feet thıck) mostly dıscontmuous ınterbeds and lenses of sand and sandy sılt Fıeld and laboratory analyses showed that clay soıls are classıfied as CL (low plastıcıty clay), and the ınterbeds and lenses of sılty sand are classıfied as SM (sand-sılt mıxture) by the Umfied Soıl Classıficatıon System Laboratory permeabılıty tests performed on undısturbed samples of the clay soıl underlyıng the sıte produced permeabılıtıes ın the range of 1 x 10^{-8} cm\sec In the JMM report, the consultants ıdentıfied a dıstmct layer of red clay whıch they ıdentıfied as a marker bed Thıs clay layer had a umform consıstency, and ıt predıctably occurred beneath a sılty sand layer m each of the borıngs

The slope of the soıl layers can be measured wıth the red clay marker bed The cross sectıons attached ın Appendıx J show a planar surface that dıps towards the northwest at approxımately 0 6 percent, or 30 feet per mıle The presence of an aerıally extensıve layer demonstrates that the entıre landfill ıs underlam by a contınuous clay layer, whıch should effectıvely ısolate the refuse from deeper soıl layers and water bearıng umts

An ınterpretatıon of the soıl beneath the Bountıful Sanıtary Landfill ıs presented on the cross sectıons attached m Appendıx J These cross-sectıons were prepared by James M Montgomery Consultıng Engıneers, Inc (JMM) ın 1988 One cross sectıon presents a southeast to northwest vıew, whıch ıs parallel to both the dırectıon of the dıp of the soıl umts, and the general dırectıon of the ground water flow The other cross sectıon shows a vıew parallel to the north perımeter dıke, whıch ıs down gradıent from most of the landfill

Several fine sand and sılty fine sand layers rangıng from 1 foot to less than I ınch thıck were ıdentıfied m most of the borıngs As shown m the cross sectıons, some of the sand layers may be contınuous beneath the landfill The Sand layer ımmedıately on top of the red clay marker bed was selected as the water bearıng layer by JMM and they completed several groundwater momtorıng wells wıth screen ın thıs layer

Although the sand layers decrease in thickness and increase in silt content toward the northwest, they occur predictably in the sequence of soil types encountered in the soil borings from both reports described above This would indicate that some of the soil layers may be continuous beneath the landfill, but it appears permeability decreases, and that the sand layers "pinch out" at some distance either beneath or west of the landfill

Hydrogeology

Regional Conditions The area between the east shore of the Great Salt Lake and the Wasatch Mountain Range from the mouth of the Jordan River to the south, to the mouth of the Bear River to the north is defined as the East Shore Ground Water Province The province is further subdivided into three subareas or ground water districts The Bountiful Sanitary Landfill lies in the Bountiful District, which includes the east shore areas south and east of the Farmington Bay Bird Refuge

Sediments at the base of the Wasatch Range consist mainly of coarse grained delta, slope wash and alluvial deposits which grade westward to predominantly fine-grained lacustrine deposits The aquifers consist primarily of sand, gravel, or mixtures of materials A major portion of the water infiltration mto the aquifers occurs along the base of the mountains where course sediments occur near the ground surface

In general, ground water in the East Shore Province is found mainly under artesian conditions in a multi-aquifer system and moves generally westward from the recharge areas along the Wasatch Front toward the Great Salt Lake Some of the Ground water is intercepted and discharged by wells, some moves through overlying confining beds and is discharged onto the ground surface as springs, some discharges directly into the Great Salt Lake, and some continues through the aquifers westward under the Great Salt Lake

In the Bountiful District, groimd water is produced from three, deep artesian aquifers The tops of the aquifers range from 60 feet to more then 500 feet below ground Their thicknesses vary, and it is frequently not possible to distinguish among aquifers Most wells in the western Bountiful District are small diameter, and flow under artesian conditions Water produced from these wells is used for stock watering, irrigation, and domestic purposes

Local Conditions The occurrence of ground water beneath the disposal site was evaluated by correlating information obtained from a reconnaissance of the site, existing groundwater momtoring wells, and results of semi-annual sampling and analytical testing of the shallow groundwater over the past several years Shallow groundwater at the site was found pearched within the beds and lenses of sand and sandy sih within the predominantly clay soils The uppermost groundwater was generally encountered at depths ranging from 4 to 12 feet beneath ground surface The location of the wells combined with corresponding groundwater elevation, suggests a gentle flow gradient in the shallow groundwater toward the northwest The horizontal movement of the shallow groundwater is limited however, due to the predominance of extensive, low permeability clay deposits beneath the site Laboratory tests have confirmed that these clays have natural permeabilities in the range of 10^{8} cm/sec Downward movement of the shallow groundwater probably does not occur at the site due to the above described upward artesian piezometric pressure from the deeper aquifers The source of the water in the shallow sand lenses is probably a combination of upward seepage from the deeper artesian aquifers and infiltration of surface water

Shallow water bearing zones As shown m the landfill cross-sections attached in Appendix J, some of the lithologic umts may be continuous beneath the landfill All of the JMM monitoring wells, with the exception of JMM-5, are screened in the uppermost silty sand layer which lies beneath the landfill A review of the soil boring logs shows that the consistency of this layer ranges from a clean fine sand approximately 1 foot thick to interbedded silty fine sands and fine sandy silts approximately 3 5 feet thick At several locations, approximately one inch thick silty clay layers are interbedded in the sandy zone

In-situ permeability tests were performed by JMM in the eight wells that they placed at the landfill site The hydraulic conductivities in the shallow zone ranges from a low of 6 0 x 10^{-4} centimeters per second (cm/sec) in JMM-4, to a high of 2 8 x 10^{-3} cm/sec in JMM-3 These values are typical for the silty sand deposits in which the monitoring wells are screened

The 1-foot thick layer was the most transmissive, shallow water-bearing zone identified immediately beneath the landfill Although it transmits ground water to some degree, it has none of the properties that are typically associated with an aquifer It contains non-potable water with naturally degraded water quality, and it is not thick enough to readily yield water to wells Therefore, the sand layer will be referred to as the uppermost "water bearing zone"

Groundwater also occurs in the refuse, and the water table in the refuse is monitored by wells JMM-5 and DC-4 Water accumulates in the landfill from precipitation, limited groundwater inflow, and moisture imported within the refuse The water table in the refuse appears to extend to the perimeter of the landfill as indicated by the water levels measured in DC-4, which is located at the northern edge of the landfill A groundwater elevation contour map is attached in Appendix J, this shows groundwater elevations based on data gathered from the wells in 2003

Deeper water bearing zones In addition to the shallow zones discussed above, several other relatively transmissive sandy layers were identified at greater depths in the piezometer borings performed by JMM These sandy zones range from one inch to several inches in thickness, and also change in consistency from clean sands to silty fine sands and fine sandy silts depending upon the location These deeper layers differ from the shallow layers because the ground water is under artesian conditions in the deep layers However, the deeper water-bearing zones are similar to the shallow layer because they also do not have the properties of an aquifer

Shallow Ground Water Surface Descriptions of the ground water surface are based on ground water levels measured in the monitoring wells on site The ground water elevations for all wells and the piezometers are summarized in the table attached in Appendix J In addition, a contour map for the shallow water bearing zone based on average water levels is attached in Appendix J Water levels measured in the piezometers represent artesian conditions at depth and are discussed in the following section

Examination of the groundwater contour map shows that a relatively flat area in the groundwater surface exists within the refuse in the center portion of the landfill The groundwater surface elevation appears to be umform withm most of the landfill then drops off steeply to the static groundwater level of the upper most water bearing zone, generally near the level of the Great Salt Lake

The steepest ground water elevation contours exist along the northern boundary of the landfill m the vicinity of monitoring wells DC-4 and JMM-7 The water level differs substantially between these two wells, which are in close proximity to one another The steep gradient is maintained by low permeability sediments which act as a subsurface "dam" between the groundwater in the refuse (DC-4), and ground water outside the refuse zone (JMM-7) This condition indicates the potential of the soil to retard the release of leachate from the landfill This condition is exaggerated by the depth of the screened area in each of the wells Well DC-4 is a deeper well than JMM-7, and the upward gradient at the site also has an effect on the static groundwater levels in the two wells

Shallow ground water levels withm and adjacent to the landfill are strongly influenced by the Great Salt Lake level Since 1985, shallow ground water levels in the wells have fluctuated m parallel with the Great Salt Lake Ground water levels and the lake level rose about 3 feet during a period from 1985 to 1987, and since that time both the lake level and the Groundwater level have been generally declining

Water levels in momtoring well DC-4, which is screened within the refuse, have not been as variable as the water levels in other wells Although the DC-4 water level rose in parallel with the others, it has declined only slightly since it peaked in March 1987 This suggests that the sediments beneath the landfill transmit water very slowly out of the landfill

Deeper Ground Water Surface The piezometric surface of the ground water measured in the piezometers are generally 1 to 6 feet higher than that of the shallow ground water measured in the adjacent momtoring well The piezometers tap water-bearing zones at 35 to 45 feet below ground, while the monitoring wells were completed in a 1-foot sand layer at 9 to 20 feet below the ground The differences between ground water elevations measured in piezometers and monitoring wells demonstrate that an upward hydraulic gradient exists beneath the landfill That is, ground water tends to flow vertically upward because the potentiometric head increases with depth

It is likely that there is hydraulic communication between the Great Salt Lake and the sand layers at depth beneath the landfill Ground water in these layers flows underneath the landfill and discharges into the lake, driven by the hydraulic gradient between the sand layers and the lake It is unlikely that any deep ground water flows upward into the landfill because it preferentially flows horizontally through sand layers into the Great Salt Lake The sand layers are much more permeable than the clay layers, so ground water flows more readily in the sand layers

Seismicity

The zone of seismic activity traversing Utah is comprised of several major faults The Major fault closest to the disposal site is the Wasatch Fault located approximately 2 miles to the east

Seismic activity has been documented in Utah since 1850, and reveals that sporadic earthquakes have been concentrated in the northern and southern portions of the Wasatch Front Six extensively damaging earthquakes, with intensities ranging from VII to IX, and at least ten which resulted in minor damage, have been recorded However, ground displacement following an earthquake in Utah has been recorded on only one occasion Based on this record, it is likely that the disposal site vicinity will experience the effects of seismic activity in the future

According to the Open-File Report 82-1033 published by the United States Department of the Interior, Geological Survey entitled *"Probabilistic Estimates of Maximum Acceleration and Velocity in Rock in the Contiguous United States"* by S T Algermissen and others, the horizontal acceleration in rock with 90 percent probability of not being exceeded in 50 years is 0 20g in the vicinity of the landfill

Water Rights

An October 2010 internet search of the Utah Division of Water Rights (DWR) records show that there are many water rights that have a point of diversion withm 2000 feet of the landfill facility boundary, most of which are for underground water rights It appears that one of the rights, a surface water right (31-3840), has a point of diversion in the middle of the landfill Yet upon closer inspection of the application, it can be seen that it is mapped wrong by the DWR website, and is meant to be located at the discharge of the sewer treatment plant

Another right (31-4354) has a diversion point at the edge of the facility boundary, and is for livestock watering – 7 horses It is on the edge of a property that UDOT purchased as part of the Legacy Parkway project, and is now used for the landfill shop and composting areas It is apparent that the water is not currently being used, at least not at the original point of diversion The landfill facility is on the land having the original point of diversion, which is now surrounded for at least 500 feet by the landfill and Legacy Nature Preserve/Legacy

Bountiful City owns several underground water rights with an original point of diversion near the southeast portion of the facility boundary In 1997, Bountiful City filed a Change Application to consolidate these and other water rights The consolidated diversion points are at well locations that existed or were proposed at that time The Change Application was approved, and all new diversion points are at least a mile from the landfill

None of the other points of diversion found from the October 2010 search, that are within 2000 feet of the landfill, are down-gradient And, all of the underground water rights (within 2000 feet) are to draw from deep ground water, typically between 100 and 300 feet deep Maps, tabulations, and other documents related to the water rights/wells search around the landfill are included in appendix K

Surface Water

The Bountiful Sanitary Landfill is located near the southeast shore of the Great Salt Lake Other surface water within a one mile radius of the site consists of the following

- Barton/Stone Creek which runs in a concrete lined channel immediately south of the site
- A 2000 foot long by 800 foot wide man made fresh water pond located south of the landfill
- Mill Creek which is located South and West of the above described pond

Barton/Stone Creek originates as runoff from the west face Wasatch Mountains and flows south of the landfill into the east end of the fresh water pond The trapezoidal shaped concrete lined channel in which the Creek flows was constructed in 1991, and a part of it was re-located in 2006 as part of the Legacy Parkway project It is designed to carry flows from these creeks which would be produced by a 100-year storm event No flood plain would be produced in the vicinity of the landfill from a 100-year storm

Mill Creek also originates as runoff from the Wasatch Mountains and flows from the south into the south edge of the pond Any flood water that comes from Mill Creek will discharge into the pond and will be discharged into the wetlands of Farmington bay No part of Mill Creek is adjacent to the landfill Therefore, landfill operations will be uneffected by flooding in Mill Creek

The pond was created in 1991 under a permit from the U S Army Corps of Engineers It was built as part of a larger plan to move Barton/Stone Creek out of the landfill site, and to obtain cover material for landfill operation The cover material was removed from the area south of the landfill, which produced a planned pond to serve as a sediment trap, and wetlands restoration

Infiltration of stream water from Barton/Stone Creek into the landfill has been halted due to the concrete lining of the channel, and it's realignment away from the refuse disposal area

During the early to mid 1980's the high level of the Great Salt Lake had significant impacts on the landfill, and the surface and ground water in the area of the landfill site During 1985-86, dikes were constructed around the perimeter of the landfill in order to prevent the lake from intruding into the landfill areas and to prevent washout of solid waste to the lake Portions of the landfill area to the south and west (in the area of the new pond and wetlands) were completely inundated by the lake and portions of Barton/Stone Creek were overtopped by the lake During the highest level of the lake, the entire landfill was surrounded by open water from the Great Salt Lake except for the entry road on the south east corner of the site, which remained open

The dikes which were placed during 1985-86 proved effective in preventing surface encroachment of lake flood water from entering the landfill site They were also effective in preventing the washout of refuse from the landfill site by the flood waters Registered professional engineers from Postma Engineering Inc performed an on-site inspection of the dikes in 1987 and in their June 1987 report prepared for the BARD Board of Directors stated "We have evaluated the dikes and found them to be sufficiently stable " Past performance of the dikes during highly variable conditions verify Postma's conclusions These shallow dikes, however are relatively permeable They are constructed of granular materials obtained from the excavation of debris basins constructed in the eastern foothills Therefore these dikes, although effective in preventing washout of refuse, may do little to keep water from infiltrating into the landfill site if the lake water level rises to these levels again However, the Great Salt Lake pumping project, which was initiated around peak lake levels, was designed to keep lake water levels below elevation 4212 Therefore the likelihood of lake water reaching elevations high enough to cause problems of infiltration to the landfill is greatly diminished

Ground Water Quality

Deep ground water. Ground water from several deep wells (250-600 feet deep) penetratıng the underlyıng aquıfers ın the sıte vıcımty has been perıodıcally sampled and subjected to laboratory analysıs by the State of Utah These off-sıte analyses ındıcate that the ground water sampled ıs of a sodıum bıcarbonate type, has a total dıssolved solıds (TDS) content of approxımately 250 mıllıgrams per lıter, and ıs generally of good qualıty

Shallow ground water Operators of the Bountıful Samtary Landfill have had a shallow ground water momtorıng system m place and operatıng for many years Based on the ınformatıon obtaıned from thıs program, ıt has been determıned that unlıke the deeper groımd water, the background qualıty of the uppermost ground water ıs poor, and ıs of no benefıcıal use Due to the age of the landfill, (refuse has been beıng deposıted ın thıs area sınce approxımately 1960) ıt ıs not possıble to determıne the background qualıty of the ground water prıor to any landfillmg actıvıtıes It ıs expected however, that the shallow groımd water ın the area has always been of poor qualıty and lacked benefıcıal use due to the natural envıronmental condıtıons Many of the "Constıtuents for Detectıon Momtorıng" m sectıon R-315-308-4 of the "Solıd Waste Permıttıng and Management Rules" are detected both upgradıent and down gradıent from the landfill

As would be expected, the ground water qualıty becomes substantıally degraded as ıt moves closer to the Great Salt Lake Thıs ıs due to lake water ıntrusıon ınto the water bearıng strata Lake water ıntrusıon would cause an ıncrease ın total dıssolved solıds and many of the major ıons Thıs theory ıs valıdated by the data obtaıned durıng the ground water momtorıng program

Ground water momtormg reports have been submıtted over the years to the Utah Department of Envıronmental Qualıty (DEQ) offices These reports contaın the results of the momtormg that has been done from the landfill's momtorıng wells A statıstıcal analysıs of the groundwater momtorıng data at the landfill has been submıtted annually to the DEQ sınce January 1999 Landfill operators wıll contınue to work closely wıth regulators ın order to ensure that all necessary ınformatıon ıs obtaıned and all groundwater qualıty concerns are addressed at the landfill

Site Water Balance

A water balance for the landfill was calculated by James M Montgomery Consulting Engineers, Inc (JMM) in their report entitled "Groundwater Quality Assessment Report for the BARD Landfill" The calculated water balance is attached in Appendix J

Conceptual Design of Ground Water Monitoring System

The groundwater monitoring system at the landfill site was developed and installed in at least three phases Well numbers DC-1 through DC-4 were installed in 1985 by the Davis County Health Department The intent of these wells was to provide one upgradient and three down gradient monitoring wells at the landfill site Typical monitoring well schematics, and logs of the borings performed are attached in Appendix J

In 1988, James M Montgomery Consulting Engineers, Inc performed a detailed assessment of the groundwater at the site which included placing eight additional ground water monitoring wells (JMM-1 through JMM-8), and seven deeper piezometers (P-1 through P-5, and P-7 & P-8) at the site All piezometers are located within 15 feet of a shallow monitoring well for the purpose of determining the presence and magnitude of upward artesian pressure in the deeper water bearing zones JMM consultants described the rationale used in determining monitoring well locations as follows

MONITORING WELL DESIGNATION	RATIONALE
JMM-1	Characterize shallow upgradient ground water quality at a distance from the south side of the landfill

JMM-2	Examine shallow upgradient ground water quality adjacent to the southwest landfill property corner
JMM-3	Characterize shallow upgradient ground water quality at a distance from the east side of the landfill
JMM-4	Examine shallow ground water quality along the east side of the landfill property
JMM-5	This well is screened in the refuse It's purpose is to characterize the chemical composition of the groundwater in the refuse for comparison with other wells at the landfill
JMM-6	Examine shallow down gradient ground water quality along the west boundary of the landfill property
JMM-7	Examine shallow down gradient ground water quality along the north boundary of the landfill property

JMM-8	Examine shallow down gradient groundwater quality at the northeast property corner

Commonly accepted practice was employed in placing the above described wells Based on the serviceability of the wells over the past several years, this appears to be the case Silt in the wells is minimal, and there appears to be no surface contamination of the ground water due to improper installation of the wells Typical monitoring well schematics, and logs of the borings performed by JMM in 1988 are attached in Appendix J

Several consultants have prepared reports dealing with the geology and hydrogeology at and around the landfill site Considerable time has been spent in reviewing the well schematics, boring logs, and soil profiles from these reports This review produced several concerns about the data provided by previous sampling and testing of groundwater These concerns included the following 1) that some of the wells on site are actually be placed through refuse, 2) that other wells may be placed through refuse, but the boring logs are unclear on this fact, 3) that the wells may not all be screened in the same water bearing zone, and 4)that the upgradient wells are placed at large distances from the landfill boundary Based on these concerns we made the decision to place one new upgradient well at the landfill boundary, and two new down gradient wells well outside of the area where any refuse is placed Well Schematics for these and boring logs for the new wells are attached in Appendix J Every effort was made to ensure that the concerns of the previous wells were addressed in the new wells The three new wells are used as background and compliance points

The ground water monitoring wells, and seven deep piezometers surrounding the landfill site appear to be sufficient to determine ground water quality and parameters of the aquifers as needed If it is determined that additional monitoring wells are necessary at the site, installation plans and specifications will be prepared and submitted

ENGINEERING REPORT

Refuse disposal operations at the location of the Bountiful Samtary Landfill began around 1960 At that tune mimmal considerations were given to environmental concems in landfill design, planmng and operation at the site The site was operated for many years as an open dump Later large trenches were excavated and filled with refuse Open burning was allowed, and refuse was accepted from most of South Davis County In the late 1970's and 1980's as landfill regulations began to be proposed and implemented nationwide the area began receiving attention from environmental regulatory agencies such as the U S Environmental Protection Agency and the Davis County Health Department Groundwater momtormg at the site began m 1985 by the Davis County Health Department In 1987, when Bountiful City became the sole owner/operator of the site, improvements at the site began which would bring the landfill into compliance with State and Federal Solid Waste Permitting and Management Rules and would eventually lead to the Bountiful Samtary Landfill obtaimng a Permit from the Department of Environmental Quality Division of Solid and Hazardous Waste (DEQDSHW) to operate a Class I Sanitary Landfill In 1988 landfill operators retained the services of James M Montgomery Consulting Engineers, Inc (JMM) to perform a detailed groundwater analysis at the site Over the next several years site improvements and operation enhancements were implemented Based on our Permit Application and proposed Plan of Operations at the Bountiful Samtary Landfill the City of obtamed a permit to operate a Class I Landfill from the DEQDSHW in June of 2000

The City currently operates the landfill in compliance with the State of Utah Department Environmental Quality, Division of Solid and Hazardous Waste, Solid Waste Permitting and Management Rules (R315-310 through 320) Continued operation of the Bountiful Sanitary Landfill as currently operating and in compliance with the Plan of Operation will accomplish the goal of ensuring environmentally sound landfill operations in the future

Location Standards

Because the Bountiful Sanitary Landfill is an "existing facility", the location standards for new facilities do not apply However, Bountiful Sanitary Landfill is in general compliance with the majority of these standards even though it is not required The areas specifically excluded from the exception for existing facilities are location standards pertaining to airports, unstable areas, and floodplains

Airports The nearest airport to the Bountiful Sanitary Landfill is the Sky Park Air Field located in Woods Cross, Utah The North end of the runway for this small airport is located approximately 2 4 miles south of the south border of the Bountiful Sanitary Landfill This airport services only piston type aircraft No turbojet aircraft use this air strip Birds attracted by landfill operations will not interfere with aircraft from this airport

The north end of the runway at the Salt Lake International Airport is located approximately 8 miles south of the south border of the Bountiful Sanitary Landfill This airport is used by many types of aircraft including large turbojets Due to the distance of the runway from the landfill, interference of birds attracted by the landfill with aircraft is not likely

Unstable Areas. Based on several Geological and Geotechnical reports performed in the area of the Bountiful Sanitary Landfill, and based on the definition of an "unstable area" in the Solid Waste Permitting and Management Rules, the Bountiful Sanitary Landfill is not in an unstable area

The site is flat, and lack of stability of natural slopes is not a problem Slope stability analyses were performed on slopes produced by landfilling operations Conservative values based on laboratory soils tests, experience and engineering judgement were used for refuse and soil parameters The values used are as follows

Refuse	Cohesion=0 0	Unit Weight=37 0 lb/ft^3	Friction Angle=25 0
Soil	Cohesion=50 0	Unit Weight=110 0 lb/ft^3	Friction Angle=30 0

The minimum factor of safety determined by Bishop Modified Method and Ordinary Method of Slices was 2 250 The program "JSLOPE" was used to determine various factors of safety based on a search for minimum factor of safety for various failure surfaces Some critical failure surfaces were plotted, and are shown in Appendix L The failure surface with the minimum factor of safety is also shown in Appendix L along with input and output data from the computer program

As discussed in the section of this application entitled “Geohydrological Assessment Report”, the Bountiful Sanitary Landfill is in a seismic impact zone However, because the landfill is an existing facility, regulations relating to seismic impact zones do not apply Even so, in order to increase our comfort level as well as that of state regulators, we performed a pseudo-static analysis of the landfill slopes under the same conditions as those described above, but including the added force which would be applied by earthquake movement In a pseudo-static analysis the horizontal seismic acceleration is conservatively assumed to be both undirectioinal and constant in its application, like a static dead load In fact, the seismic accelerations and resultant forces act in multiple directions with varying intensities over the period of the seismic event Since the varying intensities of the seismic loads tend to be less than the loads resulting from the assumed peak accelerations, assuming a constant loading equivalent to the peak acceleration is a very conservative assumption A seismic force of 0 2g was applied both at the base and at the center of each slice in the above described slope stability analysis In both cases, all factors of safety remained above 1 Input and output data from the computer program can be found in Appendix L

The thick saturated clay layers at the site are subject to consolidation when the soil overburden pressure is increased Therefore as the refuse fill at the site progresses, settlement is anticipated In an attempt to ensure proper runoff of storm water from the landfill surface, final slopes have been designed to tolerate consolidation of sub-layers, and still maintain proper slope Also, quarterly inspections will include a check of slopes and cover to detect unacceptable amounts of settling Any noted settlement will be immediately repaired Any cracks developed in the cover due to settlement will also be immediately repaired

Floodplains. As discussed earlier, the Bountiful Sanitary Landfill is located east of the east shore of the Great Salt Lake In the early to mid 1980's the level of the lake rose substantially to levels which caused it to nearly surround the landfill All sides were bordered by lake water except the southeast comer of the landfill in the area of the entrance gate Improvements to the landfill site during this time proved effective in preventing washout of solid waste from the landfill site The improvements at the site included building and upgrading berms and dikes around the landfill, and providing rip-rap material to prevent erosion These dikes and berms are maintained in good condition in order to remain prepared should the level of the lake rise as it did in the early to mid 1980's

The size of the floodplain of the Great Salt Lake is very large in relation to the size of the Bountiful Sanitary Landfill Therefore any reduction in floodplain capacity, or restriction of flow caused by landfilling operations is insignificant

Landfill Design and Operation

The Bountiful Sanitary Landfill has been designed by employing current and commonly accepted engineering practice The facility is designed to provide economical disposal of the solid waste generated within the limits of Bountiful City and to provide both economical and environmentally sound landfill operation This is accomplished by complying with the landfill specifications and design parameters, and following the approved Plan of Operation contained in this permit application

Cell Design. Landfill cells have been designed to maximize available space, to provide easy access to the working face for equipment and haul vehicles, and minimize run-on to the active landfill face Run-on and run-off control have been considered

Fill at the Bountiful Sanitary Landfill will be performed using a modified area fill method The modification is due to the desire to make use of any available cover material used previously in providing interim soil cover and run-off measures In areas where more than one foot of cover material is available for recovery, a trench will be excavated to the bottom of the excess cover material prior to placing the initial lift of refuse The soil excavated will be stockpiled and subsequently reused for interim and final cover on the new lifts This will occur on the first lift in each area of the landfill The remainder of the lifts will employ standard area fill procedures

A cell will consist of one lift ranging in thickness from ten feet thick on the east edge of the landfill and tapering on a slope of 1% or greater to meet the existing grade on the west end This will provide drainage away from the active face, and will allow drainage toward the run-off retention pond located on the west edge of the landfill

General Daily Operation. Refuse delivered to the landfill site first undergos initial screening at the scale to determine if any suspicious, or hazardous materials are present, and to determine if any portion of the load can be deposited in the recycling bins, branch chipping pile or composting areas If nothing is noted that requires special handling procedures or further inspection, the load is weighed, and directed to the working face of the landfill to be unloaded All refuse is placed at the toe of the active face of the landfill, and landfill personnel and equipment spread the refuse in layers of approximately two to three feet thick Each layer is compacted by approximately 3-5 passes over the refuse with compaction equipment Daily cover consists of six inches of compacted soil or other approved alternative cover, which will be placed over the active face at the end of each working day Detailed operating procedures are outlined in the attached "Plan of Operations", and "Landfill Specifications"

Cover Soil Soil for daily and interim cover at the landfill is imported to the site by landfill operators or other haulers Landfill operators accept clean soil delivered to the site and placed as requested by the on-site supervisor in useable quantities at no charge to the hauler If additional soil is needed for daily or interim cover for landfill operations, Bountiful City personnel and equipment transport and place the soil

Interim cover is placed at the top of each lift, consisting of an additional six inches of soil for a total interim cover thickness of 12 inches This cover is placed on all areas which are to receive at least one additional lift of refuse pnor to receiving final cover The soil for intenm cover comes from the same source as does the daily cover

Final cover soil will be obtamed from on site stockpiles Large quantities of low permeability clay were excavated from an area south of the landfill Much of this soil was used as intenm cover and to provide positive drainage on the south half of the landfill and can be reclaimed for use as final cover Some of the soil was stock piled on site for use as final cover and to constmct the dikes in the storm water retention pond Initially, approximately 640,000 cubic yards were excavated for use at the landfill Cunently approximately 500,000 cubic yards are available for use as final cover, approximately 400,000 of which can be reclaimed from the intenm cover on the south half of the landfill Approximately 260,000 cubic yards of clay plus approximately 200,000 cubic yards of topsoil will be necessary to provide final cover

Soil Liner. Because the Bountiful Sanitary Landfill is an existing facility, an engineered liner at the site is not requred However, the natural low permeability soil underlying the landfill serves as a liner, and prevents the vertical migration of leachate from the landfill The permeability of the natural clay liner which underlies the Bountiful Samtary Landfill was determined by laboratory testing of undisturbed samples These tests determined the m place permeability of the soil to be approximately 10^{-8} cm/s

Leachate Collection, Treatment, and Disposal System. Because no lmer is required at the landfill, no leachate collection, treatment or disposal is currently planned at the site Improved run-on and run-off control, combined with the relatively dry climate will mimmize the potential for leachate production and migration

Run-on/Run-off Control System A run-off collection pond designed to retain the runoff from the active face of the landfill dunng a 24 hour 25 year storm has been designed and constmcted at the landfill Refuse fill areas and cover will be constmcted and graded to drain away from the active face of the landfill All runoff from the active face of the landfill will be collected and drained to the run-off collection pond

The run-off collection pond is constructed of low permeability clay soil obtained on site This soil has been compacted and tested in the laboratory The permeability of the soil was determined to be 1 2 x 10^{-7} cm/sec when compacted to 95% of maxmium density as determined by a Standard Proctor At least two feet of compacted soil constitutes the pond liner All run-off water retained by the pond will be allowed to evaporate No run-off water from the active face will be released from the landfill site

Closure and Post Closure Design. The closure and post closure plans have been designed in accordance with applicable design parameters of the Division of Solid and Hazardous Waste Administrative Rules

The intent of the closure plan design is to minimize the need for maintenance, minimize the threat to human health and the environment from post closure escape of solid waste constituents, leachate, landfill gasses, contaminated runoff or waste decomposition products to the ground, ground water, and surface water, and to prepare the facility for the post closure period

The intent of the post closure plan design is to provide continued facility maintenance and monitoring of gasses, land, and ground water, and to provide for timely maintenance of noted deterioration or wear of any of the protective or monitoring systems

Detailed descriptions of the closure, and post closure plans are found in the " General Report" section of this application

Currently, nearly all of the property surrounding the landfill is owned by Bountiful City That which is not owned by Bountiful City is zoned by Davis County as A-1 and A-5 No decision has been established relating to future use of the landfill site, but some speculation indicates recreational uses are anticipated It is not anticipated that any change in ownership will be necessary upon completion of closure and post closure activities

Appendix A

Proof of Ownership

Recorded at Request of RETURNED E# 949279 BK 1452 PG 884
CAROL DEAN PAGE, DAVIS CNTY RECORDER
1991 NOV 25 3 47 PM FEE 7 00 DEP SMH
REC'D FOR BOUNTIFUL CITY

at ______ M Fee Paid $ NOV 25 1991

by ______ Dep Book ______ Page ______ Ref ______

Mail tax notice to HALVOR M. OLSEN Address 936 W PAGES LANE
WEST BOUNTIFUL, UT

SPECIAL WARRANTY DEED

SE 14, 2N-1W

[CORPORATE FORM]

Bountiful City a corporation organized and existing under the laws of the State of Utah with its principal office at Bountiful City of County of Davis State of Utah grantor hereby CONVEYS AND WARRANTS against all claiming by through or under it to

Ruby Annetta Miller Olsen Family Ltd Partnership

grantee of State of Utah for the sum of One Dollar ($1 00) and other good and valuable consideration DOLLARS the following described tract of land in County, State of Utah

Beginning at a point which is S89°47 11 W 261 14 ft along the quarter section line from the northeast corner of the southeast 1/4 of Section 14 T 2N, R 1W SLB&M and running thence S89°47 11 W 316 96 ft along said quarter section line, thence S27 55 11' W 318 01 ft more or less to the center line of a street and the south line of grantors property thence N89 47 11"E 428 53 ft along the centerline of said street and said south line of property to the West line of a street at a point 301 10 ft West of the East line of said Section 14 thence N7°34 45'E 283 05 ft more or less along the West line of said street to THE POINT OF BEGINNING

Containing 2 3997 acres

Pt 06-027-0035

The officers who sign this deed hereby certify that this deed and the transfer represented thereby was duly authorized under a resolution duly adopted by the board of directors of the grantor at a lawful meeting duly held and attended by a quorum

In witness whereof the grantor has caused its corporate name and seal to be hereunto affixed by its duly authorized officers this 22nd day of October A D 1991

Attest

Arden F Jenson
Recorder ~~Secretary~~

[CORPORATE SEAL]

By Robert D Linnell
ROBERT D LINNELL
Mayor ~~President~~

STATE OF UTAH
County of Davis } ss

On the 14th day day of November, A D 1991 personally appeared before me Robert D Linnell and Arden F Jenson who being by me duly sworn did say each for himself that he the said Robert D Linnell is the Mayor ~~president~~ and he the said Arden F Jenson is the ~~secretary~~ Recorder of Bountiful, a Municipal Corporation and that the within and foregoing instrument was signed in behalf of said corporation by authority of a ~~resolution of its board of~~ City Council ~~directors~~ Robert D Linnell and Arden F Jenson each duly acknowledged to me that said corporation executed the same and that the seal affixed is the seal of said corporation

NOTARY PUBLIC
LAYNE G FORBES
790 South 100 East
Bountiful Utah 84010
My Commission Expires
August 1 1993
STATE OF UTAH

My commission expires ______

Layne G Forbes
Notary Public

My residence is ______

NE 14-2N-1W

E 948105 BK 1450 PG 545
CAROL DEAN PAGE DAVIS CNTY RECORDER
1991 NOV 14 2:42 PM FEE .00 DEP JB
REC'D FOR BOUNTIFUL CITY

Recorded at Request of

at M Fee Paid $

by Dep Book Page Ref RETURNED

Mail tax notice to Address NOV 14 1991

WARRANTY DEED

(Special)

Ruby Annetta Miller Olsen Family Ltd Partnership grantor

of hereby

CONVEY AND WARRANT against all claiming by, through or under

to

The city of Bountiful grantee

of State of Utah for the sum of

One Dollar ($1 00) ——————————————— DOLLARS,
and other good and valuable consideration
the following described tract of land in Davis County

State of Utah

Beginning on the westerly line of the E 1/2, NE 1/4, of Section 14, at a point S89°47'11"W 1317 97 ft along the 1/4 section line and N0°34'39"W 6 83 ft along said westerly line from the East 1/4 corner of said Section 14, T 2N, R 1W, SLB&M and running thence N0°34'39" W 444 33 ft along said westerly line which is the westerly line of the grantors land, thence N89°04 49"E 399 98 ft along the northerly property fence line of said grantors land to the point of contact with a 430 00 ft radius curve to the left (Note Bearing of radius at said point of contact is S52 45 21"E), thence southwesterly 0 38 ft along the arc of said curve through a central angle of 0°02'25", thence S37°12'14"W 402 64 ft to the point of tangency with a 470 00 ft radius curve to the right, thence southwesterly 201 26 ft along the arc of said 470 00 ft radius curve through a central angle of 24 32 06" to THE POINT OF BEGINNING

pt 06-026-0016

Containing 2 2691 Acres

WITNESS the hand of said grantor this 21st day of October, A D 1991

Signed in the Presence of

Halvor M Olsen
General Partner

ACCEPTED FOR BOUNTIFUL City By
City Engineer

STATE OF UTAH,
} ss
County of Davis

On the 21st day of October, A D 19 91
personally appeared before me Halvor M Olsen

the signer of the within instrument who duly acknowledged to me that he executed the same

JUDY HATCHER
Notary Public

Judy Hatcher
Notary Public

My commission expires

Residing in Bountiful, Utah

37

552

99762 SE1/4 14 2N 1W

Recorded at Request of NOV 10 1947

at 10 00 A M Fee Paid $ no fee

by Afton Hatch Dep Book 2 E of Deeds Page 552 Ref

Platted ☑ Abstracted ☑

Indexed ☑

Compared ☐ Entered ☑

Mail tax notice to Address

WARRANTY DEED

IRA WAITE, a widower, grantor

of Bountiful, County of Davis State of Utah hereby

CONVEY and WARRANT to BOUNTIFUL CITI, a Municipal Corporation of tho State of Utah,

grantee

of Bountiful, County of Davis State of Utah

for the sum of TEN and No/100 - DOLLARS and other good and valuable consideration,

the following described tract of land in Davis County

State of Utah, to-wit

Beginning at a point 261 14 feet West of the Northeast corner of the Southeast quarter of Section 14, Township 2 North, Range 1 West, Salt Lake Meridian, and running thence West 1058 86 feet, thence South 59° East 8 25 chains, more or less, to the center of a street, thence East along the center of said street 552 28 feet, more or less, to the West line of a street at a point 301 1 feet West of tho East line of said Section 14, thence Northeasterly along the West line of said street to the point of beginning

WITNESS the hand of said grantor, this 31st day of October, A D 1947

Signed in the presence of Jed R Stringham

Ira W Waite

STATE OF UTAH
County of DAVIS } ss

On the 31st day of October, A.D 1947 personally appeared before me IRA WAITE, a widower, the signer of the within instrument who duly acknowledged to me that he executed the same

MICROFILMED MAY 1978

Leland H Sessions
Notary Public

My commission expires April 17, 1948 My residence is Bountiful, Utah

THIS DEED PRINTED ESPECIALLY FOR PHOTO RECORDING USE BLACK INK AND TYPE

3-37

HAROLD P FABIAN
BEVERLY S CLENDENIN
D HOWE MOFFAT
RENDELL N MABEY
PETER W BILLINGS

FABIAN, CLENDENIN MOFFAT & MABEY
ATTORNEYS AND COUNSELORS AT LAW
CONTINENTAL BANK BUILDING
SALT LAKE CITY I UTAH

September 6, 1947.

Bountiful City Council
Bountiful, Utah

TITLE OPINION

Real estate situated in Davis County, Utah, to-wit

Beginning at a point 261.14 feet West of the Northeast corner of the Southeast quarter of Section 14, Township 2 North, Range 1 West, Salt Lake Meridian, and running thence West 1058.86 feet, thence South 59° East 8.25 chains, more or less, to the center of a street, thence East along the center of said street 552 28 feet, more or less, to the West line of a street at a point 301.1 feet West of the East line of said Section 14, thence Northeasterly along the West line of said street to the point of beginning.

Abstract of Title D15282

Prepared by Security Title Company.

This abstract begins with a United States Patent to John A Waite, which was recorded in Book "K" of Deeds at Page 622, and consists of 9 pages numbered 1 to 9, both inclusive, certified to the 27th day of August, 1947, at 8:55 o'clock a.m. by Security Title Company, together with a plat showing the location of the property under search.

OPINION

From an examination of the hereinbefore described abstract, we are of the opinion that as of the time and date of the last certificate therein, to-wit the 27th day of August, 1947, at 8:55 o'clock a.m., the fee simple title to the hereinbefore described real estate was vested in Ira Waite as shown by warranty deed at Page 3, subject to the following:

1. Right-of-way to Telluride Power Company as shown at Page 2.

Page Two
Bountiful
9-6-47

2. Right-of-way to Telluride Power Company as snown at Page 4.

3. Right-of-way and easement to Utah Power Company as snown at Page 5.

4. Right-of-way to Utah Oil Refining Company as shown at Page 9.

5. Taxes for 1947 are a lien but not yet due.

Attention is called to the fact that the abstract does not show the rignts, if any, of parties in possession, tne rignts, if any, of laoorers or material men to file mechanics' liens, the statutory tine for filing wnicn liens had not expired at the time of the last certificate of the abstract, nor taxes on personal property, if any, not listed with property on the assessment rolls.

Herewith we return the above described abstract.

Very truly yours,

Rendell N. Mabey

RNM/ler
Enc.

SUPPLEMENTAL

Abstract of Title

TO PROPERTY DESCRIBED ON THE CERTIFICATE PAGE OF THIS ABSTRACT

PREPARED BY

SECURITY TITLE COMPANY

FARMINGTON, UTAH

SALT LAKE CITY 1, UTAH

PHONE 3 5841

MEMBER AMERICAN TITLE ASSOCIATION

Form No 1

IRA WAITE, a widower, -to- BOUNTIFUL CITY, a Municipal Corporation of the State of Utah.	**KIND OF INSTRUMENT** WARRANTY DEED **DATED** October 31, 1947 **ACKNOWLEDGED** October 31, 1947 **BEFORE** Leland H Sessions, N.P. Bountiful, Utah (Seal) Com Expires April 17, 1948 By Ira Waite, a widower. $1 10 I. R. Stamps Affixed. **RECORDED** November 10, 1947 **BOOK** "2-E" **PAGE** 552 **OF** Deeds. **CONSIDERATION** $10.00 and other good and valuable considerations.

WORDS OF GRANT

CONVEY AND WARRANT the following described tract of land in Davis County, State of Utah, to-wit

Beginning at a point 241.14 feet West of the Northeast corner of the Southeast quarter of Section 14, Township 2 North, Range 1 West, Salt Lake Meridian, and running thence West 1058.86 feet, thence South 59° East 8.25 chains, more or less to the center of a street, thence East along the center of said street 552.28 feet, more or less, to the West line of a street at a point 301.1 feet West of the East line of said Section 14, thence Northeasterly along the West line of said street to the point of beginning.

SIGNATURES Ira Waite.

MAY 1978

To the Honorable Board of
County Commissioners of
Davis County, State of Utah:

P TITION FOR INCORPORATION OF
THE TOWN OF WEST BOUNTIFUL

Dated August 18, 1948
Affidavit of Robert W. Telford
and Newell P. Parkin, appended.
Sub. & Sworn to November 27, 1948
Before Keith L. Stahla, N.P.
Bountiful, Utah (Seal)
Com. Expires May 15, 1951
Recorded December 31, 1948
Entry #105065.

The undersigned electors, constituting a majority of the electors within the territory described below, containing a population of more than one hundred and less than seven thousand inhabitants, desiring to incorporate a town government and a body corporate and politic under the provisions of Section 15-2-6, Utah Code Annotated, 1943, hereby petition your Honorable Body to incorporate the territory of Davis County, Utah, herein described, and as shown by an accurate Plat marked Exhibit "A" attached hereto and made a part hereof, setting forth the exterior boundaries of said territory, into a Town Government and a body corporate and politic according to law.

That the area to be embraced within said Town is particularly described as follows:

Commencing at the intersection of the West line of U. S. Highway No. 91 (New Highway) and the Center line of Fifth South Street, at a point approximately 2.5 chains West and 8.18 chains South from the Northeast Corner of Section 25, Township 2 North, Range 1 West, Salt Lake Meridian, United States Survey, and running thence Westerly along said Center line of Fifth South Street, 38.00 chains, more or less, to the East line of the right of way of the O. S. L. RR Co; thence South 19°50' West along said East line of right of way, 354 feet, more or less, to a point 300 feet South of the South line of said Fifth South Street; thence Westerly parallel with said South line of Fifth South Street and 300 feet distant South therefrom 40.4 chains, more or less, to a point in the Northeast Quarter of Section 26, Township 2 North, Range 1 West, Salt Lake Meridian, 775 feet West of the West line of Section 25, Township 2 North, Range 1 West; thence Northerly parallel with said West line of Sections 25, 24 & 13 and 775 ft. distant west therefrom, 133.645 chains, more or less, to the North line of the Southeast Quarter of Section 14, Township and Range aforesaid; and running thence East along said Quarter Section line of Section 14, and the Quarter Section lines of Section 13, Township and Range aforesaid, 90.8 chains, more or less, to the West line of said U. S. Highway No. 91; thence Southerly along said West line of U. S. Highway No. 91, 64.275 chains, more or less, to the North line of land of Harvey Thomas and Victoria Thomas; thence West along said North line of land, 384.21 feet; thence South 15 rods; thence East 384.21 feet to said West line of U. S. Highway No. 91; thence South along said West line of Highway, 399.85 feet, more or less, to the North line of land of Walter V. Nelson and Amy S. Nelson; thence West along said North line of land, 252 feet; thence South 110 feet; thence West 40.05 feet, thence South 1110.5 feet, more or less, to the North

(Continued)

Continuation of PETITION, Entry #105065.

line of land of David L. Holbrook; thence East along said North line of land, 17.7 rods to said West line of Highway; thence South along said West line of Highway, 9 rods 14 feet and 10 inches to land of George W. Walker and Martha S. Walker; thence West along said North line of land, 17.7 rods; thence South 19 rods 12.5 feet 8 inches, more or less, to the South line of the Southeast Quarter of Section 24, Township and Range aforesaid; thence East 17.7 rods to said West line of Highway; thence South 8.18 chains, more or less, to the point of commencement.

That the name of said incorporated territory be Town of West Bountiful; and that a President and Board of Four Trustees of said Town be appointed to hold office until the next municipal election and until their successors are elected and qualified.

SIGNED: Lano C Hesn
Jared Brown
Orla P. Hillhouse
and 210 other names.

RESOLUTION APPROVING THE PETITION FOR INCORPORATION OF THE TOWN OF WEST BOUNTIFUL AND APPOINTING OFFICERS THEREFOR.

WHEREAS, a petition has been presented to this Board for the incorporation of the Town of West Bountiful, which petition has been subscribed by a majority of the electors residing within the area described, and

WHEREAS, it appears from said petition, duly verified, that there are residing within the unincorporated territory therein described, a population of not less than 100 but less than 7000, and

WHEREAS, the County Attorney of Davis County has approved the form and sufficiency of said petition, and it appears that said petition and the accompanying plat showing the boundaries of said proposed town are in good order and conform to the Statutes of the State of Utah,

NOW THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF DAVIS COUNTY, STATE OF UTAH, IN REGULAR SESSION ASSEMBLED:

1. That the petition for the incorporation of said Town of West Bountiful, hereinabove referred to, be and the same is hereby approved.

(Continued)

Contimation of P TITICN. Entry #105065.

2. That upon tho filing of a copy of said petition togothor with a copy of the plat attached thereto with the County Recorder of Davis County, Utah, said Town shall constitute a body corporate anc politic uncer the nama and style of "Town of West Bountiful".

3. That the following nared electors, residents of said Town of West Bountiful, bo and thoy are hereby appointed to the respectivo positions sot opposite their nares, to hold office until the next municipal election and until their successors are elected anc qualified:

Nouell P. Parkin, Presicent of Board of Tructoeo of Town of West Bountiful;

Pobort W. Telford, Mencer of Board of Trustees of Town of West Bountiful;

Leland R. Snith, Menbor of Board of Trustees of Town of West Bountiful;

George B. Mann, Menoor of Board of Truatoos of Town of West Bountiful;

Jarcd Brown, Menbor of Board of Trustees of Town of West Bountiful;

Adopted by the Board of County Commissioners of Davis County, Utah, and approved by tho Chaircan thorecf this 27th cay of Docomber, 1948.

SIGNED: Eugeno C. Ford
Chairman Board of County Commissionere.
ATTEST: Pyrum C Brough, County Clerk
(Seal)

CERTIFICATE

STATE OF UTAH } ss
COUNTY OF DAVIS

SECURITY TITLE COMPANY a corporation organized and existirg under the laws of the State of Utah hereby CERTIFIES that the foregoing abstract consisting of pages numbered from 10 to 13, - both inclusive Is a true and correct abstract of the following

1 All Instruments (including Federal Tax Liens) filed or recorded in the Office of the County Recorder of said County and State SINCE the 27th oay of August, A. D 1947 at 8 55 A. M. that reter to or in any manner affect the title to the following described land situate in said County and State to-wit

Beginning at a point 261.14 feet West of the Northeast corner of the Southeast quarter of Section 14, Township 2 Nortn, Fange 1 West, Salt Lake Meridian, and running thence West 1058 86 feet, thence South 59° East 8.25 chains, more or less, to the center of a street, thence East along the center of said street 552 28 feet, more or less, to the West line of a street at a point 301 1 feet West of the East line of said Section 14, thence Northeasterly along the West line of said street to the point of beginning.

2 All subsisting JUDGMENTS and all TAX LIENS appearing upon the Dockets of the District Court for said County and State and ALL PETITIONS FOR DEBTOR S RELIEF not now discharged and appearing of record in the Office of the Clerk of the United States District Court for the District of Utah indexed under the names of Ira Waite, since the date above written, to and including November 10, 1947, or Bountiful City, within eight years last past.

3 ALL TAX SALES and DELINQUENT TAXES against said land appearing upon the records of the Treasurer of said County and State since the date first above wntten

Taxes for 1949 are now a lien but not yet due.

4 (This Certificate does not include taxes on Personal Property not listed with said land on the Assessment Rolls)

5 This Certificate does not include an examination of or a report upon special assessment levied for local improvements by any town or city

6 And the above land is not located within any incorporated City Irrigation District or other Governmental body which has the power to levy taxes or assessments EXCEPT as herein shown

7 This Certificate does not cover crop or chattel mortgages

IN WITNESS WHEREOF the said Company has caused this Certificate to be signed by its duly authorized officer and its Seal affixed this 9th day of September, A. D 1949 at 8 55 A. M.

SECURITY TITLE COMPANY

By [signature]
Registered Abstracter

Form 20

MICROFILMED
MAY 1978

HAROLD P FABIAN
BEVERLY S CLENDENIN
D HOWE MOFFAT
RENDELL N MABEY
PETER W BILLINGS
MAX B LEWIS

FABIAN CLENDENIN MOFFAT & MABEY
ATTORNEYS AND COUNSELORS AT LAW
CONTINENTAL BANK BUILDING
SALT LAKE CITY 1 UTAH

September 27, 1949

Bountiful City Council
Bountiful, Utah

SUPPLEMENTAL TITLE OPINION

Real estate situated in Davis County, Utah, to-wit:

Beginning at a point 271.14 feet West of the Southeast corner of the Southeast Quarter of Section 14, Township 2 North, Range 1 East, Salt Lake Meridian, and running thence West 100[illegible] feet, thence South 58 deg. West 8.[illegible] chains, more or less, to the center of a street, thence East along the center of said street 5[illegible] feet, more or less, to the West line of a street to a point 501 1 feet West of the East line of said Section 14, thence Southeasterly along the West line of said street to the point of beginning.

Abstract of Title
[illegible]

[illegible] Title Company

[illegible] 1947 [illegible] 1947 [illegible] o'clock [illegible] Title Company, [illegible] property [illegible] supplemental abstract consisting of [illegible] 10, 11, 12 and 13 [illegible] of September, 1949 at [illegible] o'clock [illegible] upon which this opinion is [illegible].

[illegible]

From an examination of [illegible] September, 1949 at [illegible] o'clock [illegible] fee simple title to the hereinbefore described real estate [illegible] Bountiful City, a municipal corporation [illegible] simple [illegible] subject to the following:

1. [illegible]

2. [illegible] Page 4.

3. [illegible]

MICROFILMED

[illegible]

1916

4. Right-of-way to Utah Oil Refining Company as shown at Page 9

5. The property under search according to Pages 11, 12 and 13 is not situated within the incorporated town of West Bountiful, Utah.

6. 1949 taxes are a lien but not yet due.

Attention is called to the fact that the abstract does not show the rights, if any, of parties in possession; the rights, if any, of laborers or material men to file mechanics' liens, the statutory time for filing which liens had not expired at the time of the last certificate of the abstract; nor taxes on personal property, if any, not listed with property on the assessment rolls.

Herewith we return the abstract above referred to.

Very truly yours,

Rendell N. Mabey

RNM
lnc

Ira Waite and
Stella Waite, his wife,

-to-

Utah Power Company,
a Maine Corporation.

RIGHT OF WAY EASEMENT

Dated June 20, 1913
Ack'd July 15, 1913
Before Nephi Palmer, N.P.
Davis County, Utah (Seal)
Com. Expires Aug. 20, 1913
By Ira Waite and
Stella Waite, his wife.
Recorded August 9, 1913
Book "D" Page 536 of L. & L.
Cons. $1.00 and other valuable
considerations.

SELL AND CONVEY an easement and right of way, and the right, privilege and authority to construct, erect, operate and maintain, a line or lines for the purpose of transmitting electric or other power, and telegraph and telephone lines, in, upon, along, over, through across and under a piece of land 150 feet in width, situated in the County of Davis and State of Utah, and more particularly described as follows, to wit:

Beginning at a point 650 feet West of the ¼ Sec. corner between Secs. 13 and 14, T. 2 N., R. 1 W., S.L.B.&M., and running thence West a distance of 170 feet, more or less, thence S. 25° [illegible] E., a distance of 377 feet, more or less; thence East a distance of 170 feet more or less thence N. 25° [illegible] E., a distance of 377 feet, more or less to the place of beginning; all in the [illegible] T. 2 N., R. 1 W., S.L.B.&M.

Together with the right to place, erect, relocate, inspect and operate thereon, poles, towers, crossarms, and fixtures, and to place and maintain such other appurtenances useful or necessary to operate said line or lines, and string wires and cables from time to time, thereon, through, under or over, the above described premises. However, as to the number of towers and poles to be placed upon said land hereunder, it is understood and agreed that only one towers shall be placed upon said land under this easement for the above consideration; but if at any time the grantee shall desire to erect and maintain additional towers or poles upon said land it may do so under this easement by paying to the then owner of said land the further sum of $10.00 for each tower so placed and maintained and the further sum of $5.00 for each pole so placed and maintained); also the right and privilege to cut and remove from said premises, and on either side thereof, any timber, trees or overhanging branches, or other obstruction, which do or may endanger the safety, or interfere with the use of said poles or towers or fixtures or wires thereto attached, and the right of ingress and egress, to and over the above described premises for the purpose of repairing, renewing and inspecting said poles, towers, fixtures, wires and appurtenances, and for doing anything necessary, useful or convenient for the enjoyment of the easement herein granted; also the privilege or removing at any time any or all of said improvements upon, over, under or on said lands.

SIGNED: Ira Waite
Stella Waite.

Jobs A. Walte, a widower,

-to-

UTAH POWER COMPANY, a Maine Corporation.

RIGHT OF WAY EASEMENT

Dated Juoo 20, 1913
Recorded August 9, 1913
Book "D" Page 570 of L.L.
Cons. $1.00 and other valuable consideration.

HEREBY GRANTS, bargains, sells and conveys to said Utah Power Company, its successors and assigns, an easement and right of way and the right, privilege and authority to construct, erect, operate and maintain a line or lines, for the purpose of transmitting electric or otherpower and telegraph and telephone lines, in, upon, along, over, through, across and under a piece of land 150 feet in width, situated in the County of Davis, and State of Utah, and more particularly described as follows, to-wit:

Beginning at a point 658 feet West and S. 28 deg. 8 Min. W. a distance of 347 feet from the 1/4 Sec. corner between Secs. 13 and 14, T.2N., R.1W., S.L.B.&M. and running thence S 28 deg. 8 Min. W. a distance of 858 feet, more or less, thence West a distance of 85 feet, more or less, thence North a distance of 160 feet, more or less, thence N 28 deg. 8 Min. E. a distance of 710 feet, more or less, thence East a distance of 170 feet to the place of beginning, all in the NE¼ of SE¼ Sec. 14, T2N, R1W, SLB&M.

Together with the rights to grantee, its successors and assigns, to place, erect, relocate, inspect and operate thereon, poles, towers, cross-arms and fixtures and to place and maintain such other appurtenances useful or necessary to operate said line or lines, and string wires and cables from time to time across, through under or over the above described premises.

SIGNED: John A. Waite

Ack'd June 30, 1913, before Nephi Palmer, N.P., State of Utah (Seal) Com. Expires Aug. 20, 1913, by John A. Waite.

Also page 1, 5 & 9 of attached abstract

MICROFILMED
MAY 1978

Ira Waite and Ste'la Waito, his wife,

-to-

Utah Power & light Company, a corporation.

TRANSMISSION LINE EASEMENT

Dated Fobroary 13, 1917
Recorded June 13, 1917
Book "F" Page 48 of C.R.
Entry No. 25694
Cons. $1.00 and other valuable consideration.

CONVEY AND WARRANT a perpetual easement and right of wey for the erection and continued maintenance, repair, alteration, inspection, re-location and replaconent of the electric transmiacion distribution, tolsphono and tolegraph circuits of the Grantee, and no poles or towers, with the necossary guys, stubs, cross-arms and other attachments thereon, or affixed thereto, for the support of said circuits, under, upon and across a tract of land fifty (50) feet in width, belonging to tho Grantors, In Davis County, Utah, described as follows: Twanty-five (25) feet on each side of a line:

Commencing on the South boundary of Grantor's land 732 foat West of a point 325 feet South of the East ¼ corner Sec. 14, Tp. 2 N., R. 1 W., S.L.M. - thence running N. 2S.D8' East 360 feet to North boundary of Grentor's land; all contained within the N.E. ¼ of S.E. ¼, Sec. 14, said Tounship and Range.

Together with all rights of ingress and egress necessary or convenient for the full and complete use, occupation and enjoyment of the easement hereby granted, end all rights and privileges incident thereto, including the right to cut and remove timber, trees, brush, overhanging branches and other obstructions which may injure or interfero with the Grantee's use, occupation or enjoyment of this easement.

SIGNED- Ira Walta
Stella Walta

Ack'd February 13, 1917, before R.C. Willey, N.P., State of Utah (Seal) Com. Expires Feb. 4, 1921, by Ira Waite end Stella Waite, his wife.

MICROFILMED
MAY 1978

John A. Waite, a
widower,

-to-

UTAH POWER & LIGHT COMPANY,
a corporation.

TRANSMISSION LINE EASEMENT

Dated February 7, 1917
Recorded June 13, 1917
Book "P" Page 48 of L. & L.
Entry No. 25693
Cons. $1100 and other
valuable consideration.

CONVEYS AND WARRANTS a perpetual easement and right of way for the erection and continued maintenance, repair, alteration, inspection, re-location, and replacement of the electric transmission, distribution, telephone and telegraph circuits of the Grantee, and two towers, with the necessary guys, stubs, crossarms and other attachments thereon, or affixed thereto, for the support of said circuits, under, upon and across a tract of land fifty (50) feet in width, belonging to the Grantor, in Davis County, Utah, described as follows:

Twenty-five (25) feet on each side of a line:

Commencing on the South boundary of Grantor's land 1160 feet West of a point 1530 feet North of the S.E. Corner Sec. 14, Tp. 2N., R. 1 W., S.L.M., thence running N. 28°08' West 900 feet to North boundary of Grantor's land; all contained within the N.E. ¼ of S.E. ¼ Sec. 14, said Township and Range.

Together with all rights of ingress and egress necessary or convenient for the full and complete use, occupation and enjoyment of the easement hereby granted, and all rights and privileges incident thereto, including the right to cut and remove timber, trees, brush, overhanging branches and other obstructions which may injure or interfere with the Grantee's use, occupation or enjoyment of this easement.

SIGNED: John A. Waite

(CONTINUED)

Recorded at req of Bountiful City
D JUL 15 1971 1:30 PM MARGU RIT S BOURNE F D C R No fee
BY Grace Van Sweden D y B k 462 P g 490

353635

WARRANTY DEED

SW 1/4 22 1 0

DAVIS COUNTY, a body corporate and politic, a corporation organized and existing under the laws of the State of Utah, with its principal office at Farmington, County of Davis, State of Utah, grantor, hereby conveys and warrants to BOUNTIFUL, a Municipal Corporation, of the County of Davis, State of Utah, Grantee, for the sum of TEN DOLLARS and other considerations, the following described tract of land in Davis County State of Utah

Beginning at a point 3 0 rods South of the Northwest corner of the Southwest Quarter of Section 14 Township 2 North, Range 1 West, Salt Lake Meridian, and running thence East 158 0 rods, thence North 3 0 rods, thence East 2 0 rods to the center of said Section 14 thence South 88 75 rods, thence West 160 rods to the West line of said Section thence North 85 75 rods to the point of beginning

☐ Abstracted ☐ Platted
☐ Indexed ☐
☑ Entered ☐ Compared

The officers who sign this deed hereby certify that this deed and the transfer represented thereby was duly authorized under a resolution duly adopted by the board of County Commissioners of the grantor at a lawful meeting duly held and attended by a quorum

IN WITNESS WHEREOF, the grantor has caused its corporate name and seal to be hereunto affixed by its duly authorized officers this 13th day of July 1971

DAVIS COUNTY

Attest

By ______________
Chairman

Rodney W Walker
Clerk Auditor

STATE OF UTAH)
) ss
COUNTY OF DAVIS)

On the 13th day of July 1971, personally appeared before me Glen W Flint and Rodney W Walker, who being by me duly sworn did say, each for himself, that he, the said Glen W Flint is Chairman, and he, the said Rodney W Walker, is the Clerk Auditor of Davis County, and that the within and foregoing instrument was signed in behalf of said corporation by authority of a resolution of its board of County Commissioners, and said Glen W Flint and Rodney W Walker each duly acknowledged to me that said corporation executed the same and that the seal affixed is the seal of said corporation

Eula C Fisher
Notary Public MAY 1978

My commission expires
Dec 6, 1973

Residing at Bountiful

3-99

ne¼ nw¼ 14-2N-1W 108876 159

Recorded at Request of NOV 22 1949 Security Title

at 9:31 A M Fee Paid $ no fee Grace C. Stevanson Recorder Davis County

by Marguerite A Bourne Dep Book 8 OR Page 159 Ref

Mail tax notice to __________ Address __________ Filed ☑ Abstracted ☐ Microfilmed ☐ Indexed ☑ Compared ☐ Entered ☑

WARRANTY DEED

Streepor W. Wood and Lillian Wood, his wife, grantors of Bountiful County of Davis State of Utah hereby CONVEY and WARRANT to

BOUNTIFUL, a municipal corporation

of tha State of Utah,

grantee for the sum of

Ten Dollars and other good and valuable consideration, receipt of which is hereby acknowledged, ~~DOLLARS~~

the following described tract of land in Davis County State of Utah

Lots 1, 2, and 3, and the West half of the NE¼ of Section 14, Township 2 North, Range 1 West, Salt Lake Meridian, containing 149.48 acres, more or less

Together with all water rights appurtenant thereto.

WITNESS the hands of said grantors, this 19th day of November A D 1949

Signed in the Presence of

Spencer N. Madsen

Streeper W Wood

Lillian Wood

STATE OF UTAH

County of Davis } ss

On the 19th day of November A D 1949 personally appeared before me Streeper W Wood and Lillian Wood, his wife, the signers of the within instrument, who duly acknowledged to me that they executed the same

NOTARY PUBLIC MY COMMISSION EXPIRES

Spencer N Madsen

Notary Public

My commission expires May 18, 1951 Residing in Salt Lake City, Utah

BLANK #101—WARRANTY DEED

3-36

E 948104 BK 1450 PG 544
CAROL DEAN PAGE DAVIS CNTY RECORDER
1991 NOV 14 2 41 PM FEE UN DEP JB
REC'D FOR BOUNTIFUL CITY

Recorded at Request of

at M Fee Paid $

by Dep Book. Page Ref RETURNED

Mail tax notice to Address NOV 14 1991

NE 14-2N-1W

WARRANTY DEED

(Special)

Malvoc M Olsen grantor

of hereby

CONVEY AND WARRANT against all claiming by, through or under

to The City of Bountiful

grantee

of State of Utah for the sum of

One Dollar ($1 00)—DOLLARS,

and other good and valuable consideration
the following described tract of land in Davis County,

State of Utah

Beginning on the westerly line of the E 1/2, NE 1/4, of Section 14, at a point S89°47'11"W 1317 97 ft along the 1/4 section line and N0°34'39"W 451 16 ft along said West line from the East 1/4 corner of said Section 14, T 2N , R 1W , SLB&M and running thence N76°17'42'E 580 80 ft along the southerly fence line of a Davis County Canal to a point of contact with a 430 00 ft radius curve to the left (Note Bearing of radius at said point of contact is S24°27 33"E), thence southwesterly 212 36 ft along the arc of said curve through a central angle of 28°17 48", thence S89°04 49'W 399 98 ft along the southerly property fence line of the grantors land to THE POINT OF BEGINNING

Containing 0 5479 Acres 06-026-0015

WITNESS the hand of said grantor , this 21st day of
OCTOBER , A D 19 91

Signed in the Presence of

Malvor M Olsen

Jerald Ballam

STATE OF UTAH } ss

County of Davis

Accepted for Bountiful City By: Jerald Ballam City Engineer

On the 21st day of October , A D 19 91
personally appeared before me Malvor M Olsen

the signer of the within instrument, who duly acknowledged to me that he executed the same

JUDY HATCHER
Notary Public
STATE OF UTAH
My Commission Expires
December 23 1993

Judy Hatcher
Notary Public

My commission expires

Residing in Bountiful, Utah

Jim Stacey

not

E 1135929 B 1790 P 5
CAROL DEAN PAGE, DAVIS CNTY RECORDER
1994 AUG 11 8 11 AM FEE .00 DEP CO
REC'D FOR BOUNTIFUL CITY

SPECIAL WARRANTY DEED

NW 13
SW 12 } 2N-1W
SE 11

DAVIS COUNTY, a body politic of the State of Utah, with its principal office located at 28 East State Street, Farmington Utah 84025, GRANTOR, hereby conveys and warrants against all claims by, through or under it, to BOUNTIFUL CITY, a municipal corporation of the State of Utah, with its principal office at 790 South 100 East, Bountiful, Utah 84010, GRANTEE, for the sum of Ten Dollars ($10 00) and other good and valuable consideration the following described tract of land located in Davis County, State of Utah

06-004-0003
06-011-0013
X 0054
06-007-0016
0017 + 0018
0020 0015

> All of Lot 2, Section 11, Township 2 North, Range 1 West, Salt Lake Meridian ALSO Beginning 243 0 feet West of the Southeast corner of Section 11, Township 2 North, Range 1 West, Salt Lake Meridian, and running thence West 1077 0 feet, more or less, to the Southeast corner of Lot 2, said Section 11, thence North 1320 feet along the East line of said Lot 2, to the Northwest corner of the Southeast Quarter of the Southeast Quarter of said Section 11, thence East 1815 0 feet to a point 495 0 feet East of the Northwest corner of the South one-half of the Southwest Quarter of Section 12, said Township and Range, thence South 1800 feet, more or less, to the North line of a street, thence West 395 0 feet along said street to a point 100 0 feet East of the West line of Section 13, said Township and Range, thence North 1115 0 feet, more or less, to a point 635 0 feet North and 100 00 feet East of the Southwest corner of Section 12, thence West 343 0 feet, thence South 635 0 feet to the point of beginning

LESS A PART OF THE FOLLOWING DESCRIBED PROPERTY CONVEYED TO UTAH POWER AND LIGHT COMPANY RECORDED FEBRUARY 21, 1985, IN BOOK 1023 AT PAGE 1085 AS ENTRY NO 0695126 WHICH AFFECTS THE PROPERTY DESCRIBED ABOVE Beginning at an existing fence line and the North line of Section 13, Township 2 North, Range 1 West, Salt Lake Base and Meridian, at a point South 89°39'32" East along the section line 461 04 feet from the Davis County monument marking the Northwest corner of said Section 13, Davis County, Utah, and running thence North 27°22'25" East 32 61 feet along said fence to a North-South fence, thence North 0°49'35' West 511 92 feet along said fence to an existing fence corner, thence South 89°53'04" East 455 35 feet along said fence, thence South 27°45'01" West 461 10 feet, thence South 28°28'28' West 416 27 feet, thence South 0°31'13' East 247 50 feet to the North fence of Porter Lane, thence North 88°46'02 West 30 01 feet to an existing fence corner, thence North 89°24'34 West 269 63 feet along the North fence line of Porter Lane, thence North 27°22'25 East 538 42 feet to the point of beginning

Subject to restrictions, reservations, and easements existing and of record, if any

Witness the hand of said Grantor this 30th day of July, 1994

DAVIS COUNTY

Gayle A Stevenson

Gayle A Stevenson, Chairman
Board of County Commissioners

ATTEST

Margene Isom

Margene Isom
Davis County Clerk/Auditor

3-149

STATE OF UTAH)
)ss
COUNTY OF DAVIS)

The foregoing Special Warranty Deed was acknowledged before me this 20th day of July, 1994, by Gayle A Stevenson and Margene Isom who duly represented to me that they are the Chairman of the Board of County Commissioners of Davis County and the Davis County Clerk/Auditor, respectively, and that they each signed the above and foregoing instrument in their official capacity and on behalf of Davis County pursuant to official action taken by the Board of County Commissioners of Davis County

NOTARY PUBLIC

Residing at Farmington Utah

My Commission Expires 1-3-96

Approved as to Form

Office of Davis County Attorney

NOTARY PUBLIC
Nancy L Burningham
P O Box 618
Farmington Utah 84026
My Commission Expires
January 3 1996
STATE OF UTAH

special Bou

I hereby certify that the City of Bountiful accepts this property

Kim J Coleman
Deputy City Recorder
City of Bountiful

BOUNTIFUL UTAH
CORPORATE SEAL
INCORPORATED A D 1892

Property Information for Relocation of Facilities Due to Legacy Parkway (work done in 2006-2007)
Deeds and Settlement Agreement of Bountiful City and U D O T

RETURNED

WHEN RECORDED MAIL TO
Utah Department of Transportation
Right of Way Fourth Floor
Box 148420
Salt Lake City Utah 84119 8420

OCT 26 1998

E 1451858 B 2380 P 417
JAMES ASHAUER, DAVIS CNTY RECORDER
1998 OCT 26 7 30 AM FEE 00 DEP MEC
REC'D FOR UTAH DEPT OF TRANSPORTATION

06026-0030
NE 14 2N 1W

Warranty Deed

Parcel No 0067 12 T
Project No SP 0067( )0

Davis County

CHARLES T DUGGAR Grantor

of West Bountiful County of Davis State of Utah

hereby CONVEY AND WARRANT to the UTAH DEPARTMENT OF TRANSPORTATION at 4501 South 2700 West Salt Lake City Utah 84119 Grantee for the sum of Ten Dollars & other considerations------------------ Dollars and other good and valuable considerations the following described parcel of land in Davis County State of Utah to-wit

A tract of land in fee being all of an entire tract of property situate in the NE¼NE¼ of Section 14 T 2 N R 1 W S L D & M The boundaries of said tract of land are described as follows

Beginning at the Southeast corner of said entire tract which point is 263 347 m (864 0 ft) S 89°56 59' W along the south line of the said NE¼NE¼ and 55 727 m (182 83 ft) N 0°32'10 W from the Southeast corner of the said NE¼NE¼ running thence N 0°32 10 W 65 852 m (216 05 ft) along the easterly boundary line of said entire tract to the northerly boundary line of said entire tract thence S 89°22'20 W 69 494 m (228 ft) along said northerly boundary line to the westerly boundary line of said entire tract thence S 0°32'10' E 65 853 m (216 05 ft) along said westerly boundary line to the southerly boundary line of said entire tract thence N 89°11 20 E 69 494 m (228 ft) along the said southerly line to the point of beginning The above described tract of land contains 4 576 3 square meters (1 131 acres) more or less

(Note Rotate above bearings 0°05 31 counterclockwise to equal highway bearings)

ALSO TOGETHER WITH AND SUBJECT TO a perpetual right of way for ingress and egress and private road purposes to be used in common with others over and across the following premises

Beginning on the West line of a street at a point which is South 89°56 59 West 66 0 feet along the Quarter Quarter Section line and North 0°32 10 West 168 4 feet from the Southeast corner of the Northeast Quarter of the Northeast Quarter of said Section 14 and running thence South 89°11 20 West 1254 0 feet more or less to the West line of Sellers land thence along said West line North 0° 2 10 West 50 feet thence North 89°11 20 East 1254 0 feet to the West line of said street thence along said West line South 0°32 10 East 50 feet to the point of beginning

Continued o

Parcel No 0067 ..5 ..
Project No SP-..

E 1451858 B 2380 P 418

WITNESS the hand_ of said Grantor_ this 30th day of September A D 1998

Signed in the presence of

____

STATE OF UTAH)
) ss
COUNTY OF DAVIS)

Charles T Duggar

On the date first above written personally appeared before me Charles T Duggar the signer _ of the within and foregoing instrument who duly acknowledged to me that _he_ executed the same

NOTARY PUBLIC
DAVID J. WEST
4501 South 2700 West
Salt Lake City Utah 84119
My Commission Expires
July 7 2001
STATE OF UTAH

David J West
Notary Public

HEN RECORDED MAIL TO
Utah Department of Transportation
Right-of Way, Fourth Floor
Box 148420
Salt Lake City Utah 84119 8420

RETURNED OCT

RETURNED OCT 2 6 1998

E 1451859 B 2380 P 419
JAMES ASHAUER, DAVIS CNTY RECORDER
REC'D FOR UTAH DEPT OF TRANSPORTATION

06 026 0023, 0027
NE 14 2N 1W

Warranty Deed

Parcel No 0067 123 T
Davis County Project No SP 0067( )0

CHARLES T DUGGAP Grantor

of West Bountiful County of Davis State of Utah

hereby CONVEY AND WARRANT to the UTAH DEPARTMENT OF TRANSPORTATION at 4501 South 2700 West Salt Lake City Utah 84119 Grantee for the sum of Ten Dollars & other considerations------------------------Dollars and other good and valuable considerations the following described parcel of land in Davis County State of Utah to wit

A tract of land in fee being all of an entire tract of property situate in the NE¼NE¼ of Section 14 T 2 N R 1 W S L B & M The boundaries of said tract of land are described as follows

Beginning at the Southwest corner of said entire tract which point is 402 336 m (1320 0 ft) S 89°56 59 W along the south line of the said NE¼NE¼ of Section 14 from the southeast corner of said NE¼NE¼ running thence N 0°32 0 W 119 732 m (392 82 ft) along the west line of said NE¼NE¼ to a northerly boundary line of said entire tract thence N 89°11 20 E 69 494 m (228 ft) along said northerly boundary line to an easterly boundary line of said entire tract thence S 0°32 10 E 65 852 m (216 0 ft) along said easterly boundary line to a northerly boundary line of said entire tract thence N 89°11 20 E 69 494 m (228 ft) along said northerly boundary line to an easterly boundary line of said entire tract thence S 0°32'10 E 55 727 (182 83 ft) along said easterly boundary line to said south line which is also the south line of said entire tract thence S 89°56 59 W 138 989 m (456 ft) along said south line to the point of beginning The above described tract of land contains 12 177 2 square meters (3 009 acres) more or less

(Note Rotate above bearings 0°08 31 counterclockwise to equal highway bearings)

TOGETHER WITH AND SUBJECT TO a 50 foot wide right of way for ingress and egress and private road purposes

E 1451859 B 2380 P 419
JAMES ASHAUER, DAVIS CNTY RECORDER
1998 OCT 26 7 30 AM FEE 00 DEP MEC
REC'D FOR UTAH DEPT OF TRANSPORTATION

Continued on Page

Parcel No 0067 ...
Project No SP 0067(...

E 1451859 B 2380 P 420

NOTARY PUBLIC
DAVID J. WEST
4501 South 2700 West
Salt Lake City Utah 84119
My Commission Expires
July 7 2001
STATE OF UTAH

WITNESS the hand_ of said Grantor_ this 30th day

of September A D 1998

Signed in the presence of

STATE OF UTAH)

) ss

COUNTY OF DAVIS)

Charles T Duggar

On the date first above written personally appeared before me
Charles T Duggar
the signer_ of the within and foregoing instrument who duly acknowledged to me
that _he_ executed the same

David J West

Notary Public

NOTARY PUBLIC
DAVID J WEST
4501 South 2700 West
Salt Lake City Utah 84119
My Commission Expires
July 7 2001
STATE OF UTAH

Condemnation Settlement Agreement

The Utah Department of Transportation (hereinafter "UDOT") and Bountiful City enter into this Condemnation Settlement Agreement as follows

1 UDOT wishes to construct a state highway known as the Legacv Parkway, which will run through portions of Davis County, Utah The intended route crosses real estate owned by Bountiful City at four different points which are designated as the "pond property" the "Porter Lane property," the "power substation property," and the "landfill property" Four condemnation actions have already been filed in Second District Court, which are, respectively, civil numbers 010800928-CD, 010700234-CD, 010700106-CD, and 010800716-CD The properties and easements which need to be taken from Bountiful for the Legacy Parkway are legally described in those lawsuits

2 In consideration of the compensation stated herein, Bountiful City will convey the necessary deeds and easements to UDOT for use in the Legacy Parkway

3 In consideration of the conveyances of the deeds and easements by Bountiful City, UDOT shall compensate Bountiful City as follows

(a) $36,600 00 shall be paid in connection with the "pond property" UDOT has paid this amount into the court in the condemnation action (#010800928), and this may be withdrawn by Bountiful City

(b) $2,000,000 shall be paid by check for the other three properties

(c) UDOT shall at its expense acquire and convey to Bountiful City a parcel of land adjacent to the Bountiful landfill which has been designated for the construction of a new weigh station, scale house, etc , for the use and ownership of the City This land shall be fully cleared and new facilities constructed (i e a new weigh station, scale house, etc), solely at the expense of UDOT, except that the City shall pay for any upgrades, enlargements or enchancements over the existing facilities

4 Bountiful City's access to and operation of the Bountiful landfill shall not be interrupted at any time during the construction of the Legacy Parkway UDOT understands that daily operation is essential to the City The new facilities installed bv UDOT shall be fully constructed and operational before the existing facilities can be shut down, such that one day the landfill fully uses the existing facilities and the next day fully uses the new facilities, with no interruption of service to the public Access to the landfill on Page's Lane shall not be interrupted until access to the landfill from the new frontage road is complete and operational

5 Bountiful City's access to and operation of the electrical power substation shall not be interrupted at any time during the construction of the Legacy Parkway UDOT understands that daily access is essential to the City Sheep Lane access shall not be interrupted until the new access route is complete and operational

6 The pending lawsuits will be dismissed by stipulation

7 This Settlement Agreement does not attempt to set out in full the working relationship between the Engineering Departments nor Contractors of each party hereto, but rather sets forth the real estate to be conveyed and the proceeds to be paid as ' Just Compensation " Both parties agree that each will communicate to the other and cooperate with each other to accomplish other oral aspects of the settlement

Dated this 15 day of May, 2002

Bountiful City

By Russell L Mahan

Russell L Mahan
Bountiful City Attorney
Attorney for the Defendant

Mark L Shurtleff
Attorney General

By J D Reynolds

J D Reynolds
Assistant Attorney General
Attorney for the Plaintiff

Recorded at tne request ot
Wasaich Integrated Waste Management District

When Recorded Mail to
Wasatch Integrated Waste Management District
Att Nathan Rich Executive Director
P O Box 900
Layton Utah 84041 0900

Special Warranty Deed

BOUNTIFUL CITY, a Municipal Corporation of the State of Utah **GRANTOR**, hereby conveys and warrants against all who claim by, through or under the Grantor, to **WASATCH INTEGRATED WASTE MANAGEMENT DISTRICT, GRANTEE**, for the sum of Ten Dollars ($10 00) and other good and valuable consideration, the following described tract of land in Davis County, State of Utah

See Exhibit A

This conveyance is made on the condition that the property described in Exhibit A shall be used as a waste transfer station site or other use that is consistent with Bountiful City's landfill, and that this land may not be conveyed to a third party without the written consent of Bountiful City

WITNESS the hand of said Grantor this 16 day of February, 2010

BOUNTIFUL, a Municipal Corporation

by Joe Johnson
Joe L Johnson, Mayor

Attest
Kim J Coleman
Kim J Coleman, City Recorder

STATE OF UTAH)
) ss
COUNTY OF DAVIS)

The foregoing Special Warranty Deed was acknowledged before me this 12th day of February, 2010, by Mayor Joe L Johnson and City Recorder Kim J Coleman of the City of Bountiful, Utah

Notary Public
SHAWNA ANDRUS
790 South 100 East
Bountiful, Utah 84010
My Commission Expires
June 12 2010
State of Utah

Shawna Andrus
Notary Public

Exhibit A

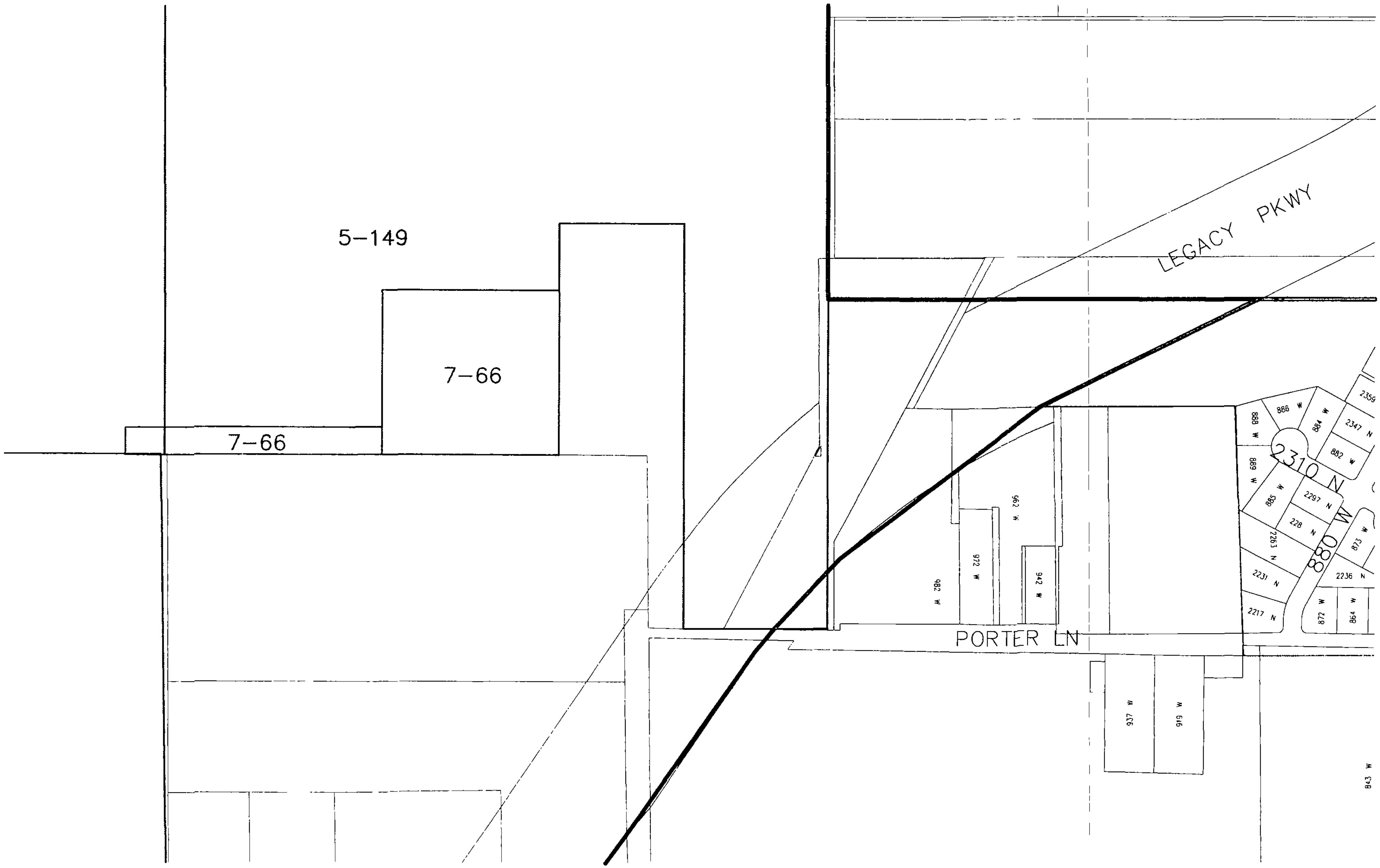
Wasatch Integrated Waste Management District
Transfer Station Property Description

Beginning at a point on the Grantor s south property line, which is 243 0 feet west of the Southeast corner of Section 11, T 2 N , R 1 W, Salt Lake Base and Meridian, and running West along the grantors south property line 484 00 feet, thence North 450 00 feet, thence East 484 00 feet to the grantors property line, thence South 450 00 feet along said property line to the point of beginning

Containing 5 0 acres

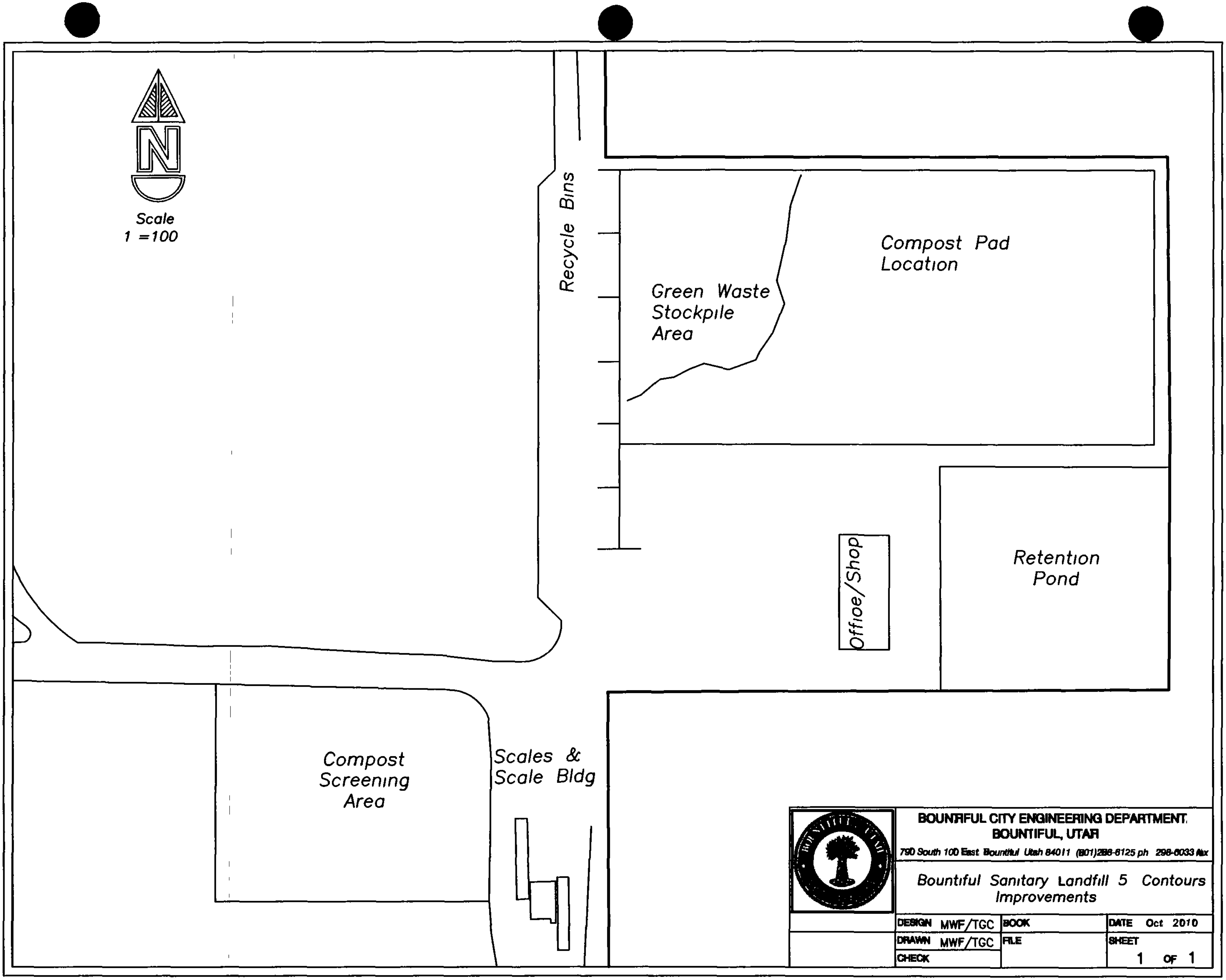
Together with a 75 foot wide access easement described as follows

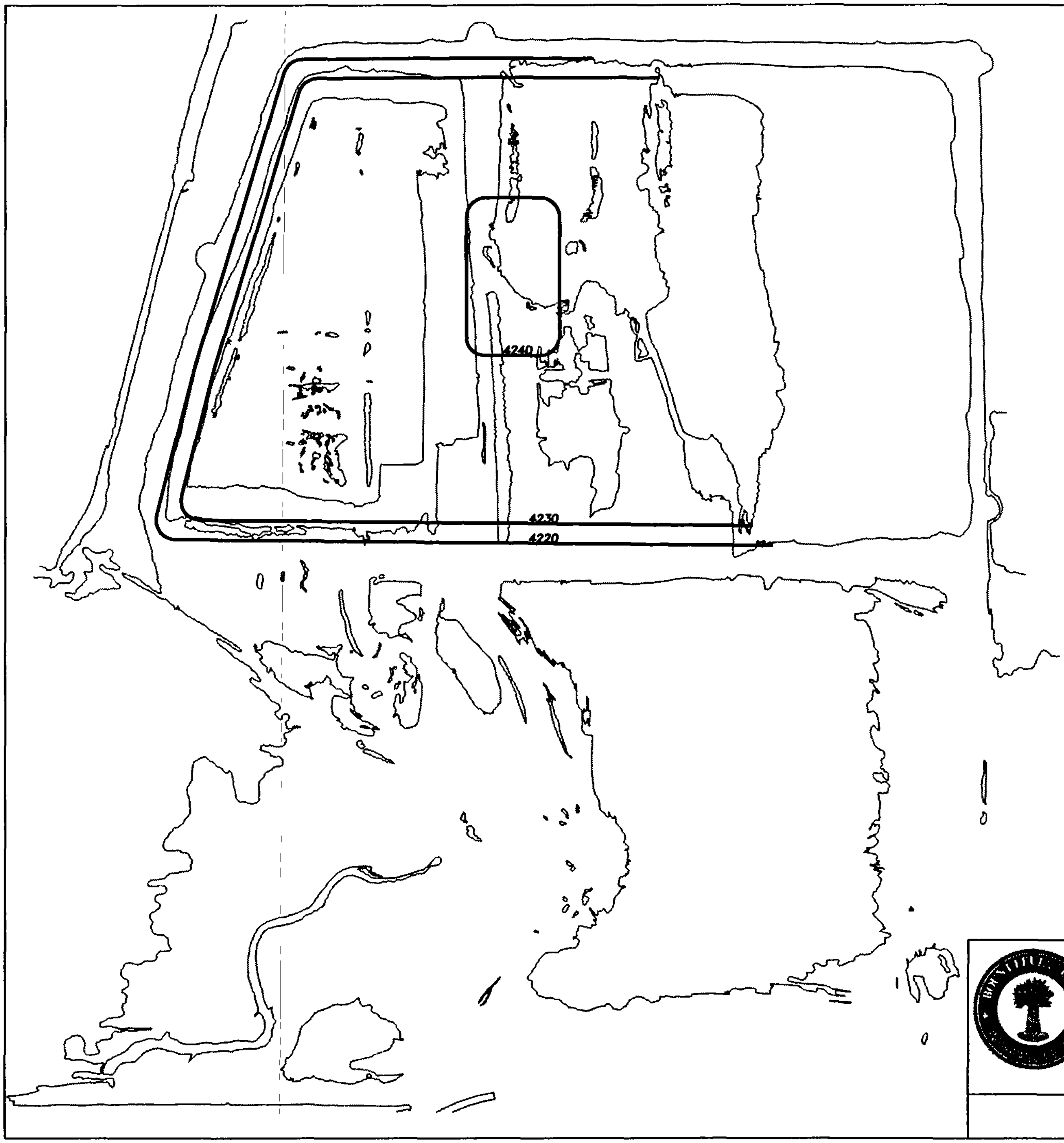
Beginning at a point on the Grantor s south property line, which is 727 0 feet west of the Southeast corner of Section 11, T 2 N , R 1 W, Salt Lake Base and Meridian, and running West along the grantors south property line 700 00 feet, thence North 75 00 feet, thence East 700 00 feet to the west property line established above, thence South 75 00 feet along said property line to the point of beginning


5-149
7-66
7-66
LEGACY PKWY
PORTER LN
2310 N
880 W
866 W
888 W
884 W
2359
2347 N
882 W
889 W
885 W
2297 N
228 N
2263 N
873 W
2231 N
2236 N
2217 N
872 W
864 W
962 W
972 W
982 W
942 W
937 W
919 W
843 W

Appendix B

Plan Drawings


N
Scale
1 =100
Recycle Bins
Green Waste
Stockpile
Area
Compost Pad
Location
Office/Shop
Retention
Pond
Compost
Screening
Area
Scales &
Scale Bldg
BOUNTIFUL CITY ENGINEERING DEPARTMENT,
BOUNTIFUL, UTAH
790 South 100 East Bountiful Utah 84011 (801)298-6125 ph 298-6033 fax
Bountiful Sanitary Landfill 5 Contours
Improvements
DESIGN MWF/TGC
DRAWN MWF/TGC
CHECK
BOOK
FILE
DATE Oct 2010
SHEET
1 OF 1



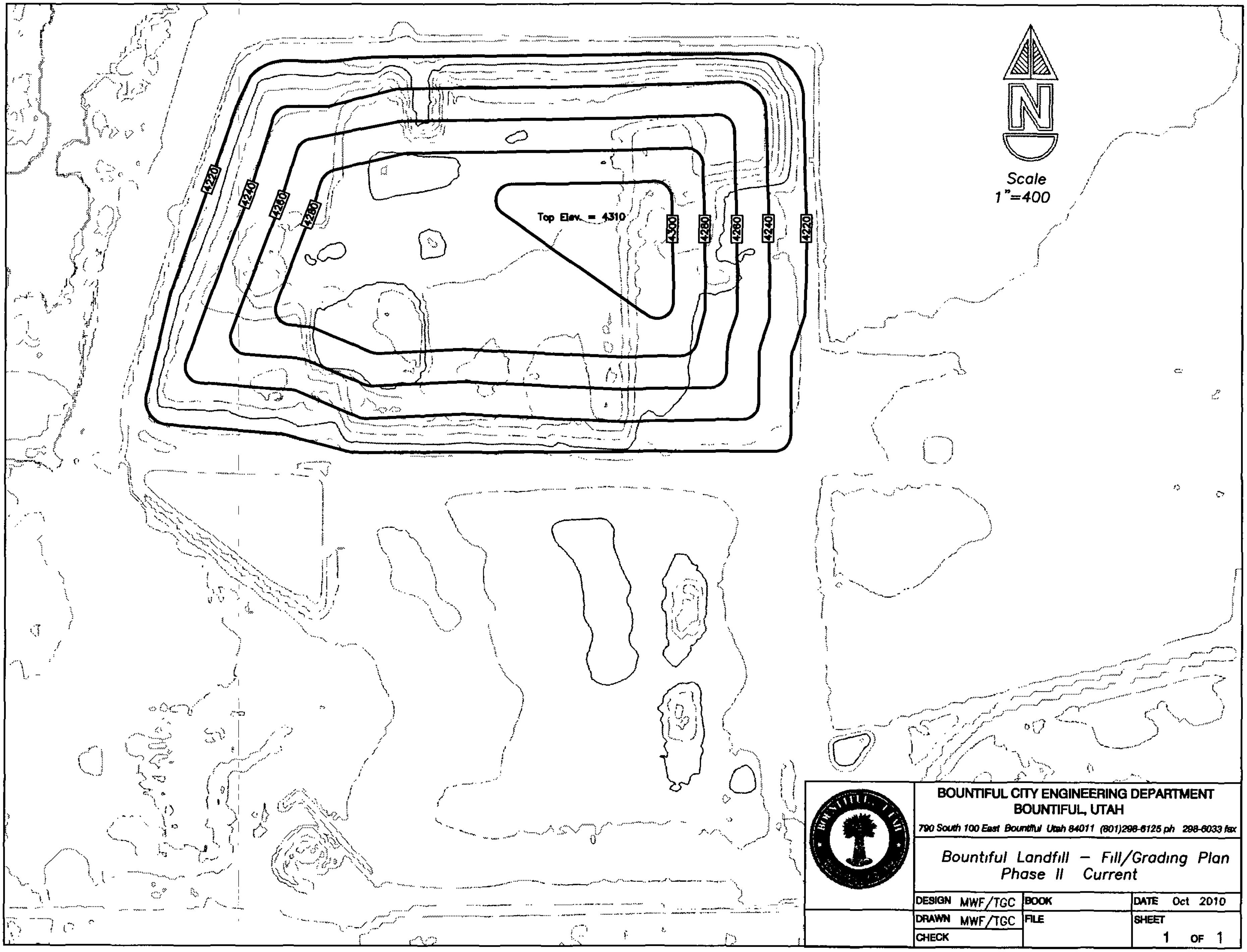
Scale
1"=400

BOUNTIFUL CITY ENGINEERING DEPARTMENT
BOUNTIFUL, UTAH

790 South 100 East Bountiful Utah 84011 (801)298-6125 ph 298-0033 fax

Bountiful Sanitary Landfill Fill Plan
Phase I Completed

DESIGN MWF/TGC	BOOK		DATE Oct 2010
DRAWN MWF/TGC	FILE		SHEET
CHECK			1 OF 1

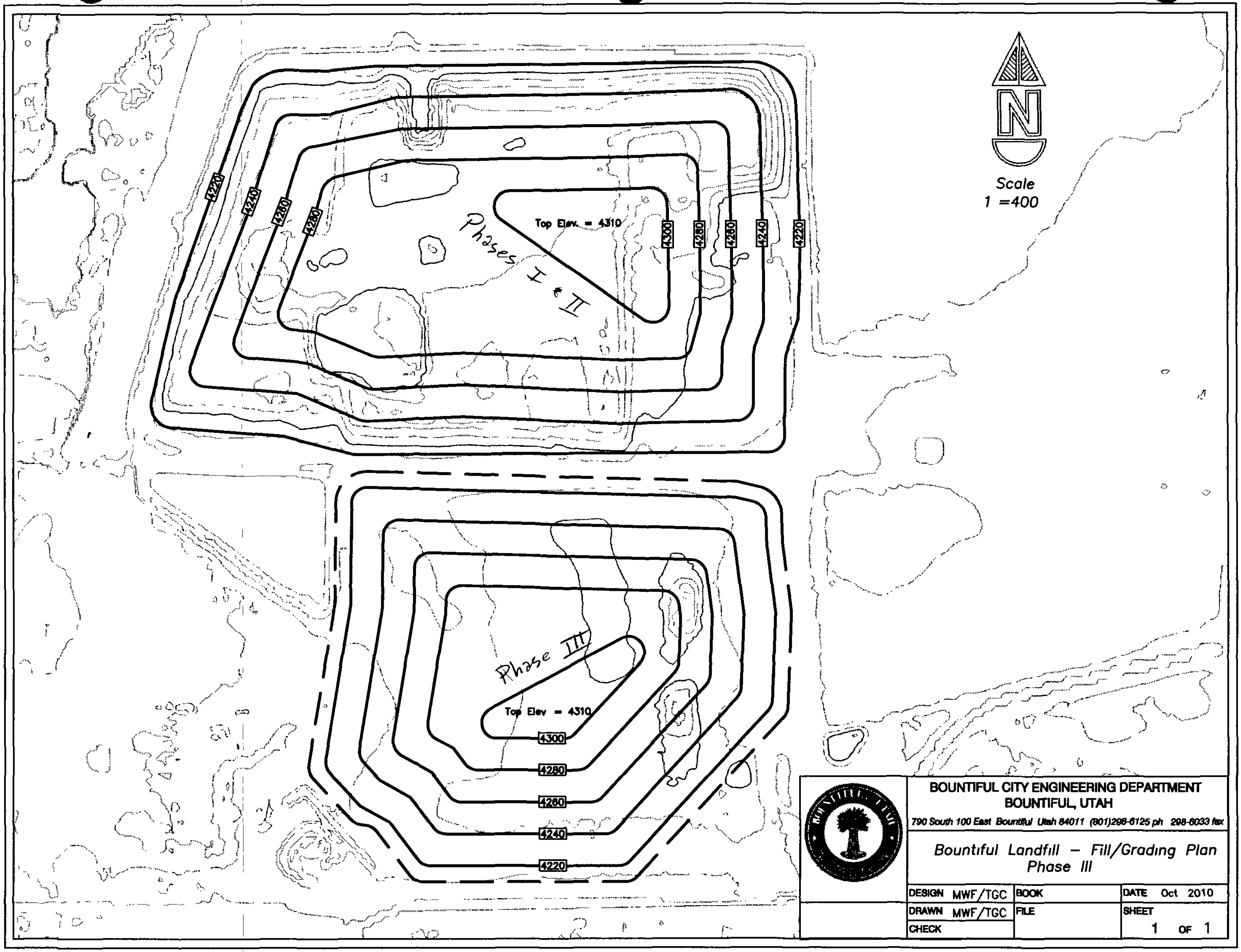


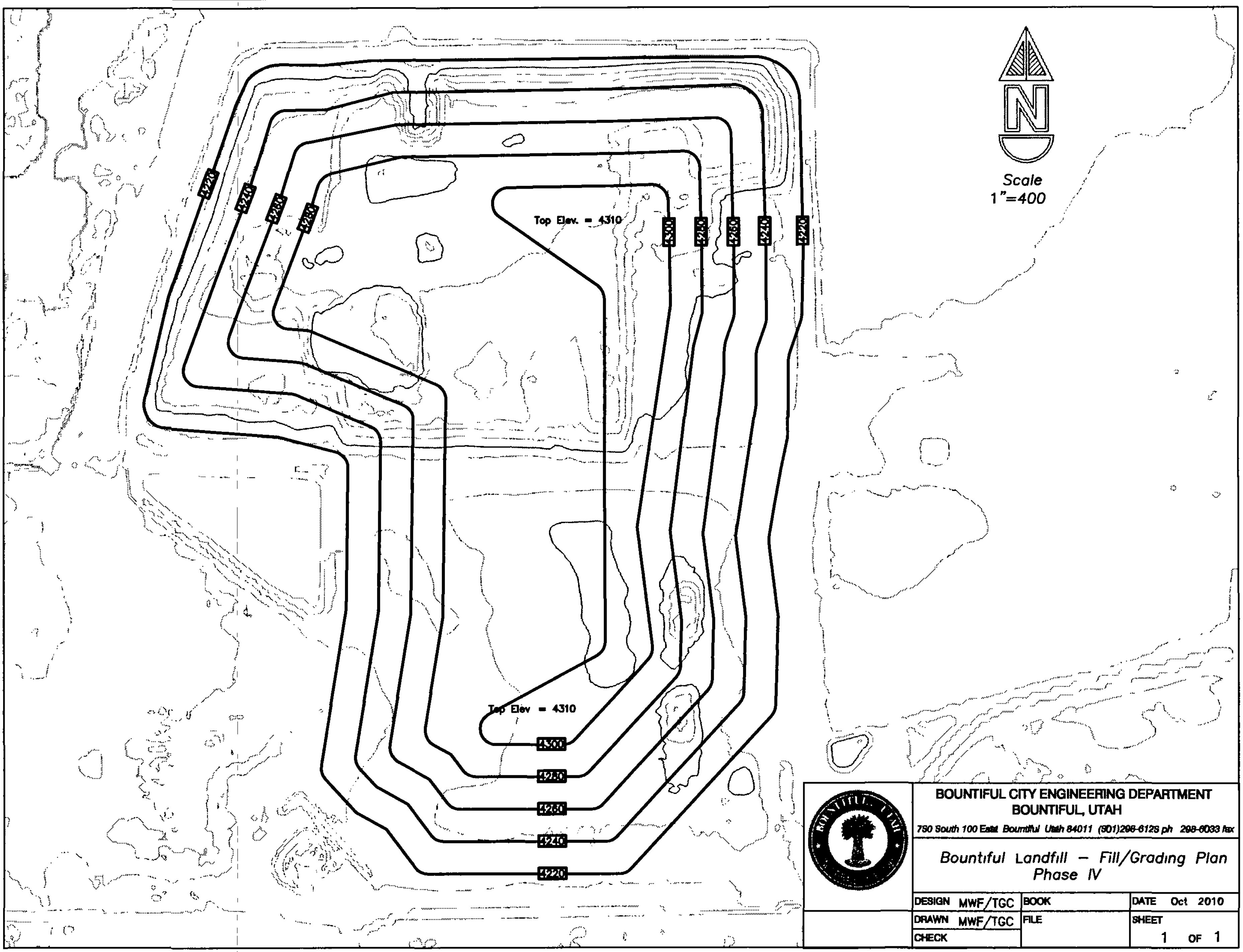
BOUNTIFUL CITY ENGINEERING DEPARTMENT
BOUNTIFUL, UTAH

790 South 100 East Bountiful Utah 84011 (801)298-6125 ph 298-6033 fax

Bountiful Landfill – Fill/Grading Plan
Phase II Current

DESIGN MWF/TGC	BOOK		DATE Oct 2010
DRAWN MWF/TGC	FILE		SHEET
CHECK			1 OF 1


Scale
1 =400
Phases I & II
Top Elev. = 4310
4300
4280
4260
4240
4220
Phase III
Top Elev = 4310
4300
4280
4260
4240
4220
BOUNTIFUL CITY ENGINEERING DEPARTMENT
BOUNTIFUL, UTAH
790 South 100 East Bountiful Utah 84011 (801)298-6125 ph 298-6033 fax
Bountiful Landfill – Fill/Grading Plan
Phase III
DESIGN MWF/TGC
DRAWN MWF/TGC
CHECK
BOOK
FILE
DATE Oct 2010
SHEET 1 OF 1

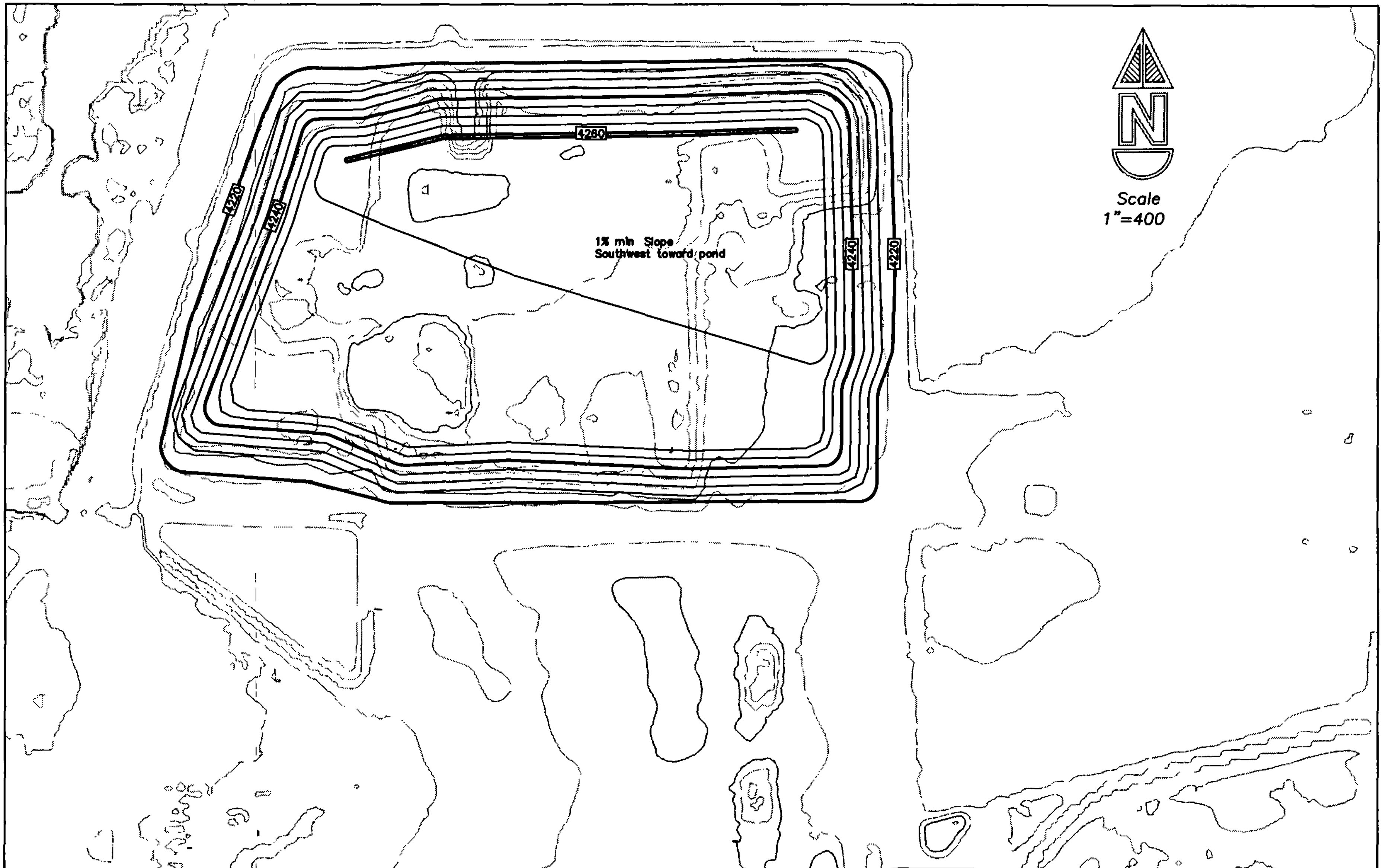


BOUNTIFUL CITY ENGINEERING DEPARTMENT
BOUNTIFUL, UTAH

790 South 100 East Bountiful Utah 84011 (801)298-6125 ph 298-6033 fax

Bountiful Landfill – Fill/Grading Plan
Phase IV

DESIGN MWF/TGC	BOOK	DATE Oct 2010
DRAWN MWF/TGC	FILE	SHEET
CHECK		1 OF 1

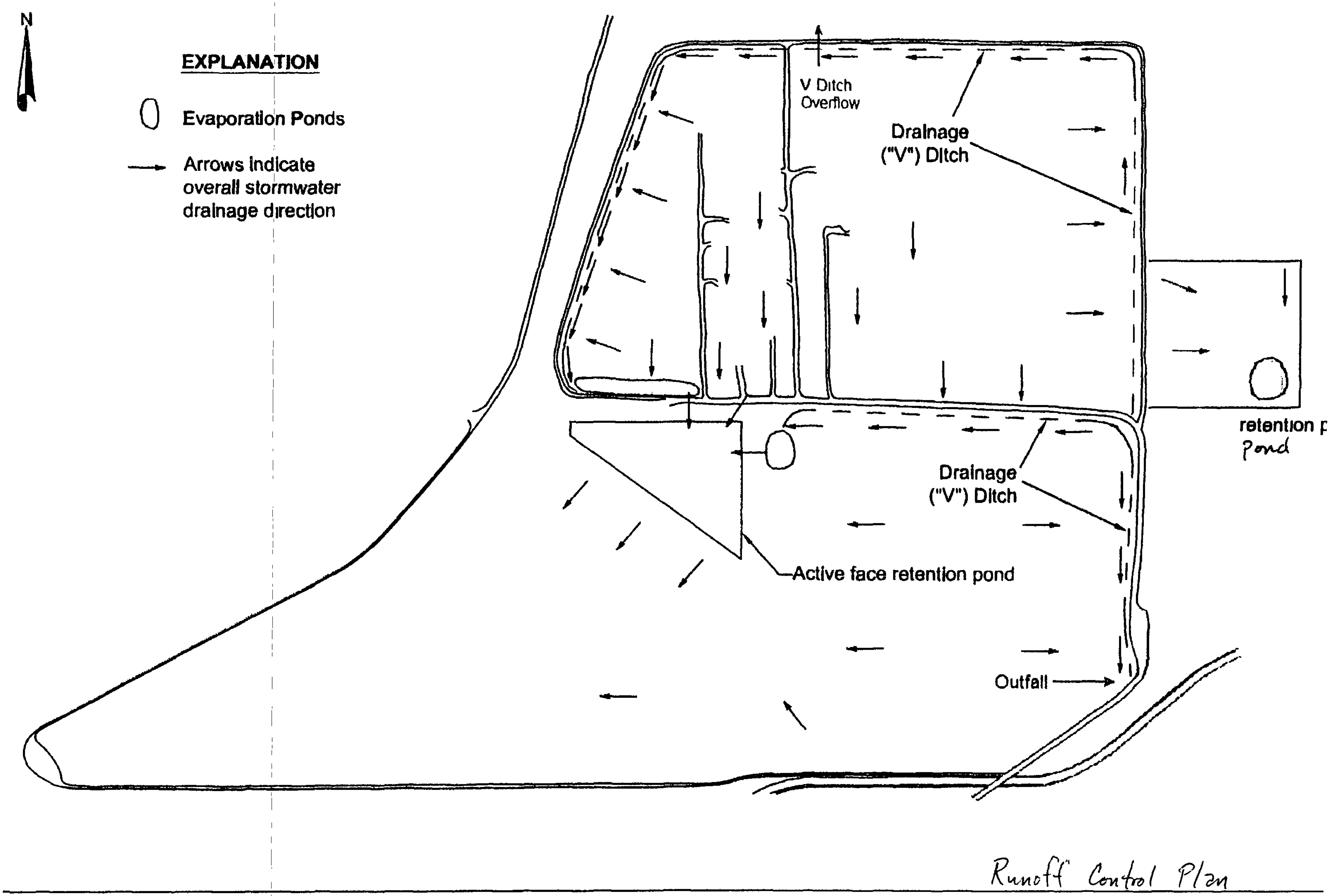


BOUNTIFUL CITY ENGINEERING DEPARTMENT
BOUNTIFUL, UTAH

790 South 100 East Bountiful Utah 84011 (801)298-6125 ph 298-6033 fax

Bountiful Landfill
Typical Fill Plan

DESIGN MWF/TGC	BOOK	DATE Oct 2010
DRAWN MWF/TGC	FILE	SHEET
CHECK		1 OF 1


N
EXPLANATION
Evaporation Ponds
Arrows indicate overall stormwater drainage direction
V Ditch Overflow
Drainage ("V") Ditch
Drainage ("V") Ditch
Active face retention pond
Outfall
retention p
pond
Runoff Control Plan

BARD HYDROLOGY

MUST CONTAIN 100% OF A 24 Hr - 25 Yr STORM

RAIN FALL INTENSITY:

a) from DAVIS COUNTY FLOOD CONTROL -
10 Yr = 2.29"/24 Hr   100 Yr - 3.26"/24 Hr
STRAIGHT LINE INTERPOLATION = 2.53"/24 Hr

b) UDOT NOMOGRAPH
25 Yr - 24 Hr i = 0.11 IN/Hr = 2.64"/24 Hr

USE 2.64"/24 Hr

RUN OFF AREA CALCULATIONS:

FROM 100 SCALE MAP - AREA = 1654077 SQ FT
= 37.97 ACRES

RUN OFF VOLUME CALCULATION:

AREA OF RUNOFF = 1,654,077/9 = 183,786 SQ YDS

VOLUME = 183,786 × (2.64/36) = 13,477 CU YDS
13,500 CU YDS

ASSUME A AVERAGE DEPTH OF 5'

SURFACE AREA - 13,500 × 27/5 = 72,900 SQ FT
= 1.67 ACRES FOR 1 STORM

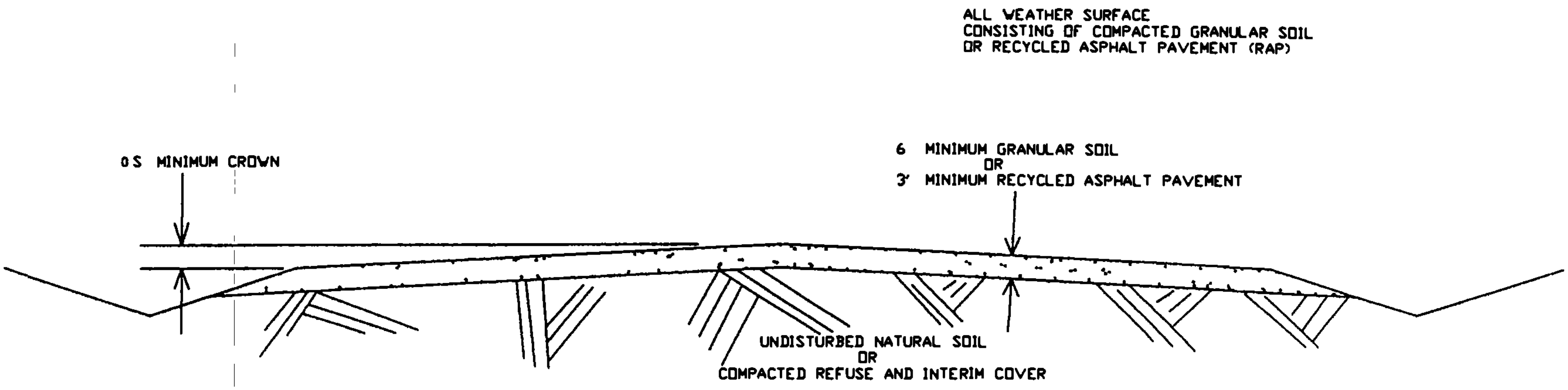
MAX WATER ELEVATION = 4215.0

AREA PROVIDED FOR RETENTION

AREA @ 15 = (560)(470/2) 131,600 $\bar{a}$ = 117,050 SQ FT
AREA @ 10 = (500)(410/2) - 102,500

VOLUME = 117,055 × 5 = 585,250 CU FT = 21,675 CU YD

VOLUME = 161% OF ALL RUNOFF FROM A 25 YR - 24 Hr STORM



BOUNTIFUL CITY ENGINEERING DEPARTMENT
BOUNTIFUL UTAH

TYPICAL 20' ALL WEATHER ACCESS ROAD

DESIGN MWF	BOOK	DATE 9/20/94
DRAW MWF	FILE	SHEET
CHECK	C:\ACADWIN\ROAD	1 of 1

Appendix C

2008 Remaining Life Study

Bountiful Sanitary Landfill

Remaining Life Study

Prepared By

Bountiful City Engineering Department

Todd Christensen, P E

January 2008

Executive Summary

Several factors have brought to question the validity of the remaining life of the landfill as reported on the annual Capacity Report So this study was conducted in order to determine the useful life of the landfill by measuring the remaining volume in the landfill and measuring the density of the landfilled waste Here is a summary of the findings

- The expected life of the landfill (based on measured airspace and waste density) is 82 years

- The density of the waste placed in the landfill since the year 2000 is at least 1750 lb/yd^3 much higher than the assumed 800 lb/yd^3

- The remaining airspace available to landfill (as of 8/02/07) **5,686,000** yd^3 This number takes into account the loss of airspace to UDOT for the Legacy Parkway

- Since the expected life of 82 years is so far into the future many changes affecting the Bountiful Sanitary Lanfill could occur within that time As a result **6/30/2050** (42 **5** years) is recommended as the end of life date that should be used for financial planning and public reporting

Background and Purpose

The remaining life of the Bountiful Sanitary Landfill is estimated and reported each year in the Capacity Report The remaining life calculation relies on a 1993 survey (nearly 15 years old) to calculate the volume of airspace Then an adjustment is made to account for the planned loss of airspace to UDOT for the Legacy Parkway which may have had more or less of an impact than was thought The remaining life calculation also assumes that the waste is compacted to 800 lb/yd^3 which is near the low end of the 750 to 1500 lb/yd^3 density range for municipal solid waste according to the Solid Waste Association of North America (SWANA) The remaining life last reported to be 41 9 years is therefore questionable

The intent of this Study was to

- Determine the remaining volume of airspace in the landfill

- Measure the density of the waste and cover material after it is placed in the landfill

- Approximate the remaining life of the landfill based upon a current survey and the measured density of the waste in the landfill

The Landfill's Available Airspace

In order to determine the airspace available in the landfill digital surface models were created for the fill plans using a software package Autodesk Map 3D 2006 First a base surface was created using the location of the landfill s perimeter roadways which for several years were at an elevation of close to 4215 ft almost everywhere along the roadways Then surfaces for the fill plans were created A cuurent survey was used to get the fill plan surfaces to match the actual conditions along the final fill slopes upon which no more landfillmg will occur The volumes that the fill plans encompass are

Phase	Total Volume (yd^3)
Current Phase on North (Phase II)	3,945,000
South Portion (Phase III)	2 354 000
Central Portion (Phase IV)	1,229,000
TOTAL	7,528,000

In order to find the remaimng volume of airspace the fill plans need to be compared with the current conditions So a survey of the site performed in August of 2007 was used to create another digital surface model reflecting the site conditions at that time The comparison of these surfaces gives the total remaimng volume of available airspace

- Available volume of airspace (on 08/02/2007) 5,686,000 yd^3

Density of Landfilled Waste

Measured weight and volume quantities are needed to determine a measured density The weight of the material going into the landfill is measured with the landfill scales Each large city and commercial truck and trucks containing construction waste are weighed in and the empty weight is subtracted to get the weight of the waste The weight of waste on smaller trucks containing household waste is estimated using criteria developed some time ago based on random weight samples of smaller loads coming into the landfill Scale records are available for waste entering the landfill since 1997

Three landfill topography surveys were used to acquire measurements for airspace volume used All three were done during time periods for which scale records were kept and are the only surveys available that are comprehensive and detailed enough for this purpose For each survey a digital surface model was generated then the soil stockpile volumes were subtracted out These surface models were compared with each other to determine the volume of airspace used during each respective timeframe The volumes account for daily cover and intermediate cover

Time Frame	Waste Landfilled (Tons)	Airspace Used (yd^3)	Density (lb/yd^3)
9/06/2000 – 9/23/2003	135 250	154,300	1753
9/24/2003 – 8/02/2007	233 620	263 700	1772

The calculated density is higher than the high end (1500 lb/yd^3) of the typical density range for municipal solid waste according to SWANA There are two reasons for this First the waste in place at the Bountiful Sanitary Landfill is not just municipal solid waste Construction/demolition type waste comprised about 31% of the waste placed in the first time frame and comprises about 35% of waste placed during the second time frame Second over time the waste consolidates SWANA estimates that municipal solid waste settles 10% – 25% within 5 years of being landfilled (after 5 years the consolidation is minimal) The time between the surveys allows for significant consolidation and any consolidation that occurred is included in the densities reported

Airspace Life Left

The average airspace used per year can be deducted from the information in the density summary table above The first time period covers 3 05 years (9/06/2000 – 9/23/2003) During this period an average of 44 340 tons were landfilled each year The last time period in the table covers 3 86 years (9/24/2003 – 8/02/2007) On average 60 520 tons of waste was landfilled per year during the later time period Actually the later time period is a more conservative rate because much of the waste came from *temporary* sources The Legacy Parkway project and the Landfill Facilities Project contributed about 18 000 tons of waste during that period

As mentioned above the remaining volume of airspace as of 8/02/2007 was 5 686 000 yd^3 If this is filled to a density of 1750 lb/yd^3 (0 875 tons/yd^3) and the more conservative waste acceptance rate is used (60 520 tons/yr) then the remaining life of the airspace is

$$5\ 686\ 000\ yd^3 * 0\ 875\ tons/yd^3 - 60\ 520\ tons/yr = 82\ years$$

Comparison with Capacity Report

The Landfill Capacity Report last reported the estimated remaining life of the landfill to be 41 9 years as of June 30 2007 Of the values that the Landfill Capacity Report uses to calculate the estimated remaining landfill life two of them differ significantly from values that have been presented in this report the density of the landfilled waste and available air Space

	Waste Density (lb/yd^3)	Available Air Space (yd^3)
In Latest Landfill Capacity Report	800*	5,975,000 (yd^3)
As Found in this Remaining Life Study	≥1750	5,686,000 (yd^3)

*The Capacity Report assumes waste at 800 lb/yd^3 with daily cover using an additional 8% of airspace

The available air space has been found to be somewhat less than that shown in the latest Capacity Report Yet the waste density has been measured to be much higher than that assumed in the Capacity Report The affect of these numbers together along with a small difference in the waste acceptance rate results in the major difference in the calculated remaining life

Recommendation

If the remaining life of the landfill is 82 years as projected by the measured airspace and waste density it will reach its useful life in the year 2089 Looking backward 82 years ago was 1926 Since then major changes have occurred that impact the disposal of solid waste Demographics and political boundaries environmental regulations household solid waste characteristics technologies and disposal practices have all changed dramatically in the last 82 years Looking forward 2089 is so far into the future that predictions cannot reasonable be made on factors that affect the disposal of solid waste Except that as time passes the existing landfill s impact on the environment becomes more and more likely to violate environmental regulations which become more and more stringent Violating environmental regulations could lead to an early closure of the landfill and/or a need to spend additional money to fund corrective action For these reasons the following recommendation is given

> **Plan** for the **landfill** to reach it's expected life on **6/30/2050**
> (this is just 1 1 years later than what was reported in the latest Capacity Report)

This date should be used for financial assurance requirements and other financial planning relating to the solid waste disposal for Bountiful City This date should also be used for general public and professional reporting of the landfill s expected life

Assumptions

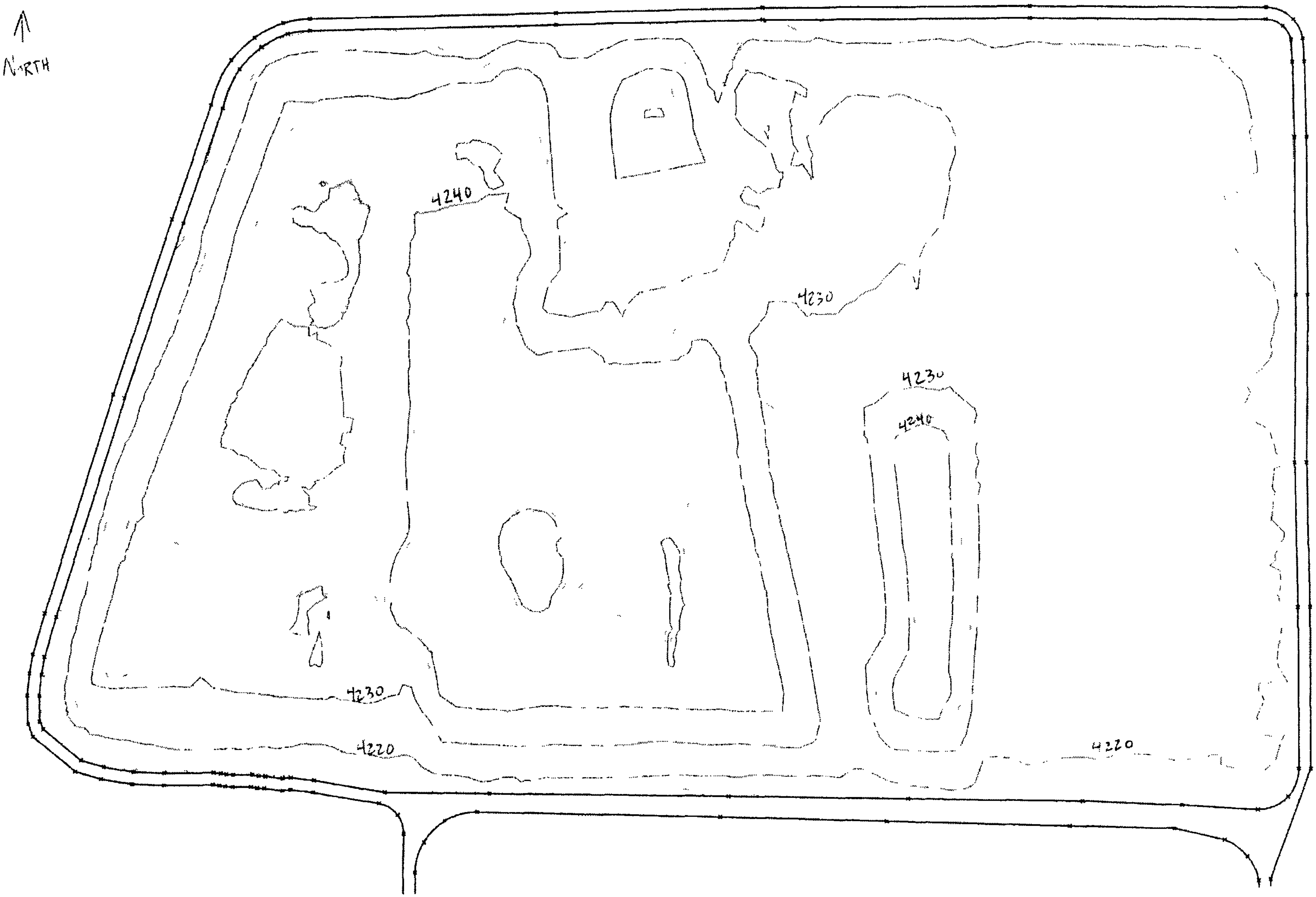
The quantities and calculations included in this report are based on the following assumptions

- Waste placed after 9/05/2000 has or will be placed at or above an elevation of 4215 00 ft
- Fill plans will be followed
- Future incoming waste characteristics and acceptance rates will resemble those from 9/24/2003 – 8/02/2007
- Future waste compaction and consolidation rates will resemble those from 9/05/2000 – 9/24/2003
- Final cover will be placed over the fill plan surfaces (fill plan surfaces do not include final cover)

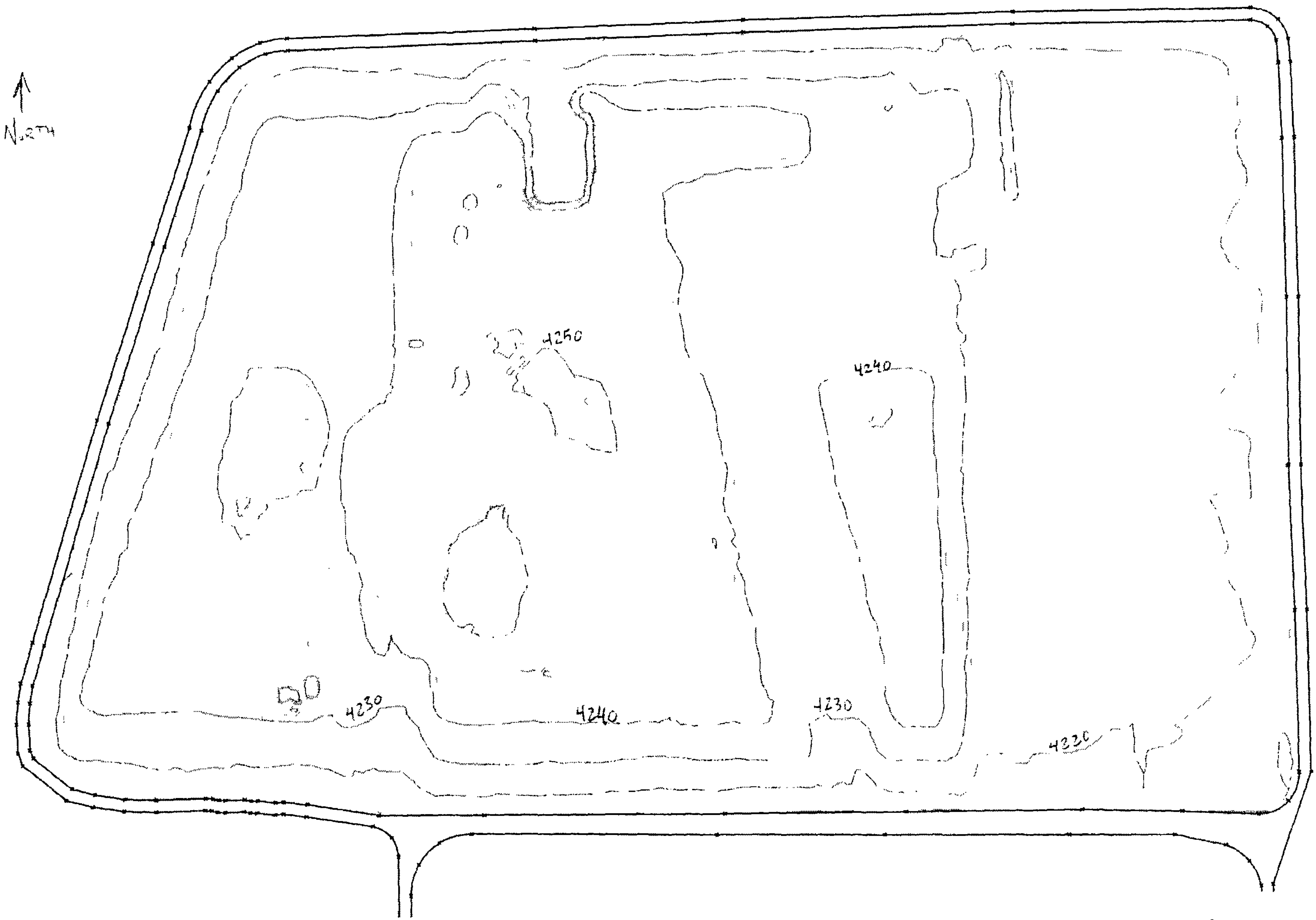
Attachments

1. September 2000 Surveyed Surface Contours
2. September 2003 Surveyed Surface Contours
3. August 2007 Surveyed Surface Contours
4. Phase II Fill Plan Contours (Current Phase)
5. Phase II and III Fill Plan Contours
6. Phase II – IV (Final) Fill Plan Contours
7. Landfill Inbound Scale Records for 9/06/2000 – 9/23/2003 (Material Analysis Report)
8. Landfill Inbound Scale Records for 9/24/2003 – 8/02/2007 (Material Analysis Report)
9. Bountiful Sanitary Landfill Capacity Report for Fiscal Year ending 6/30/2007

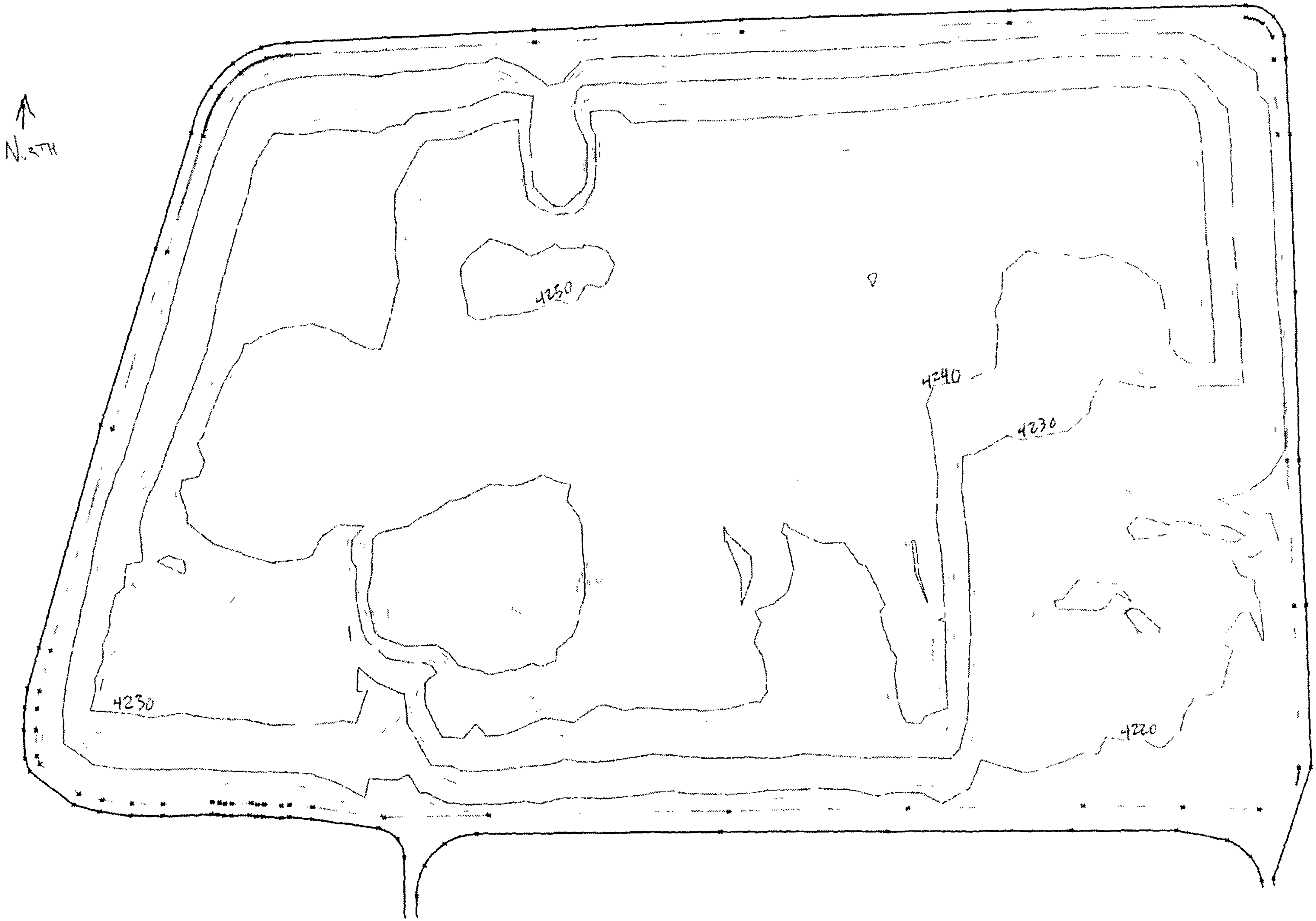
Sept 2000 Surveyed Surface



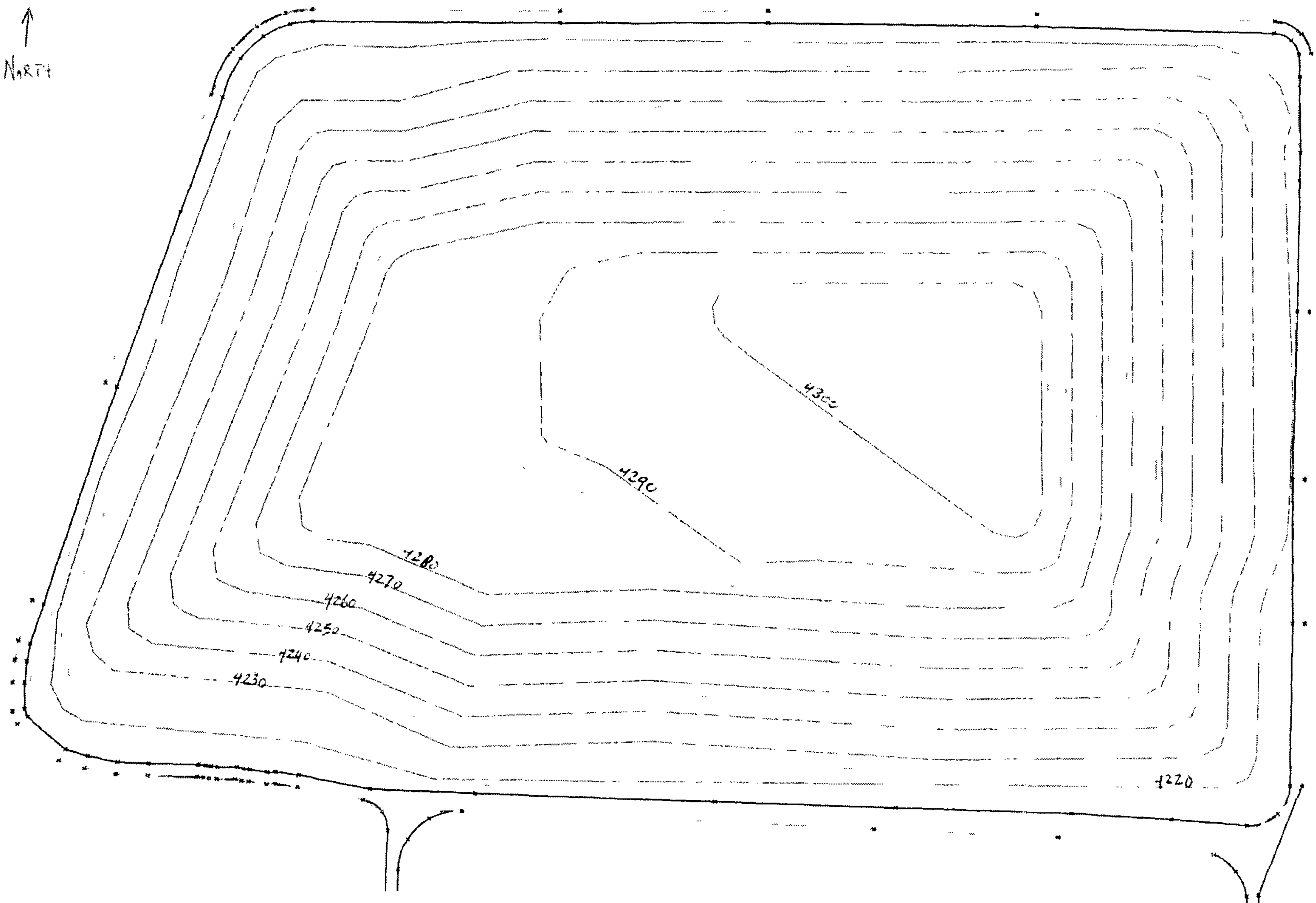
Sept 23, 2003 Aerial Surveyed Surface



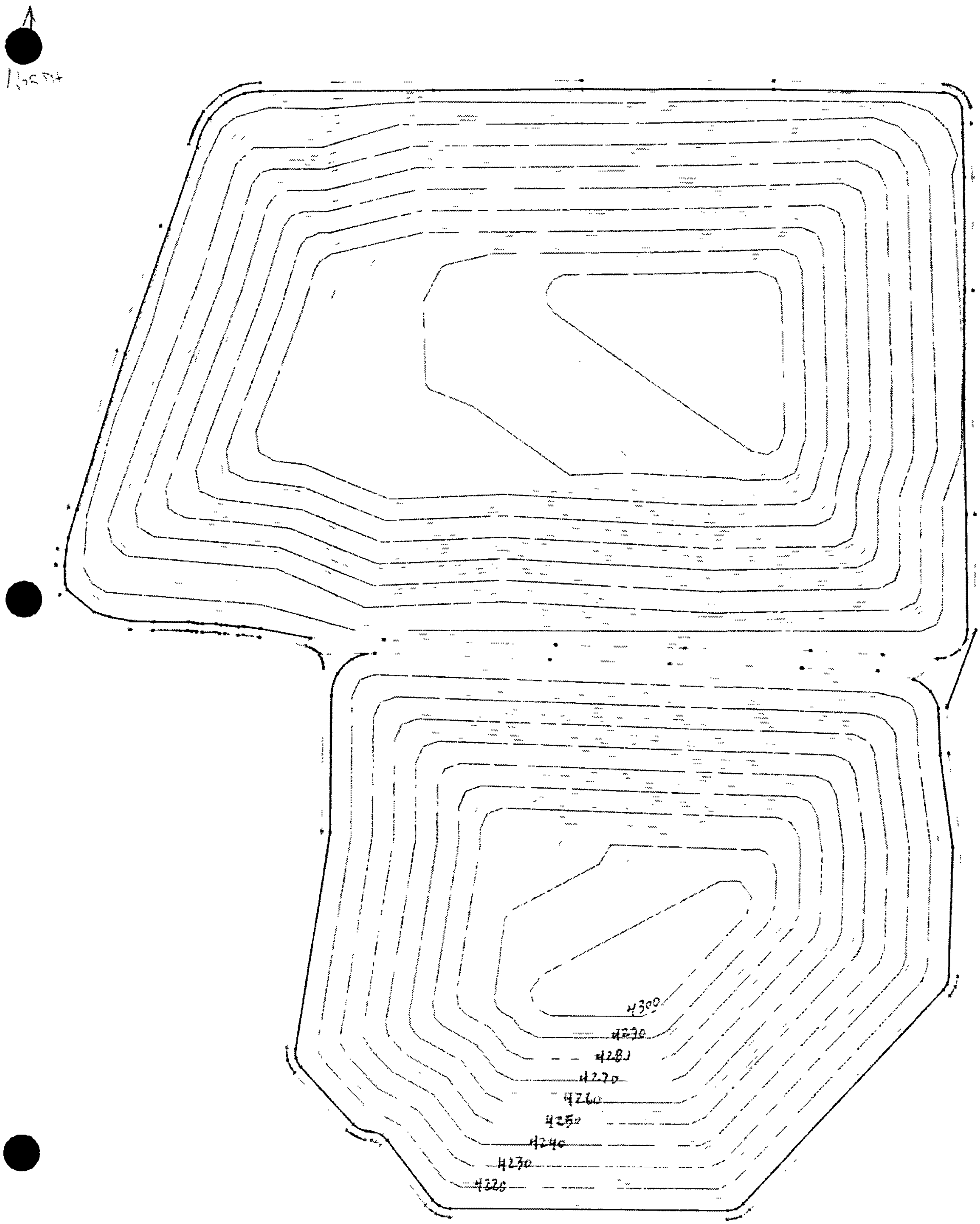
Aug 2[illegible]7 Surveyed Surface



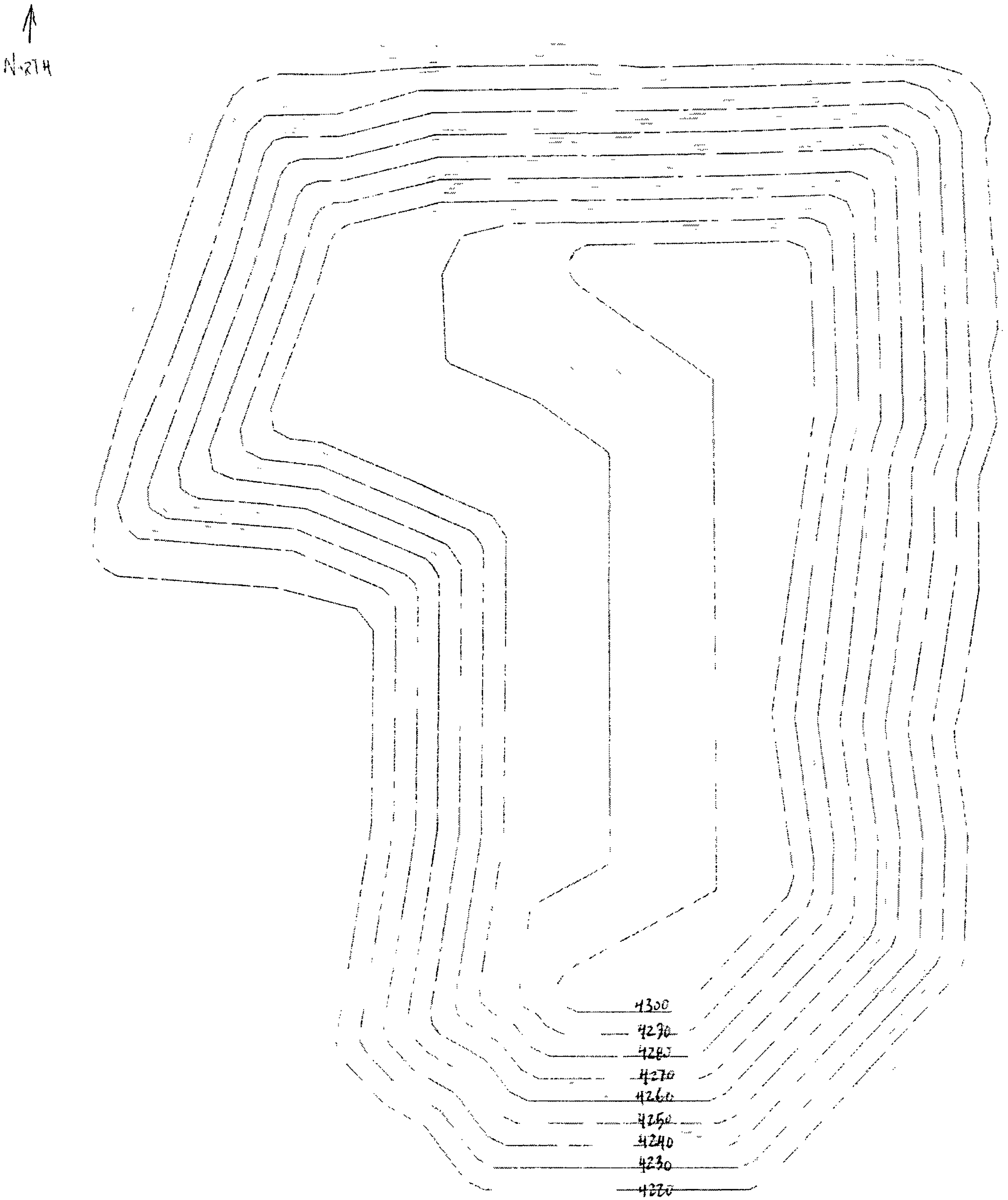
Phase II Fill Plan



Phase II III Fill Plan



Phase II - IV / Final Fill Plan



- Landfilled

Material Analysis Report by Material

Inbound materials only for the period 09/06/2000 - 09/23/2003
Summary Report for Sites: 1, 2
Accounts 0 - 999999 Customer Types - z Materials - ZZZZZZZZZZ Material Types - z

Date	Material	Type	Customer	Type	Tickets	Count	Est vol	Act Vol	Est Wt	Actual Wt	Charge
				Total	3	0	0	0	0 00	0 00	0 00
				Average		0	0	0	0 00	0 00	0 00
	BCW			Total	7489	0	114064640	e	57032 32	57032 32	0 00
				Average		0	15231	0	7 62	7 62	0 00
	COMP/DEL			Total	107	107	0	0	0 00	0 00	3 745 00
				Average		1	0	0	0 00	0 00	35 00
	CONC			Total	1087	0	4296220	0	2148 11	2148 11	45 130 00
				Average		0	3952	0	1 98	1 98	41 52
	CONST			Total	13599	4	39840850	0	19920 43	19920 43	418 801 00
				Average		0	2930	0	1 46	1 46	30 80
	EXEMPT			Total	80	0	1204140	9	602 07	602 07	0 00
				Average		0	15052	0	7 53	7 53	0 00
	FREE GW			Total	59	10	47200	0	23 60	0 00	0 00
				Average		0	800	0	0 40	0 00	0 00
	FREE GW2			Total	23	1	28620	0	14 31	-3 29	0 00
				Average		0	1244	0	0 62	-0 14	0 00
	FREE GW3			Total	3	0	7200	0	3 60	0 00	0 00
				Average		0	2400	0	1 20	0 00	0 00
	FREE HH			Total	34	0	27200	8	13 60	0 00	0 00
				Average		0	800	0	0 40	0 00	0 00
	FREE HH2			Total	23	0	27600	0	13 80	0 00	0 00
				Average		0	1200	0	0 60	0 00	0 00
	FREE HH3			Total	12	0	21600	0	10 80	0 00	0 00
				Average		0	1800	0	0 90	0 00	0 00
	FREE MW			Total	11	0	0	0	4 40	0 00	0 00
				Average		0	0	0	0 40	0 00	0 00
	FREE MW/WT			Total	1	0	0	0	0 00	0 00	0 00
				Average		0	0	0	0 00	0 00	0 00

Material Analysis Report by Material

Inbound materials only for the period 09/06/2000 - 09/23/2003
Summary Report for Sites 1 2
Accounts 0 - 999999 Customer Types - z Materials - ZZZZZZZZZZ Material Types - z

Date	Material	Type	Customer	Type	Tickets	Count	Est vol	Act Vol	Est Wt	Actual Wt	Charge
	FREE MW2			Total	4	0	4800	•	2 40	0 00	0 00
				Average		0	1200	0	0 60	0 00	0 00
	FREE MW3			Total	4	0	7200	•	3 60	0 00	0 00
				Average		0	1800	0	0 90	0 00	0 00
	FREE-CRETE			Total	1386	1	37878520	•	18939 26	18939 26	0 00
				Average		0	27329	0	13 66	13 66	0 00
	FREE-DIRT			Total	596	0	17808220	0	8904 11	8904 11	0 00
				Average		0	29880	0	14 94	14 94	0 00
	FREE-GREEN			Total	333	0	2216940	0	1108 47	1108 47	0 00
				Average		0	6657	0	3 33	3 33	0 00
	GW			Total	41886	42542	34040440	0	17020 22	5 02	127 626 00
				Average		1	813	0	0 41	0 00	3 05
	GW2			Total	4389	4505	7243460	0	3621 73	20 13	27 030 00
				Average		1	1650	0	0 83	0 00	6 16
	GW3			Total	965	992	2391940	0	1195 97	6 77	11 904 00
				Average		1	2479	0	1 24	0 01	12 34
	HH $3			Total	40050	40345	32299140	•	16149 57	12 77	121 035 00
				Average		1	806	0	0 40	0 00	3 02
	HH2 $6			Total	2151	2161	2609080	•	1304 54	10 34	12 966 00
				Average		1	1213	0	0 61	0 00	6 03
	HH3 $12			Total	238	240	461400	•	230 70	15 60	2 880 00
				Average		1	1939	0	0 97	0 07	12 10
	MW			Total	4157	1	37619540	9	18809 77	18809 77	395 058 00
				Average		0	9050	0	4 52	4 52	95 03
	SHEET ROCK			Total	8	0	12460	0	6 23	6 23	130 00
				Average		0	1558	0	0 78	0 78	16 25
	SLUDGE			Total	523	0	9685660	0	4842 83	4842 83	48,451 20

@$22/TON

Material Analysis Report by Material

Inbound materials only for the period 09/06/2000 - 09/23/2003
Summary Report for Sites 1 2
Accounts 0 - 999999 Customer Types - z Materials - ZZZZZZZZZZ Material Types - z

Date	Material	Type	Customer	Type	Tickets	Count	Est vol	Act Vol	Est Wt	Actual Wt	Charge
				Average		0	18519	0	9 26	9 26	92 64
	WEIGH SLIP			Total	165	0	4797540	0	2398 77	2398 77	0 00
				Average		0	29076	0	14 54	14 54	0 00
	ZDOL			Total	23	0	0	0	0 00	0 00	-342 65
				Average		0	0	0	0 00	0 00	-14 90
				Report Total	119409	90909	348641610	0	174325 21	134779 71	1 214 413 55
				Report Average		1	2920	0	1 46	1 13	10 17

= Landfilled

Material Analysis Report by Material

Inbound materials only for the period 09/24/2003 - 08/02/2007
Summary Report for Sites 1 2
Accounts 0 - 999999 Customer Types - z Materials - ZZZZZZZZZZ Material Types - z

Date	Material	Type	Customer	Type	Tickets	Count	Est vol	Act Vol	Est Wt	Actual Wt	Charge
	ASPHALT			Total	3	0	17920	0	8 96	8 96	0 00
				Average		0	5973	0	2 99	2 99	0 00
	BCW			Total	10377	0	151019720	0	75509 86	75509 86	0 00
				Average		0	14553	0	7 28	7 2S	0 00
	COMP/DEL			Total	287	287	0	0	0 00	0 00	10 055 00
				Average		1	0	0	0 00	0 00	35 03
	CONC			Total	849	0	4307900	0	2153 95	2153 95	49 486 00
				Average		0	5074	0	2 54	2 54	58 29
	CONST			Total	22151	1	97850380	0	48925 19	48925 19	1 132 670 00
				Average		0	4417	0	2 21	2 21	51 13
	DEMO			Total	1	0	0	0	0 00	0 00	11 00
				Average		0	0	0	0 00	0 00	11 00
	EXEMPT			Total	S	0	62700	0	31 35	31 35	0 00
				Average		0	12540	0	6 27	6 27	0 00
	FREE GW			Total	2459	5690	4552000	0	2276 00	0 00	0 00
				Average		2	1851	0	0 93	0 00	0 00
	FREE GW2			Total	503	549	880340	0	440 17	0 97	0 00
				Average		1	1750	0	0 88	0 00	0 00
	FREE GW3			Total	219	223	535200	0	267 60	0 00	0 00
				Average		1	2444	0	1 22	0 00	0 00
	FREE HH			Total	3098	11382	9108800	e	4554 40	0 00	0 00
				Average		4	2940	0	1 47	0 00	0 00
	FREE HH2			Total	499	619	751200	0	375 60	0 00	0 00
				Average		1	1505	0	0 75	0 00	0 00
	FREE HH3			Total	121	124	223200	e	111 60	0 00	0 00
				Average		1	1845	0	0 92	0 00	0 00
	FREE MW			Total	5	25	0	0	10 00	0 00	0 00
				Average		5	0	0	2 00	0 00	0 00

Material Analysis Report by Material

Inbound materials only for the period 09/24/2003 - 08/02/2007
Summary Report for Sites 1 2
Accounts 0 - 999999 Customer Types - z Materials - ZZZZZZZZZZ Material Types - z

Date	Material	Type	Customer	Type	Tickets	Count	Est vol	Act Vol	Est Wt	Actual Wt	Charge
	FREE MW2			Total	4	5	6000	0	3 00	0 00	0 00
				Average		1	1500	0	0 75	0 00	0 00
	FREE MW3			Total	27	0	48600	0	24 30	0 00	0 00
				Average		0	1800	0	0 90	0 00	0 00
	FREE-CONST			Total	37	0	1024480	0	512 24	512 24	0 00
				Average		0	27689	0	13 84	13 84	0 00
	FREE-CRETE			Total	2427	9	63119940	0	31559 97	31559 97	0 00
				Average		0	26007	0	13 00	13 00	0 00
	FREE-DIRT			Total	15888	2	438270880	0	219135 44	219135 44	0 00
				Average		0	27585	0	13 79	13 79	0 00
	FREE-GREEN			Total	510	0	3316000	0	1658 00	1658 00	0 00
				Average		0	6502	0	3 25	3 25	0 00
	FREE-MW			Total	279	0	3925620	0	1962 81	1962 81	0 00
				Average		0	14070	0	7 04	7 04	0 00
	GRAVEL			Total	10	0	404540	0	202 27	202 27	0 00
				Average		0	40454	0	20 23	20 23	0 00
	GW			Total	34258	34775	27820000	0	13910 00	0 00	104 325 00
				Average		1	812	0	0 41	0 00	3 05
	GW2			Total	5824	5900	9439340	0	4719 67	0 47	35,400 00
				Average		1	1621	0	0 81	0 00	6 08
	GW3			Total	1021	1050	2520000	0	1260 00	0 00	12 600 00
				Average		1	2468	0	1 23	0 00	12 34
	GW4			Total	132	131	396000	0	198 00	0 00	2 376 00
				Average		1	3000	0	1 50	0 00	18 00
	HH $3			Total	91974	92824	74259200	0	37129 60	0 00	278 472 00
				Average		1	807	0	0 40	0 00	3 03
	HH2 $6			Total	5283	5299	6358800	0	3179 40	0 00	31 794 00

Material Analysis Report by Material

Inbound materials only for the period 09/24/2003 - 08/02/2007
Summary Report for Sites 1 2
Accounts 0 - 999999 Customer Types - z Materials - ZZZZZZZZZZ Material Types - z

Date	Material	Type	Customer	Type	Tickets	Count	Est vol	Act Vol	Est Wt	Actual Wt	Charge
				Average		1	1204	0	0 60	0 00	6 02
	HH3 $12			Total	174	176	316800	e	158 40	0 00	2 112 00
				Average		1	1821	0	0 91	0 00	12 14
	IMP SOIL			Total	1254	0	43372440	0	21686 22	21686 22	0 00
				Average		0	34587	0	17 29	17 29	0 00
	MW			Total	3564	0	57389810	e	28694 91	28694 91	650 006 00
				Average		0	16103	0	8 05	8 05	182 38
	ROAD BASE			Total	391	0	16070140	0	8035 07	8035 07	0 00
				Average		0	41100	0	20 55	20 55	0 00
	SHEET ROCK			Total	8	0	16780	e	8 39	8 39	177 00
				Average		0	2098	0	1 05	1 05	22 13
	SLUDGE			Total	88	0	1722880	e	861 44	861 44	18 635 00
				Average		0	19578	0	9 79	9 79	211 76
	WEIGH SLIP			Total	750	0	22168520	0	11084 26	11084 26	0 00
				Average		0	29558	0	14 78	14 78	0 00
	ZEAL			Total	8	0	0	0	0 00	0 00	0 00
				Average		0	0	0	0 00	0 00	0 00
	ZDOL			Total	32	0	0	0	0 00	0 00	565 50
				Average		0	0	0	0 00	0 00	17 67
				Report Total	204520	159071	1041276130	0	520648 07	452031 77	2,328 684 50
				Report Average		1	5091	0	2 55	2 21	11 39

75 [illegible] 86
861 44
TOTAL=

Bountiful Sanitary Landfill
Capacity Report
July 7 2007

Report Year 2006 2007 Fiscal year
Report Includes Activity Through 30-Jun-07

Capacity Utilized to Date

			TONS
1960-1987	59000 T/yr	(Per JMM Consulting Report Nov 1988)	1.593E+06 Tons
1988-1993		Bountiful Weigh Ticket	1.679E+05 Tons
1994-1997	60000 T/y	estimate based on refuse accounting	2.400E+05 Tons
1998		Material Analysis Report	6.540E+04 Tons
1999		Material Analysis Report	4.686E+04 Tons
2000		Material Analysis Report	4.598E+04 Tons
2001		Material Analysis Report	1.161E+04 Tons
2002		Material Analysis Report	4.189E+04 Tons
2003		Material Analysis Report	4.596E+04 Tons
2004		Material Analysis Report	5.706E+04 Tons
2005		Material Analysis Report	4.763E+04 Tons
2006		Material Analysis Report	6.510E+04 Tons
2007		Material Analysis Report Jan-Jun	2.708E+04 Tons

Capacity Utilized to Date $\boxed{2.488E+06}$ Tons

Total Estimated Capacity

Based on April 1997 Design Capacity Study 4.628E+06 Tons
Less Capacity taken by Legacy (28 670 Tons) 4.599E+06 Tons

54.00% utilized to date

Estimated Life

28 May 93

On May 28 1993 Aerial Photos were taken to determine that 8.06E+06 yd3 of airspace were available. Since then the amount of refuse placed in the landfill is

7.435E+05 Tons

Conservatively Assuming Compaction to 800 lb/yd3 shows=> 1.859E+06 yd3 of airspace filled with refuse since 1993

Assuming air space consumed by daily cover is additional 8% or => 1.487E+05 yd3 of airspace filled with cover soil since 1993

AIRSPACE FILLED since 1993 => 2.007E+06 yd3

Years of placement => 14.09 years since May 28 1993

Average per year => 1.425E+05 yd3 since May 28 1993

Less Airspace Lost to Legacy Hwy 7.741E+04 yd3 (including 8% cover soil)

Available Air Space => 5.975E+06 yd3 remaining

Tons placed in 3 most recent years 170047.48 Tons

Refuse Tonnage Remaining 2.213E+06 Tons (excludes 8% cover soil)

Estimated Life 41.9 YRS
based on average fill placement since May 28 1993

Estimated Life (based on 3 most recent years) 35.1 YRS

Appendix D

Record Keeping Forms

TICKET REPORT
Daily Summary

Ticket #	Date	Time	Reference	Account	Customer	Vehicle	Material	Quantity	Type	Rate	Amount

# OF TICKETS	84
# OF RECORDS	84
# OF CUSTOMERS	6
# OF TRUCK PERMITS	2
TOTAL VOLUME	0 00
AVE CU YD/LOAD	0 00
INBOUND WEIGHT	14 78
OUTBOUND WEIGHT	39 90
TOTAL WEIGHT	54 68
AVG TON/LOAD	0 65
NET SALES	1,565 00
CASH RECEIVED	851 00
CHECKS RECEIVED	630 00
BANK CARD CHARGES	0 00
TOTAL COLLECTIONS	1,481 00
AMOUNT PAID OUT	0 00

UPLOAD STATISTICS 02000019 TXT

NUMBER OF RECORDS	84
CHARGE SALES AMOUNT	81 00
CASH SALES AMOUNT	1481 00
PAYMENTS ON ACCOUNT	0 00
NET UPLOAD AMOUNT	1562 00

DAILY CLOSE COMPLETED 000019
Site 02 04/11/98 18 19 34 MATT

TICKET REPORT
Material Summary

Material	Description	Tickets	Count	Volume	Inbound wt	Outbound wt	Total wt	Net sales	Receipts	AR Change
CONST	Construction mat	8	0	0	3	0	3	87 00	77 00	10 00
COMP	Compost w/out sludge	52	0	0	0	42	42	1153 00	1153 00	0 00
CONC	Concrete	7	0	0	10	0	10	183 00	163 00	20 00
HH $3	House Hold $3	2	2	0	0	0	0	6 00	6 00	0 00
GH3	$12 Green Waste	2	2	0	0	0	0	24 00	24 00	0 00
WC	Wood Chips	3	0	0	0	1	1	28 00	28 00	0 00
GW	$3 00 Green Waste	7	7	0	0	0	0	21 00	12 00	9 00
HH $12	House Hold $12	1	1	0	0	0	0	12 00	12 00	0 00
GH2	$6 00 Green Waste	1	1	0	0	0	0	6 00	6 00	0 00
MW	Mixed Waste	1	0	0	2	0	2	42 00	0 00	42 00
		84	13	0	15	43	58	1562 00	1481 00	81 00

Date 02/09/05
Time 05:00:15 PM

City of Bountiful, UT

Ticket Report

All Tickets in Batch File

Ticket #	Date	Time	Reference	Account	Customer	Vehicle	Material	Quantity	Rate	Amount
318460-0	02/09/05	08 03		107	R R ROOFING		CONST	3 88	21 00	81 00
318461-0	02/09/05	08 46	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	19 90	0 00	0 00
318462-0	02/09/05	08 47	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	19 18	0 00	0 00
318463-0	02/09/05	08 52	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	20 76	0 00	0 00
318464-0	02/09/05	08 58	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	18 10	0 00	0 00
318465-0	02/09/05	09 03	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	19 30	0 00	0 00
318465-0	02/09/05	09 14		119	GARNER & ASSOC		HH $3	1 00	3 00	3 00
318467-0	02/09/05	09 40		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318468-0	02/09/05	09 40		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318469-0	02/09/05	09 43		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318470-0	02/09/05	09 52	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	17 06	0 00	0 00
318471-0	02/09/05	09 53		100	BOUNTIFUL CITY SANIT	BC-271	BCW	5 34	0 00	0 00
318472-0	02/09/05	09 53		25	DAVIS COUNTY SCHOOL		HH $3	1 00	3 00	3 00
318473-0	02/09/05	09 56	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	15 63	0 00	0 00
318474-0	02/09/05	09 58		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318475-0	02/09/05	09 58		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318476-0	02/09/05	10 01	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	13 09	0 00	0 00
318477-0	02/09/05	10 08	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	11 91	0 00	0 00
318478-0	02/09/05	10 12		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318479-0	02/09/05	10 50	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	22 57	0 00	0 00
318480-0	02/09/05	10 51	BASIN	0	CASH CUSTOMER		FREE-DIRT	14 60	0 00	0 00
318481-0	02/09/05	10 51		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318482-0	02/09/05	10 51		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318483-0	02/09/05	10 55	5TH BASIN	0	CASH CUSTOMER		FREE-DIRT	12 84	0 00	0 00
318484-0	02/09/05	10 58	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	20 14	0 00	0 00
318485-0	02/09/05	11 04	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	17 11	0 00	0 00
318486-0	02/09/05	11 07	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	16 51	0 00	0 00
318487-0	02/09/05	11 18	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	19 97	0 00	0 00
318488-0	02/09/05	11 32		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318489-0	02/09/05	11 35	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	12 56	0 00	0 00
318490-0	02/09/05	11 43	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	13 32	0 00	0 00
318491-0	02/09/05	11 47		0	CASH CUSTOMER		COMP	0 81	30 00	24 00
318492-0	02/09/05	11 47		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318493-0	02/09/05	11 47		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318494-0	02/09/05	11 49		40	GREEN DISPOSAL		MW	7 88	21 00	165 00
318495-0	02/09/05	11 56		14	BRODERICK CONSTRUCTI		CONST	0 69	21 00	14 00
318496-0	02/09/05	11 57	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	23 42	0 00	0 00
318497-0	02/09/05	11 58		100	BOUNTIFUL CITY SANIT	BC-270	BCW	5 40	0 00	0 00
318498-0	02/09/05	12 10	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	21 80	0 00	0 00
318499-0	02/09/05	12 14	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	17 03	0 00	0 00
318500-0	02/09/05	12 16		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318501-0	02/09/05	12 17	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	16 77	0 00	0 00
318502-0	02/09/05	12 25	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	5 69	0 00	0 00

Ticket Report

All Tickets in Batch File

Ticket #	Date	Time	Reference	Account	Customer	Vehicle	Material	Quantity	Rate	Amount
318503-0	02/09/05	12 26	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	20 10	0 00	0 00
318504-0	02/09/05	12 26		100	BOUNTIFUL CITY SANIT	BC-271	BCW	8 53	0 00	0 00
318505-0	02/09/05	12 41		100	BOUNTIFUL CITY SANIT	BC-258	BCW	9 57	0 00	0 00
318506-0	02/09/05	12 45		100	BOUNTIFUL CITY SANIT	BC-254	BCW	5 71	0 00	0 00
318507-0	02/09/05	13 00		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318508-0	02/09/05	13 08		0	CASH CUSTOMER		FREE-DIRT	10 73	0 00	0 00
318509-0	02/09/05	13 10		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318510-0	02/09/05	13 12		100	BOUNTIFUL CITY SANIT	BC-273	BCW	5 42	0 00	0 00
318511-0	02/09/05	13 15		100	BOUNTIFUL CITY SANIT	BC-270	BCW	1 95	0 00	0 00
318512-0	02/09/05	13 23	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	13 42	0 00	0 00
318513-0	02/09/05	13 30	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	15 30	0 00	0 00
318514-0	02/09/05	13 41		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318515-0	02/09/05	13 43		0	CASH CUSTOMER		GW2	1 00	6 00	6 00
318516-0	02/09/05	13 55	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	21 98	0 00	0 00
318517-0	02/09/05	14 00	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	7 57	0 00	0 00
318518-0	02/09/05	14 08		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318519-0	02/09/05	14 09		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318520-0	02/09/05	14 34	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	18 65	0 00	0 00
318521-0	02/09/05	14 36	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	19 97	0 00	0 00
318522-0	02/09/05	14 38		150	SQUIRES CONSTRUCTION		CONST	1 49	21 00	31 00
318523-0	02/09/05	14 44	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	9 17	0 00	0 00
318524-0	02/09/05	15 03		40	GREEN DISPOSAL		MW	3 78	21 00	79 00
318525-0	02/09/05	15 07		0	CASH CUSTOMER		CONST	0 29	21 00	6 00
318526-0	02/09/05	15 37	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	21 34	0 00	0 00
318527-0	02/09/05	15 40	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	21 19	0 00	0 00
318528-0	02/09/05	15 54		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318529-0	02/09/05	15 55		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318530-0	02/09/05	15 57		0	CASH CUSTOMER		HH2 $6	1 00	6 00	6 00
318531-0	02/09/05	16 03	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	16 30	0 00	0 00
318532-0	02/09/05	16 23		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318533-0	02/09/05	16 27		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318534-0	02/09/05	16 28		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318535-0	02/09/05	16 43		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318536-0	02/09/05	16 43	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	17 35	0 00	0 00
318537-0	02/09/05	16 45	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	22 14	0 00	0 00
318538-0	02/09/05	16 51	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	18 15	0 00	0 00
318539-0	02/09/05	16 55	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	18 75	0 00	0 00

Ticket Report

Charge Tickets Only

Ticket #	Date	Time	Reference	Account	Customer	Vehicle	Material	Quantity	Rate	Amount
318460-0	02/09/05	08 03		107	R R ROOFING		CONST	3 88	21 00	81 00
318466-0	02/09/05	09 14		119	GARNER & ASSOC		HH $3	1 00	3 00	3 00
318471-0	02/09/05	09 53		100	BOUNTIFUL CITY SANIT	BC-271	BCW	5 34	0 00	0 00
318472-0	02/09/05	09 53		25	DAVIS COUNTY SCHOOL		HH $3	1 00	3 00	3 00
318494-0	02/09/05	11 49		40	GREEN DISPOSAL		MW	7 88	21 00	165 00
318495-0	02/09/05	11 56		14	BRODERICK CONSTRUCTI		CONST	0 69	21 00	14 00
318497-0	02/09/05	11 58		100	BOUNTIFUL CITY SANIT	BC-270	BCW	5 40	0 00	0 00
318504-0	02/09/05	12 26		100	BOUNTIFUL CITY SANIT	BC-271	BCW	8 53	0 00	0 00
318505-0	02/09/05	12 41		100	BOUNTIFUL CITY SANIT	BC-258	BCW	9 57	0 00	0 00
318506-0	02/09/05	12 45		100	BOUNTIFUL CITY SANIT	BC-254	BCW	5 71	0 00	0 00
318510-0	02/09/05	13 12		100	BOUNTIFUL CITY SANIT	BC-273	BCW	5 42	0 00	0 00
318511-0	02/09/05	13 15		100	BOUNTIFUL CITY SANIT	BC-270	BCW	1 95	0 00	0 00
318522-0	02/09/05	14 38		150	SQUIRES CONSTRUCTION		CONST	1 49	21 00	31 00
318524-0	02/09/05	15 03		40	GREEN DISPOSAL		MW	3 78	21 00	79 00
										376 00

Ticket Report

Cash Tickets Only

Ticket #	Date	Time	Reference	Account	Customer	Vehicle	Material	Quantity	Rate	Amount
318461-0	02/09/05	08 46	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	19 90	0 00	0 00
318462-0	02/09/05	08 47	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	19 18	0 00	0 00
318463-0	02/09/05	08 52	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	20 76	0 00	0 00
318464-0	02/09/05	08 58	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	18 10	0 00	0 00
318465-0	02/09/05	09 03	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	19 30	0 00	0 00
318467-0	02/09/05	09 40		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318468-0	02/09/05	09 40		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318469-0	02/09/05	09 43		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318470-0	02/09/05	09 52	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	17 06	0 00	0 00
318473-0	02/09/05	09 56	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	15 63	0 00	0 00
318474-0	02/09/05	09 58		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318475-0	02/09/05	09 58		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318476-0	02/09/05	10 01	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	13 09	0 00	0 00
318477-0	02/09/05	10 08	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	11 91	0 00	0 00
318478-0	02/09/05	10 12		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318479-0	02/09/05	10 50	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	22 57	0 00	0 00
318480-0	02/09/05	10 51	BASIN	0	CASH CUSTOMER		FREE-DIRT	14 60	0 00	0 00
318481-0	02/09/05	10 51		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318482-0	02/09/05	10 51		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318483-0	02/09/05	10 55	5TH BASIN	0	CASH CUSTOMER		FREE-DIRT	12 84	0 00	0 00
318484-0	02/09/05	10 58	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	20 14	0 00	0 00
318485-0	02/09/05	11 04	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	17 11	0 00	0 00
318486-0	02/09/05	11 07	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	16 51	0 00	0 00
318487-0	02/09/05	11 18	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	19 97	0 00	0 00
318488-0	02/09/05	11 32		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318489-0	02/09/05	11 35	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	12 56	0 00	0 00
318490-0	02/09/05	11 43	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	13 32	0 00	0 00
318491-0	02/09/05	11 47		0	CASH CUSTOMER		COMP	0 81	30 00	24 00
318492-0	02/09/05	11 47		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318493-0	02/09/05	11 47		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318496-0	02/09/05	11 57	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	23 42	0 00	0 00
318498-0	02/09/05	12 10	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	21 80	0 00	0 00
318499-0	02/09/05	12 14	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	17 03	0 00	0 00
318500-0	02/09/05	12 16		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318501-0	02/09/05	12 17	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	16 77	0 00	0 00
318502-0	02/09/05	12 25	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	5 69	0 00	0 00
318503-0	02/09/05	12 26	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	20 10	0 00	0 00
318507-0	02/09/05	13 00		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318508-0	02/09/05	13 08		0	CASH CUSTOMER		FREE-DIRT	10 73	0 00	0 00
318509-0	02/09/05	13 10		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318512-0	02/09/05	13 23	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	13 42	0 00	0 00
318513-0	02/09/05	13 30	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	15 30	0 00	0 00
318514-0	02/09/05	13 41		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00

Ticket Report

Cash Tickets Only

Ticket #	Date	Time	Reference	Account	Customer	Vehicle	Material	Quantity	Rate	Amount
318515-0	02/09/05	13 43		0	CASH CUSTOMER		GW2	1 00	6 00	6 00
318516-0	02/09/05	13 55	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	21 98	0 00	0 00
318517-0	02/09/05	14 00	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	7 57	0 00	0 00
318518-0	02/09/05	14 08		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318519-0	02/09/05	14 09		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318520-0	02/09/05	14 34	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	18 65	0 00	0 00
318521-0	02/09/05	14 36	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	19 97	0 00	0 00
318523-0	02/09/05	14 44	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	9 17	0 00	0 00
318525-0	02/09/05	15 07		0	CASH CUSTOMER		CONST	0 29	21 00	6 00
318526-0	02/09/05	15 37	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	21 34	0 00	0 00
318527-0	02/09/05	15 40	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	21 19	0 00	0 00
318528-0	02/09/05	15 54		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318529-0	02/09/05	IS 55		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318530-0	02/09/05	15 57		0	CASH CUSTOMER		HH2 $6	1 00	6 00	6 00
318531-0	02/09/05	16 03	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	16 30	0 00	0 00
318532-0	02/09/05	16 23		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318533-0	02/09/05	16 27		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318534-0	02/09/05	16 28		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318535-0	02/09/05	16 43		0	CASH CUSTOMER		HH $3	1 00	3 00	3 00
318536-0	02/09/05	16 43	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	17 35	0 00	0 00
318537-0	02/09/05	16 45	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	22 14	0 00	0 00
318538-0	02/09/05	16 51	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	18 15	0 00	0 00
318539-0	02/09/05	16 5S	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	18 75	0 00	0 00
										111 00

Ticket Report

Customer Summary

Account	Customer	Tickets	Count	Volume	Inbound wt	Outbound wt	Net sales	Receipts	AR Change
107	R R ROOFING	1	0	0	3 88	0 00	81 00	0 00	81 00
0	CASH CUSTOMER	66	25	0	661 66	0 81	111 00	111 00	0 00
119	GARNER & ASSOC	1	1	0	0 00	0 00	3 00	0 00	3 00
100	BOUNTIFUL CITY SANITATION	7	0	0	41 92	0 00	0 00	0 00	0 00
25	DAVIS COUNTY SCHOOL DIST	1	1	0	0 00	0 00	3 00	0 00	3 00
40	GREEN DISPOSAL	2	0	0	11 66	0 00	244 00	0 00	244 00
14	BRODERICK CONSTRUCTION	1	0	0	0 69	0 00	14 00	0 00	14 00
150	SQUIRES CONSTRUCTION	1	0	0	1 49	0 00	31 00	0 00	31 00
		80	27	0	721 30	0 81	487 00	111 00	376 00

Ticket Report

Material Summary

Material	Description	Tickets	Count	Voluma	Inbound wt	Outbound wt	Net sales	Receipts	AR Change
CONST	Construction mat	4	0	0	6 35	0 00	132 00	6 00	126 00
FREE-DIRT	CITY HAULING	39	0	0	661 37	0 00	0 00	0 00	0 00
HH $3	House Hold $3	25	25	0	0 00	0 00	75 00	69 00	6 00
BCW	Bountiful Waste	7	0	0	41 92	0 00	0 00	0 00	0 00
COMP	Compost w/out sludge	1	0	0	0 00	0 81	24 00	24 00	0 00
MW	Mixed Waste	2	0	0	11 66	0 00	244 00	0 00	244 00
GW2	$6 00 Green Waste	1	1	0	0 00	0 00	6 00	6 00	0 00
HH2 $6	House Hold	1	1	0	0 00	0 00	6 00	6 00	0 00
		80	27	0	721 30	0 81	487 00	111 00	376 00

Po Box 369
BOUNTIFUL SANITARY LANDFILL
Bountiful, Utah 84011-0369

SITE	TICKET	GRID
02	000810	

WEIGHMASTER	
GEORGIA	
DATE IN	**TIME IN**
04/13/98	13 24
DATE OUT	**TIME OUT**
04/13/98	13 24
VEHICLE	**ROLL OFF**

REFERENCE	ORIGIN

000000
CASH CUSTOMER

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
1 00	EACH	$3 00 Green Waste	3 00	3 00	0 00	3 00

NET AMOUNT	3 00
TENDERED	5 00
CHANGE	E 00
CHECK NO	

Summer Hours from Apr 1 to Nov 1 -- 8 00 a m to 6 00 a m
Winter Hours from Nov 1 to Apr 1 -- 8 00 a m to 5 00 p m

SIGNATURE ____________________

[illegible]
P O BOX 369
BOUNTIFUL UTAH 8401 0369

Weighed [illegible]
BILL TO 0
CASH CUSTOMER

Vehicle ID
Reference

DATE IN 02/10/2005 TIME IN 08 39 09
DATE OUT 02/10/2005 TIME OUT 08 39

INBOUND TICKET Number 02-318540

STORED GROSS WT	0	LB
STORED TARE WT	0	LB
NET WEIGHT	0	LB

Qty	Description	Amount
1 00	House Hold $3	3 00
	NET CASH AMOUNT	3 00

X______________________________

[illegible]
[illegible] BOX [illegible]9
BOUNTIFUL UTAH [illegible]

Weighed [illegible]
BILL TO 1[illegible]
[illegible]

Vehicle ID
Reference

DATE IN 02/10/2005 TIME IN 09 00 56
DATE OUT 02/10/2005 TIME OUT 09 16

INBOUND TICKET Number 02-318543

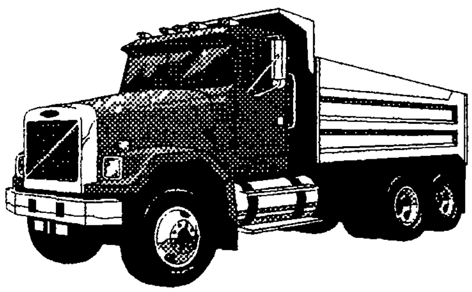
SCALE 1 GROSS WT	19260	LB
SCALE 2 TARE WT	9140	LB
NET WEIGHT	10120	LB

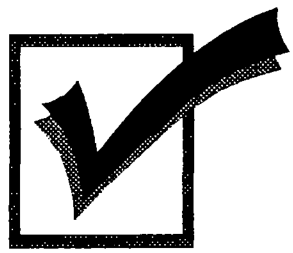
Qty	Description	Amount
5 06	Construction mat	106 00
	NET CHARGE AMOUNT	106 00

X______________________________

NOTICE !

RANDOM WASTE SCREENING IS PRACTICED HERE!





WE RESERVE THE RIGHT TO INSPECT ANY LOAD OR PORTION OF A LOAD ARRIVING AT OUR FACILITY.

WE WILL REJECT ALL:
HAZARDOUS WAST
PCBs
LIQUIDS
RAD*IO*AC*TIVE* WASTE
AND

ANY* WASTES *DETERMINED UNACCEPTABLE BY* OUR *MANAGEMENT!

YOUR PARTICIPATION IN THIS PROGRAM IN <u>NOT</u> OPTIONAL!

Random Load Inspection Record

INSPECTION INFORMATION

Inspector s Name ______________________________
Date of Inspection ______________________________
Time of Inspection ______________________________
Facility Name ______________________________

TRANSPORTATION COMPANY INFORMATION

Name ______________________________
Address ______________________________
____
Phone # ______________

VEHICLE INFORMATION

Driver's Name ______________________________
Vehicle Type ______________________________
Vehicle License # ______________________________
Vehicle s Last Stop ______________________________
Vehicle Contents ______________________________

OBSERVATIONS AND ACTIONS TAKEN

____
____
____
____
____

Photo Documentation ____ Yes ___ No

Dover s Signature* ______________________ Date ______________

Inspector s Signature ______________________ Date ______________

* Driver's signature heron denotes His presence during the inspection and does not admit, confirm or identity liability

BOUNTIFUL CITY
SANITARY LANDFILL

Routine Waste Inspection Form

Date ____________________ Time ____________________________________

Truck Type ____

Hauler _________________________________ License/Truck # ____________

Source of Material ____

____

Other Information ____

____

Waster Composition

Composition	Percent by Volume (estimated)
Food Wastes	
Paper/Cardboard	
Plastics	
Textiles/Rubber/Leather	
Dirt/Ashes/Brick	
Vegetative Wastes	
Wood ,	
Glass	
Metals	
Household Hazardous Waste	
Tires	
Drywall	
Other Hazardous Wastes	

Comments

Inspector Signature ______________________________________

Date ___________________________

LOAD INSPECTION REPORT

DATE_____________

Random Inspection______________ Suspicious Load______________

Waste Hauler ____

Waste Generator ____

Approx Volume ____

Load Contents ____

Comments ____

____

____

____

____

____

____

Load Accepted ____________

Load Rejected ____________

Inspector ____

Inspector Signature _________________________________

BOUNTIFUL SANITARY LANDFILL
QUARTERLY INSPECTION REPORT

Date ____________________________

Groundwater Monitoring system
Locks ____________________________
Protective Covers ____________________________
Guard Posts ____________________________
Total depths ____________________________
Other ____________________________
____

Methane Monitoring System
Equipment Calibration ____________________________
____
Equipment Operation ____________________________
____
Other ____________________________
____
____
____
____

Runoff retention system
Berm Condition ____________________________
____
Runoff Transport Ditch Condition ____________________________
____
Erosion Concerns ____________________________
____
Topsoil and vegetation condition ____________________________
____
Other ____________________________

Deviations from approved plan of operation
____
____
____
____
____
____
____
____
____

Other Comments
____
____
____
____
____
____
____
____
____

BOUNTIFUL SANITARY LANDFILL
METHANE GAS MONITORING

DATE ____________________

LOCATION	METHANE CONCENTRATION (%)	PERCENT LOWER EXPLOSIVE LIMIT (%LEL)
Office______________		
Office______________		
Shop_______________		
Shop_______________		
Scale House		
North Boundary		
South Boundary		
East Boundary		
West Boundary		
Well DC-1		
Well DC-2		
Well DC-3		
Well DC-4		
Well JMM-1		
Well JMM-2		
Well JMM-3		
Well JMM-4		
Well JMM-5		
Well JMM-6		
Well JMM-7		
Well JMM-8		
Well BSL-1		
Well BSL-2		
Well BSL-3		

Drainage System Inspection Form
Bountiful Sanitary Landfill

Inspector(s) ______________________________ Date ______________

Current Weather Conditions ____________ Last 24 Hours ____________

	O K	Not O K	Condition, Corrective Action, General Notes
Site Access			
Soil Stabilization			
Slope Protection			
Conveyances Stable			
Water Management			
Outlet Protection			

Drainage System Inspection Form
Bountiful Sanitary Landfill

	O K	Not O K	Condition, Corrective Action, General Notes
Stormwater Detention And Monitoring			
Maintenance			
Dust Control			
Spill Prevention			
Condition of Discharge Water			

Comments ____________________

STORM WATER DISCHARGE MONITORING REPORT (SWDMR)
(For addıtıonal forms copy thıs form or contact the DWQ)

IDENTIFICATION & LOCATION

Name ______________________________ Pennt No UTR ____________________

Maıhng Address Location (ıf dıfferent)

___________________________________ ________________________________
___________________________________ ________________________________
___________________________________ ________________________________
___________________________________ ________________________________

Momtonng Penod

From Month______ Day______Year______ To Month______ Day______ Year______

Total Storm Water Dıscbarge Poınts___________ Number assıgned to thıs Dıscharge Poınt_______

INDUSTRY SECTOR(S)

Industnal Actıvıtıes or Industry Sector(s) Draıned by thıs Dıscharge

- A Tımber Products Facılıtıes
- B Paper and Allıed Products Manufacturıng Facılıtıes
- C Chemıcal and Allıed Products Manufacturıng Facılıtıes
- D Asphalt Pavıng Roofing Matenals and Lubncant Manufacturıng Facılıtıes
- E Glass Clay Cement, Concrete and Gypsum Product Manufacturıng Facılıtıes
- F Pnmaıy Metals Facılıtıes
- G Metal Mınes (Ore Mınıng and Dressıng)
- H Coal Mmes and Coal Mme-Related Facılıtıes
- I Oıl or Gas Extractıon Facılıtıes
- J Mmeraı Mınıng and Processmg Facılıtıes
- K Hazardous Waste Treatment Storage or Dısposal Facılıtıes
- L Landfills and Land Applıcatıon Sıtes
- M Automobıle Salvage Yards
- N Scrap Recyclıng and Waste Recyclıng Facılıtıes
- O Steam Electnc Power Generatıng Facılıtıes
- P Motor Freıght Transportatıon Facılıtıes Passenger Transportatıon Facılıtıes, Petroleum Bulk Oıl Statıons and Termınals the Umted States Postal Servıce or Raılroad Transportatıon Facılıtıes
- Q Vehıcle Maıntenance Areas and Equıpment Cleamng Areas of Water Transportatıon Facılıtıes
- R Shıp or Boat Buıldmg and Repaır Yards
- S Vehıcle Mamtenance Areas, Equıpment Cleanmg Areas or Aırport Deıcıng Operatıons located at Aır Transportatıon Facılıtıes
- T Wastewater Treatment Works
- U Food and Kmdred Products Facılıtıes
- V Textile Mılls, Apparel and other Fabnc Product Manufacturıng Facılıtıes
- W Furnıture and Fıxture Manufacturıng Facılıtıes
- X Prmtmg and Pubhshmg Facılıtıes
- Y Rubber and Mıscellaneous Plastıc Product Manufacturıng Facıhtıes
- Z Leather Tannmg and Fmıshmg Facılıtıes
- AA Facıhtıes That Manufacture Metal Products ıncludmg Jewelry, Sılverware and Plated Ware
- AB Facılıtıes That Manufacture Transportatıon Equıpment, Industnal or Commercıal Machmery
- AC Facıhtıes That Manufacture Electronıc and Electncal Equıpment and Components, Photographıc and Optıcal Goods
- AD Non-Classıfied Facılıtıes

ANALYTICAL MONITORING DATA *(For sectors where tt a requured)*

Storm Event *All samples shall be collected from the discharge resultng from a storm event that ts greater than 0 1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0 1 inch rainfall) storm event This data must be submitted to the Dwvision of Water Qualty*

Date of Storm Event	Month Day Year
Duration of Storm Event	Hours
Ram Fall Measurement	Inches
Time Elapsed Between Recorded & Previous Storm Event	Days
Estimated Total Volume of Discharge *(Include umts gal ft³ etc)*	
Please check if there has been no discharge of Storm Water dunng thus reportmg penod (If none please explain m comment section)	No Discharge

Sample Type *Data shall be reported for a grab sample taken durmg the first thirty minutes of the discharge. If the collection of a grab sample durmg the first thirty minutes is impracticable a grab sample can be taken durmg the first hour of the discharge and the discharger shall submit with the monitoring report a description of why a grab sample durmg the first thirty minutes was impracticable*

Parameter	Effluent Limit *(If Applicable)*	Concentration *(Concentration quantity for example 14 2)*	Units *(Example mg/L)*

SIGNATURE

Name/Title Principle Executive Officer
(Typed or Printed)

____

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information the information submitted is to the best of my knowledge and belief true accurate and complete I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations See 18 U S C 1001 and 33 U S C 1319 (penalties under these statues may include fines up to $10 000 and or maximum imprisonment of between 6 months and 5 years)

_________________________ _______________

Signature of Principle Executive Officer or Authorized Agent *Date*

Comments

____

____

____

____

____

____

____

____

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____

____

____

____

VISUAL MONITORING REQUIREMENTS

Sample and Data Collection

Examinations shall be made of samples collected within the first 30 minutes (or as soon thereafter as practical but not to exceed one hour) of when the runoff or snowmelt begins discharging The examinations shall document observations of color odor clarity floating solids settled solids suspended solids foam oil sheen and other obvious indicators of storm water pollution. The examination must be conducted in a well lit area. No analytical tests are required to be performed on the samples All such samples shall be collected from the discharge resulting from a storm event that is greater than 0 1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0 1 inch rainfall) storm event Where practicable the same individual will carry out the collection and examination of discharges for the life of the permit

[illegible]

1 Identification of Color

Black *Dark Grey* *Medium Grey* *Light Grey* *Dark Chocolate Brown* *Medium Brown*

Light Brown *Tan* *Yellow* *Green* *Other*____________________

2 Intensity of Color *Very intense* *Prominent* *Moderately Perceptible* *Hardly Perceptible*

Comments ____

____

____

[illegible]

Totally Opague *Slightly Translucent* *Translucent* *Nearly Transparent* *Transparent*

[illegible]

Diesel *Gasoline* *Petroleum* *Solvent* *Musty* *Sewage* *Chlorine*

Rotten Egg *Sulfur* *No Odor* *Noxious* *Other* ____________

Comments ____

____

____

____

SOLIDS

Floating Solids (Description) ______________________________

Suspended and Settled Solids (Description) ______________________________

FOAM, OIL SHEENS, OR OTHER OBVIOUS INDICATORS OF POLLUTION

Appendix E

Equipment List

LANDFILL DEPARTMENT
EQUIPMENT REPLACEMENT TIME TABLE

TRUCK NO	YEAR	DESCRIPTION	2011	2012	2013	2014	2015
2201	2000	Chev 4X4 (Used)	-	-	28 000	-	-
2217	1986	Ford Water Tank	-	-	-	-	-
2247	2000	John Deere Front Loader	-	-	-	-	-
2280	1989	Caterpillar Compactor	570 000	-	-	-	-
2284	1995	Caterpillar Track Dozer	-	-	-	-	-
2285	1999	CEC Screen-It II	-	-	-	145 000	-
2288	1998	Caterpillar Loader	-	-	-	-	-
2289	1992	Kobelco Excavator	-	-	-	-	-
-	1995	Hotsy Steam Cleaner	-	-	-	-	-
-	1987	Dearborn Air Compressor	-	-	-	-	-
-		Fairbanks Morris Scale	-	-	-	-	-
2240	1995	JCB Backhoe	-	-	100 000	-	-
2253	1999	Volvo Auto Car/2000 ODE Leafer	-	-	-	-	-
2261	1994	Mack 10-wheel Dump	-	-	-	-	-
2265	1991	Ford 10-wheel Dump	-	-	-	-	-
2266	1995	Ford 10-wheel Water Truck	-	-	-	-	-
2267	1996	Volvo Auto Car 10-wheel Dump	-	-	-	-	-
2610	2002	Ford F-450 Dump Truck	-	-	-	45 000	-
2611	2009	Ford One Ton Flatbed	-	-	-	-	-
2670	2006	John Deere 200CLC Excavator	-	-	-	-	-
2680	2000	CAT 826G Compactor	-	-	-	-	-
		YEARLY TOTALS	570 000	-	128,000	190,000	-

2671 2010 alJon Compactor

Appendix F

Training Certificates and Records

SWANA

SOLID WASTE ASSOCIATION
of North America

SWANA CERTIFIED PROFESSIONAL

This is to certify that

Gary Blowers

has met the Solid Waste Association of North America's eligibility requirements and passed a comprehensive examination. Therefore SWANA hereby designates Gary Blowers as a:

Certified Landfill Manager

As of 04/21/2005 until 04/21/2011

Certification No. 81500

John A Skinner

John A Skinner
Executive Director and CEO

SWANA®
SOLID WASTE ASSOCIATION
of North America

SWANA CERTIFIED PROFESSIONAL

This is to certify that

Jim Wood

has met the Solid Waste Association of North America's eligibility requirements and passed a comprehensive examination. Therefore SWANA hereby designates Jim Wood as a:

Certified Landfill Manager

As of 09/22/2004 until 09/22/2010

Certification No. 60517

John A Skinner

John A Skinner
Executive Director and CEO

SWANA CERTIFICATION PROGRAM

SWANA

Continuing Education Unit (CEU) Report Form

FAXED 11/5/08

WASTECON 2008 • Tampa, Florida • October 19-23, 2008

NAME Todd Christensen SWANA MEMBER ID 83395

ORGANIZATION Bountiful City

ADDRESS 790 S 100 E

CITY Bountiful STATE/PROVINCE UT ZIP CODE 84010

PHONE 801 298 6125 FAX 801 298 6033 E MAIL toddc@bountifulutah gov

Current Certifications Held ___ Bioreactor X Landfill ___ Recycling ___ Composting ___ Collection ___ Transfer Station ___ Construction & Demolition ___ MSW Systems

This form may only be signed by a representative of this course/seminar/symposium
Obtain a signature for each session you attend by a course/seminar/symposium representative **at** the end of the course The signature is **MANDATORY** and affirms the attendance of the session(s) **as** applicable

Must attend the entire day to receive contact hours!

	COLL	COMP	C&D	LF	MSW	RECYC	TS	BIO	Instuctor/ Staff Initials
Manager of Bioreactor Landfills	10	10	10	20	15	10	10	20	
Management of Landfill Operations (MOLD)	10	10	10	30	10	10	10	15	
Managing Construction and Demolition Materials	10	10	30	15	10	10	15	15	
Managing MSW Transfer Stations	10	10	10	10	10	10	30	10	
Principles of Management in MSW Systems	10	10	10	10	30	10	10	10	
Managing MSW Collection Systems	30	10	10	10	10	15	10	10	
Managing Composting Programs	10	30	10	10	10	15	10	10	
HHW & CESOG Facility Operations	15	15	15	15	15	15	15	15	
Landfill Gas System Operation and Maintenance	5	5	20	20	5	5	5	10	
Renewable Energy Credits and Greenhouse Gas Offsets 101	5 CEUs Available for ALL Certification								
	5 CEUs Available for ALL Certification								
Tuesday Conf Sessions	5 CEUs Available for ALL Certification								[illegible]
Wed Conf Sessions	5 CEUs Available for ALL Certification								[illegible]
Thursday Conference Sessions	5 CEUs Available for ALL Certification								[illegible]
Facility Tours	5 CEUs Available for ALL Certification								

Mail or fax this completed form to the Certification Coordinator at PO Box 7219 Silver Spring Maryland 20907 7219 fax (301) 589 7068 If you have any questions please call **1-800 GO SWANA** or email **cert@swana org** Visit our homepage at **www SWANA org**

IMPORTANT - PLEASE READ
You may apply for recertification upon completion of your 30 hours of continuing education In order to recertify you will need to fill out a recertification application and submit it along with a recertification fee of $200 to SWANA. To have a copy of the recertification application sent to you, please call **1-800 GO SWANA**

SWANA®
SOLID WASTE ASSOCIATION of North America

SWANA CERTIFIED PROFESSIONAL

This is to certify that

Todd Christensen

has met the Solid Waste Association of Nortin America's eligibility requirements and passed a comprehensive examiliation. Therefore SWANA hereby designates Todd Christensen as a:

Certified Landfill Technical Associate

As of 02/16/2006 until 02/16/2009

Certification No. 83395

John A Skinner

John A. Skinner
Executive Director and CEO

SWANA®

ACKNOWLEDGES THAT

Trevis Cabaness

PARTICIPATED IN THE

TRAINING SANITARY LANDFILL OPERATING PERSONNEL ON-SITE TRAINING COURSE

PRESENTED IN

St. George, UT

4-25-02

Wynecta Fisher

SWANA®

ACKNOWLEDGES THAT

John McCowen

PARTICIPATED IN THE

TRAINING SANITARY LANDFILL OPERATING PERSONNEL ON-SITE TRAINING COURSE

PRESENTED IN

St. George, UT

4-25-02

Wynecta Fisher
SWANA Training Manager

SOLID WASTE ASSOCIATION OF NORTH AMERICA

(Utah Beehive Chapter)

This is to certify that

Jim Wood

has successfully completed the

Landfill Operator Training Course

on September 8, 1994

Tramer

Bud Stanford

Trainer

Dale Stephenson

SOLID WASTE ASSOCIATION OF NORTH AMERICA

(Utah Beehive Chapter)

SWANA
SOLID WASTE ASSOCIATION OF NORTH AMERICA

This is to certify that

Jim Wood

has successfully completed the

Solid Waste Screening Course

on September 9, 1994

Trainer

Bud Stanford

Bud Stanford

Tramer

Dale Stephenson

Dale Stephenson

Community College Consortium
for
Health and Safety Training

Jimmie Lynn Wood

Has Completed And Passed A Course In

40 HR SARA/OSHA HAZWOPER

Date of Certificate 3 March 1994
Certificate Number: 1386
Expiration Date 3 March 1995
Course No & Sec: Haz 002 042

Contact Hours 40
Course Location SLC, Utah
Date of Course. Feb 28 - March 3, 1994
Respirator Name & Model North

Instructor

Neal K. Ostler

Program Director

John Latkiewicz

Training for this program was developed and delivered by the.
Hazardous Materials Training And Research Institute
C.C.C.H.S.T
6301 Kirkwood Blvd., S W
P O Box 2068
Cedar Rapids, Iowa 52406
319-398-5677

Community College Consortium
for
Health and Safety Training

Trevis Cabaness

Has Completed And Passed A Course In

40 HR SARA/OSHA HAZWOPER

Date of Certificate 3 March 1994	Contact Hours 40
Certificate Number 1388	Course Location SLC, Utah
Expiration Date 3 March 1995	Date of Course Feb 28 March 3 1994
Course No & Sec Haz-002 042	Respirator Name & Model North

Instructor

Neal K Ostler

Program Director

John Lutkiewicz

Training for this program was developed and delivered by the.
Hazardous Materials Training And Research Institute
C.C.C.H.S T
6301 Kirkwood Blvd. S W
P O Box 2068
Cedar Rapids, Iowa 52406
319-398-5677

Appendix G

Household Hazardous Waste
and
Recycling Programs

GET RID OF YOUR BAD STUFF FOR FREE!!

2010

Bountiful will be conducting a **HOUSEHOLD HAZARDOUS WASTE COLLECTION PROGRAM** on **SATURDAY, OCTOBER 9th** from **9 00** a m **TO 3 00** p m at the City's Maintenance Facility, located at 950 South and 200 West in Bountiful

This is a great chance to clean out your house and get rid of harmful chemicals and at the same time help the environment So bring in any of the following, with exception of any **DEA** *controlled medications*

Antifreeze	Flea powder	Laundry products	Photographic chemicals	Toilet bowl cleaners
Batteries	Floor waxes/cleaners	Mothballs	Radiator flushes	Waste motor oil
Car cleansers	Furniture polish	Oven cleaners	Rodent poison	Weed killers
De-greasers	Insecticides	Paints	Silver cleaners	Window cleaners
Drain cleaners	Lacquers	Paint thinners	Spot removers	Wood preservatives

If you bring it in, we'll take it off your hands FREE, and properly dispose of it -- you'll be doing us a favor by keeping this material out of the landfill, and you'll be rid of old materials that need to be specially disposed

FOR BOUNTIFUL RESIDENTS ONLY

HOUSEHOLD HAZARDOUS WASTE

HAZARDOUS WASTE IN YOUR HOME

If asked what hazardous chemicals exist around your home, could you identify them? We don't have to look far to find everyday household products that contain hazardous chemicals. We can find them in the form of weed killers, pesticides, paints, paint thinners, used motor oils, antifreeze, spot removers and oven cleaners. Every household has these chemicals under the kitchen sink, stored in the basement or in the garage.

WHAT IS A HAZARDOUS WASTE?

In order to adequately protect our environment, it is necessary to become familiar with what constitutes a hazardous waste and the alternatives we have, as homeowners, in the proper management of the waste. The Environmental Protection Agency (EPA) considers a substance "hazardous" if it is no longer going to be used for its intended purpose and exhibits any of the following characteristics: It is flammable, it can react with other chemicals giving off toxic gases or becomes explosive, it is corrosive, or if it is toxic to humans and animals.

DANGERS OF IMPROPER DISPOSAL OF HOUSEHOLD HAZARDOUS WASTE

Apart from the very important concerns of chemicals being properly stored in safe places away from children is the growing concern of proper disposal. It is obvious we can no longer dispose of these chemicals down sewers, storm drains or place them out for the weekly garbage collection. Such disposal practices only add to the water and landfill pollution problem experienced through improper disposal methods. Additionally, disposal of household hazardous waste, in garbage, can cause harm to sanitation workers and explosions or fires if incompatible chemicals are mixed. A common example of this is the mixing of chlorine and ammonia, giving off a toxic chloramine gas.

DISPOSAL ALTERNATIVES AVAILABLE TO HOMEOWNERS

Before throwing anything out, read the label and be sure to follow any directions given. If no disposal directions are available, see if you can locate the waste product on the easy reference chart provided in this brochure. There may be chemicals for which no disposal alternatives exist at the present time. If this is the case, contact the Bountiful Streets and Sanitation Department at 298-6175 for instructions on proper storage or for the location of the nearest household hazardous waste drop-off site.

HOUSEHOLD HAZARDOUS WASTE REDUCTION

To avoid future problems of disposing of hazardous chemicals you should—

1. Before buying a product, read the label making sure it will do what you want.
2. Do not buy more than you need. This will avoid surplus and the need for future disposal.
3. Try to purchase less toxic products or use alternatives to chemicals whenever possible.

RECOMMENDED DISPOSAL METHODS
FOR SMALL QUANTITIES OF HOUSEHOLD HAZARDOUS WASTE

PRODUCT/CHEMICAL	HAZARDOUS INGREDIENTS/HAZARD	DISPOSAL RECOMMENDATIONS BEST CHOICE	2ND CHOICE	SUBSTITUTES/ALTERNATIVES
[illegible]sol Sprays	Fluorocarbons Hydrocarbons/ Toxic Flammable	G	J	Use non aerosol products
[illegible] (Weak)	Acids/Toxic Corrosive	A	D	No substitutes
Anti freeze	Ethylene Glycol/Toxic	B	D	No substitutes/have vehicle professionally serviced/Use recycled anti freeze
Asbestos	Asbestos Fibers/Carcinogen	A	F	Use non asbestos products
Ammonia Cleaners	Ammonia Ethanol/Toxic Corrosive	G	A	Use vinegar or baking soda
Air Fresheners	Hydrocarbons Petroleum Products/ Toxic Flammable	G	A	Use vinegar in open dish baking soda for refrigarator
Batteries Mercury bottom type	Mercury Cadmium/Toxic	E	A	No substitutes/use rechargable batteries
Batteries Automotive	Sulfuric Acid Lead/Toxic Corrosive	C	B	No substitutes
Bleach Chlorine	Hydroxides Hypochlorites/Toxic Corrosive	G	D	Borax sunlight
Chlorine (Pool)	Hypochlorites/Toxic	G	D	No substitutes
Detergent Cleaners	Phosphates Hypochlorites/Toxic Corrosive	G	D	Soap flakes—avoid phosphates
Disinfectants	Fluorocarbons Phenols Hypochlorites/Toxic	G	A	¼cup Borax in 1 gallon hot water Use non aerosol products
Drain Cleaners	Acids Hypochlorites Hydroxides/ Toxic Corrosive	G	A	½ cup baking soda ½ cup salt—hot water vinegar
Fertilizers	May contain Herbicides/Toxic	G	A	Manure for gardens
Fingernail Polish Remover	Acetone/Toxic Flammable	G	H or A	No substitutes
Flea-powder Sprays Shampoos	Pesticides/Toxic	G	A	No substitutes
Gasoline	Benzene Toluene Xylene/Toxic Flammable	G	A	No substitutes
Glues	Benzene Toluene/Toxic Flammable	G	H or A	No substitutes/screws staples
Herbicides	2 4 S TP Silvex 2 4 D Glyphosate Prometon/Toxic	A	G	Keep lawn groomed hand weed
Medicines	Stimulants Inhibitors/Toxic	D	A	No substitutes
Metal Polishes	Acids/Toxic Corrosive	G	E or A	1 tsp baking soda 1 qt hot water and 1 piece aluminum
Motor Oil	Benzene Heavy Metals/Toxic Flammable	B	A	No substitutes/have vehicle professionally serviced
Mothballs	Naptholenes Paradichlorobenzenes/Toxic	G	H or A	Cedar chips lavender flowers
Oven Cleaner	Hydroxides/Toxic Corrosive	G	A	Clean oven after every use with baking soda and water
[illegible]	Lead Methylene Chloride Ethylene Hydrocarbons/Toxic, Flammable	G	H or A	Use water based paint
[illegible]ripoete	Toluene Methylene Chloride Acetone/ Toxic Flammable	G	A	No substitutes
Paint Thinners	Toluene Petroleum Products/Toxic Flammable	I	H or A	Use water based paint
Pesticides	Arsenicals, Chlorinated Hydrocarbons Organophosphates/Toxic	A	G	Soapy water keeping area clean
Spot Removers	Perchloroethylene Acids//Toxic Corrosive	G	A	Immediate cold water club soda salt or cornmeal
Syringes	Contaminated Blood or Body Fluids/ Disease Transmitters	K	A	No substitutes
Toilet Bowl Cleaners	Acids Paradichlorobenzene/Toxic Corrosive	G	D	Baking soda
Window Cleaner	Methanol/Toxic	G	D	½ cup vinegar and ½ cup water
Wood Cleaners Polishes Waxes	Petroleum Products/Toxic Flammable	G	E	Lemon oil beeswax in mineral oil or lemon in vegetable oil

Explosives — Bountiful Fire Department 295-6130 Bountiful Police 295-9435

DISPOSAL METHODS KEY

A. Call local health department for specific instruction or for the location of the nearest household hazardous waste drop-off site

B Call the local health department for location of the nearest recycling facility

C Return to manufacturer or retailer

D Slowly wash down drain with large quantities of water (not septic systems)

E. Wrap in plastic and dispose with other refuse.

F Wet with water before removal/take to an authorized landfill in double plastic bag

G Use entire contents for intended purposes or give to a friend who can use them.

H. Open lid and allow to dry in a well ventilated area before disposing with refuse (this could require spreading on an old board etc)

I Allow solids to settle out and reuse

J Discharge contents in plastic bag or box and wrap container in newspaper and dispose of with other refuse

[illegible] Place in coffee can or other puncture-resistant container tape closed label and dispose of with other refuse

*If using a lawn care or pesticide company for spray applications make sure that the company is disposing of their residual waste in a responsible manner For more information on this matter please call 634-4566

The following pesticide ingredients have had their uses banned or limited to certain conditions The underlined pesticides have been banned Those remaining have been substantially limited to specific uses requiring special precautions The U S EPA document, "Suspended Cancelled and Restricted Pesticides," (from which this list was adapted) should be consulted for more specific information Restricted use pesticides should only be used by certified applicators Pesticides that have exceeded expiration date may be used but their strength may have deteriorated In any case do not over apply

Aldrin	EDB (ethylene dibromide)	Pronamide
Arsenic Trioxide (more than 1 5%)	Endrin	Safrole
BHC	Goal (oxyfluorfen—containing)	Silvex
BMilonci	Heptachlor	Sodium arsenite (more than 2 D%)
Chloranil	Kepone	Sodium cyanide
Chlordane	Lindane	Sodium Fluoride (more than 4D%)
Chlorobenzilate	Metaldehyde	Sodium Fluoroacetate
Copper Arsenate	Mirex	Strobane
DBCP	OMPA	Strychnine
DDD	PCBs (polychlorinated biphenyls)	2,4,5-T
DDT	PCNB	Thallium Sulfate
Dieldrin	Phenarzine Chloride	TDK
Dimethoate	Polychlorinated Terphenls	Toxaphene
EOBCs		Vinyl Chloride

NOTE This is only a partial listing of ew pesticides identified in the EPA document, "Suspended, Cancelled and Restricted Pesticides.

EMERGENCY 911 HAZARDOUS WASTE DISPOSAL INFORMATION 298 6175

BOUNTIFUL RECYCLE DROP OFF SITES

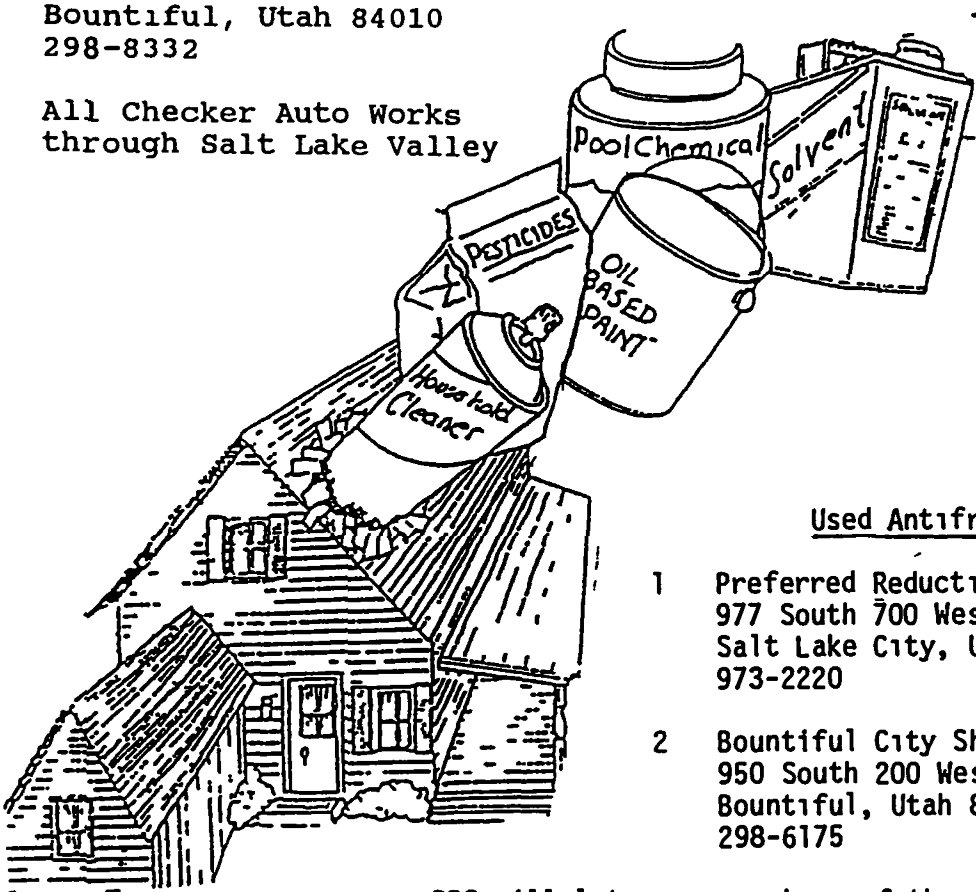
USED OIL

1 Bountiful City Shops
950 South 200 West
Bountiful, Utah 84010
298-6175

2 Checker Auto Works
52 West 500 South
Bountiful, Utah 84010
298-8332

3 All Checker Auto Works
through Salt Lake Valley

4 Sears Auto Service
Center
754 South State St
Salt Lake City, Utah
321-4161



Used Antifreeze

1 Preferred Reduction Services Inc (PRS)
977 South 700 West
Salt Lake City, Utah
973-2220

2 Bountiful City Shops
950 South 200 West
Bountiful, Utah 84010
298-6175

PRS will let a person know of the service station closest to them which will accept used antifreeze 973-2220

Old Latex and Oil Based Paint

Call Bob Bruhn at 298-6175, Bountiful City Street and Sanitation Department, for the paint collection days that will be held in Bountiful

Old Car Batteries

All stores that sell car batteries are required under a new law which was passed during the 1991 legislative session to accept old car batteries If a person has any problems with bringing a car battery back to the store where it was purchased, please have them call Bob Bruhn at 298-6175 Stores such as K-Mart have always taken car batteries

BENEFITS OF USING COMPOST

Compost is a tremendously valuable soil amendment providing the following benefits

1. *Creates a superior soil amendment making the soil easier to cultivate*

2. *Holds water and nutrients where plants need them*

3. *Improves the drainage and aeration of clayey soils*

4. *Increases water retention and nutrient holding capability of sandy soils*

5. *Reduces adverse effects of excessive acidity and aver fertilization by increasing the buffering capacity of soil*

6. *Increases the biological activity of earthworms and other beneficial soil organisms*

7. *Allows soil to hold more plant nutrients for longer periods of time*

8. *Is an especially good supplier of micro-nutrients that are needed in small quantities and are sometimes overlooked by gardeners such as boron, cobalt, copper iodine iron, manganese molybdenum and zinc In addition, the nutrients in compost are released at a slow rate*

9. *Compost acts as an inoculant to your soil adding microorganisms and larger creatures such as earthworms which are nature s soil builders*

Compost Applications and Uses

1. *To establish new lawns and athletic fields apply at approximately 3000 to 6000 pounds per 1000 sq ft of ground (1 to 2 inches) and incorporate into the top 4-6 inches of soil*

2. *To top dress established lawns apply at approximately 400 to 800 pounds per 1000 sq ft. of ground (1/8 to 1/4 inch) and broadcast uniformly on grass surface.*

3. *For shrub and tree maintenance apply at approximately 9000 to 15,000 pounds per 1000 sq ft. of ground (3 to 5 inches) and work it into the soil or leave on top as a mulch*

4. *To make container or potting mixes use not more than 1/3 by volume and blend with pearlite, vermiculite and sand bark.*

CONTACTS

For additional information, or to provide comments or ask questions contact the following

Bountiful Sanitary Landfill

Jim Wood
Landfill Foreman
(801) 298-6169

Mark W Franc P E
Environmental Engineer
Bountiful City
(801)298-6125

Green Waste Composting

at the

Bountiful Sanitary Landfill

Bountiful City Sanitary Landfill
1300 West Pages Lane
(801)298-6169

INTRODUCTION

Yard Waste ıs the largest ındıvıdual component of mumcıpal solıd waste It represents approxımately 15 percent of the total waste stream Elımmatmg dıese matenals from dıe landfill dısposal process can add as much as 10 years to the lıfe of the Bountıful Sanıtary Landfill

In order to keep as much yard waste as possıble out of the landfill, the Cıty of Bountıful has undertaken a project to compost yard waste (tree trunmmgs, grass clıppmgs, leaves, and other landscapmg resıdues)

Nıtrogen fertılızer ıs added to the yard waste durmg the compostmg process Thıs ımproves dıe quabty of the final orgamc mulch product, and also aıds m speedmg up the compostmg process

The final product, a rıch, fertıle, orgamc mulch ıs then screened and sold to dıe publıc for use as a soıl amendment m vegetable gardens and flower beds

PROJECT BENEFITS

Four major benefits are expected to be achıeved from thıs project

1 *Reduce the amount of materıal goıng ınto the Bountıful Sanıtary Landfill, thereby extendıng ıts lıfe*

2 *Provıde for the recyclıng of green waste produced by Bountıful Cıty resıdents*

3 *Provıde local resıdents wıth a valuable organıc soıl amendment for lawns, gardens, and other landscapıng needs*

4 *Mınımıze long-term costs for solıd waste dısposal*

COMPOSTING PROCESS

Resıdents and commercıal haulers wıth yard waste that ıs free from trash or garbage are dırected to unload thıs materıal m a segregated area at the landfill sıte Thıs materıal ıs then ground m a "tub grınder" desıgned for thıs purpose The ground green waste ıs then formed mto large wmdrows

The wmdrows are monıtored for temperature and moısture They are turned as needed to mamtam aerobıc condıtıons, and water must be added perıodıcally to mamtam moısture levels Aerobıc decomposıtıon naturally produces large amounts of heat The wmdrows quıckly reach and mamtam temperatures m excess of 50° C (131° F) whıch ıs hıghly effectıve ın kıllmg any weed seeds or pathogens

The wmdrows are mamtamed and monıtored for approxımately 90 to 120 days Thıs provıdes adequate tıme for the decomposıtıon process to produce a rıch orgamc mulch very sımılar to that produced naturally on the forest floor as fallen leaves and other organıc materıals fall to the ground and decompose

The mature compost ıs screened to remove bark, twıgs and other woody debrıs that ıs larger than approxımately three-quarters of an ınch m sıze The large partıcles are returned to a new compost pıle and eventually decompose

The screened compost ıs then tested to be free from toxıc substances and pathogenıc organısms, and ıs avaılable for sale to the publıc

"BOUNTIFUL RECYCLES"
IN PARTNERSHIP WITH
WASTE MANAGEMENT OF UTAH

WM
WASTE MANAGEMENT
Think Green.

"BOUNTIFUL RECYCLES" is a new recycling program utilizing a rollout container for the collection of mixed recyclable materials at curbside from residences citywide The City has teamed up with Waste Management of Utah to provide the recycling service that will help save landfill space, reduce disposal costs, protect the environment, and save our natural resources by reusing recyclable commodities, including plastics, metals, and fibers such as office paper, newspaper, and cardboard More types and greater quantities of recyclables will be recycled conveniently and cost-effectively in one container

HOW IT WORKS

The new recycling service begins the weeks of December 1st and 8th (see collection calendar)

Each residence will receive a blue recycling container during the weeks of November 3rd through November 22nd Attached to each container in a plastic bag will be an information packet containing a collection schedule calendar along with recycling guidelines and a list of acceptable recyclable materials and unacceptable items

Residents can request an additional recycling container if needs warrant by calling the City

The recyclables will be picked up every-other-week, <u>on the same day the trash is collected</u>

The recyclables will not be picked up on New Year's Day, Independence Day, Thanksgiving Day, and Christmas Day Pick-up will be one day later for the remainder of the week

The recycling container must be placed on the street near the trash container, with the front of the container facing the street, by 7 00 A M on the scheduled collection day

The recycling container must also be placed four to six feet apart from other containers and six to eight feet from mailboxes, poles, fences, trees or parked vehicles for easy access

The blue container must be used for acceptable recyclable materials only, including office paper, newspaper, cardboard, plastics, and metals (see acceptable recyclables list)

The recyclable materials can be commingled or mixed together in one recycling container All recyclable plastic containers and metal cans need to be empty of all contents

The recycling container must remain on the resident's property and properly cared for It is suggested that each residence identify their address with permanent marker under the lid

Residents will be responsible for any loss or damage to the container resulting from negligence or abuse, except for normal wear and tear

The City will bill each residence $3 05 on their monthly utility bill for each recycling container

For collection service inquiries or issues, please call Waste Management of Utah directly on their Toll Free line at 1-888-4WMUTAH, Monday through Friday, 8 00 A M to 5 00 P M

RECYCLING IT WORKS BECAUSE OF YOU!
DO YOUR PART AND MAKE A DIFFERENCE

WASTE MANAGEMENT

Think Green.

"COMING SOON TO A CURB NEAR YOU!" – <u>SINGLE STREAM CURBSIDE RECYCLING</u>

Single Stream curbside recycling is coming to City residents beginning in December The City is partnering with Waste Management of Utah to provide the recycling service that will help save landfill space, reduce disposal costs, protect the environment, and save our natural resources by reusing recyclable commodities, including plastics, metals, and fibers such as office paper, newspaper, and cardboard More types and greater quantities of recyclables will be recycled conveniently and cost-effectively in one container

During the weeks of November 3-22 each residence will receive a blue recycling container similar to your trash container Attached to each container in a plastic bag will be an information packet containing a collection schedule calendar along with recycling guidelines and a list of acceptable recyclable materials and unacceptable items

The recyclable materials will be collected from curbside every-other-week on the same day your trash is picked up The recyclables can be commingled or mixed together in one container No need to sort materials or take labels off bottles and cans Just empty containers of all contents and toss the recyclables in the blue container Please note that glass is not accepted at this time The City will bill each residence $3 05 on their monthly utility bill for each recycling container Please call Waste Management of Utah directly on their Toll Free line at 1-888-4WMUTAH, Monday through Friday, 8 00 A M to 5 00 P M with questions

Help the City take a lead in protecting the environment and saving our natural resources by supporting and participating in the curbside recycling program The success of recycling depends on the active participation of residents doing their part and making a difference

ACCEPTABLE RECYCLABLES

Paper

- Newspapers
- Magazines & Catalogs
- Brochures & Pamphlets
- Junk Mail & Envelopes
- File Folders & Card Stock
- Office, Copy & Colored Paper
- Shredded Paper (bag up)
- Telephone & Paperback Books
- Wrapping Paper

Cardboard/ Paperboard

- Corrugated Cardboard (flatten or cut up)
- Cereal Boxes
- Food Boxes & Cartons
- Gift Boxes
- Shoe Boxes
- Tissue Boxes
- Paper Sacks & Bags
- Paper Towel & Toilet Paper Rolls
- Paper Egg Cartons

Plastics

- Plastic Bottles (PETE)
- Soda Pop & Water Bottles
- Plastic Bottles & Jugs (HDPE)
- Milk & Water Jugs
- Food & Condiment Bottles
- Cleaning & Laundry Detergent Bottles
- Plastic Grocery & Produce Bags (bag them up)

Metals

- Aluminum, Steel & Tin Cans
- Aluminum Plates & Pans
- Cookware, Pots & Pans
- Aerosol Cans (empty)
- Scrap Copper, Brass & Aluminum
- Small Appliances
- Metal Clothes Hangers (tie them together)

UNACCEPTABLE ITEMS

- Auto Parts & Batteries
- Blankets, Towels & Pillows
- China & Ceramics
- Clothing & Shoes
- Aluminum Foil
- Diapers
- Food & Liquid Waste
- Glass (any kind)
- Light Bulbs & Fluorescent Tubes
- Pet Food Bags
- Household Hazardous Waste
- Motor Oil Bottles & Paint Cans
- Print & Toner Cartridges
- Soiled Napkins, Paper Towels & Tissue
- Food Stained Materials
- Styrofoam, Bubble Wrap & Packing Peanuts
- Plastic Tarps & Garden Hoses
- Plastic Toys & Electronics
- Furniture, Draperies & Blinds
- Green Waste
- Rocks, Dirt & Sod
- Wood Scraps & Construction Material

Appendix H

Closure Fund Documents

2009 Bountiful Sanitary Landfill Closure/Post Closure Cost Estimates

Landfill Information

Description	Quantity	Units	
Total Permitted Area	100	acres	
Active Portion (Soil Lined)	50	acres	
Area of Largest Cell Requiring Final Cap	50	acres	
Perimeter Fencing	7600	linear feet	
Groundwater Monitoring Wells	327	VLF	
Average Daily Flow	120	tons/day	
Landfill Disposal Cost	25	$/ton	
Price Adjustment	1 164		(Origional Unit Costs are for end of 2004)

Closure Cost Estimate

Task/Service	Quantity	Units	Multiplier	Unit Cost	Subtotal
Preliminary Site Work					
Conduct Site Evaluation	1	Lump Sum	1	$2 892 19	$3 366 53
Dispose Final Waste	120	tons/day	5	$21 00	$14 666 48
Remove Temporary Buildings	1	Lump Sum	1	$2 577 12	$2 999 78
Remove Equipment	1	Lump Sum	1	$2 103 50	$2 448 49
Repair/Replace Perimeter Fencing	7600	linear feet	0 25	$2 32	$5 130 94
Monitoring Equipment					
Rework/Replace Monitoring Wells	327	VLF	0 25	$43 54	$4 143 16
Plug Abandoned Monitoring Wells	327	VLF	0 25	$18 67	$1 776 59
Construction					
Complete Site Grading	50	acres	1	$1 179 93	$68 672 29
Construct/Compact Clay Final Cap	121000	cubic yards	1	$3 36	$473 238 37
Place On-Site Topsoil	100883	cubic yards	1	$1 58	$185 536 93
Establish Vegetative Cover	50	acres	1	$421 11	$24 508 73
SUBTOTAL					
Administrative Services	1	Lump Sum	0 1	$675 673 62	$78 648 83
Technical and Professional Services	1	Lump Sum	0 12	$675 673 62	$94 378 60
Closure Contingency	1	Lump Sum	0 1	$675 673 62	$78 648 83
TOTAL FINAL CLOSURE					$1,038,164 55

Post-Closure Cost Estimate

Task/Service	Quantity	Units	Multiplier	Unit Cost	Subtotal
Site Maintenance					
Site Inspections	4	per year	30	$526 13	$73 490 23
General Maintenance	1	per year	30	$1 577 37	$55 082 05
Monitoring Equipment					
Rework/Replace Monitoring Wells	327	VLF	0 25	$43 54	$4 143 16
Plug Abandoned Monitoring Wells	327	VLF	0 25	$18 67	$1 776 59
Final Plugging of Monitoring Wells	327	VLF	1	$18 67	$7 106 36
Final Plugging of Piezometers	300	VLF	1	$14 73	$5 143 74
Sampling and Analysis					
Groundwater Monitoring	30	Years	1	$16 000 00	$558 722 99
Final Cover Maintenance					
Repair Erosion Settlement & Subsidence	100	acres	30	$2 10	$7 333 24
Reseed Vegetative Cover	100	acres	0 2	$421 11	$9 803 49
SUBTOTAL					$722,601 86
Administrative Services	1	Lump Sum	0 06	$620 788 66	$43 356 11
Technical and Professional Services	1	Lump Sum	0 07	$620 788 66	$50 582 13
Post Closure Contingency	1	Lump Sum	0 1	$620 788 66	$72 260 19
TOTAL POST-CLOSURE					$888,800 29

Total Closure plus Post Closure Estimate	$1,926,964 84

STATEMENT OF ACCOUNT

PTIF

UTAH PUBLIC TREASURERS' INVESTMENT FUND

Richard K Ellis Utah State Treasurer Fund Manager
PO Box 142315
350 N State Street Suite 180
Salt Lake City Utah 84114 2315
Local Call (801) 538 1042 Toll Free (800) 395 7665
www treasurer utah gov

ESC-BOUNTIFUL CITY SAN LAND
MARK MCRAE
PO BOX 140102
SALT LAKE CITY UT 84114-0102

Account	Account Period
973	December 01, 2009 through December 31, 2009

Summary

Beginning Balance	$ 2,017,688 89	Average Daily Balance	$ 2,017,688 89
Deposits	$ 1,072 02	Interest Earned	$ 1,072 02
Withdrawals	$ 0 00	360 Day Rate	0 6170
Ending Balance	$ 2 018,760 91	365 Day Rate	0 6256

Date	Activity	Deposits	Withdrawals	Balance
12/01/2009	FORWARD BALANCE	$ 0 00	$ 0 00	$ 2 017,688 89
12/31/2009	REINVESTMENT	$ 1 072 02	$ 0 00	$ 2,018,760 91
12/31/2009	ENDING BALANCE	$ 0 00	$ 0 00	$ 2,018,760 91

STATEMENT OF ACCOUNT

PTIF

UTAH PUBLIC TREASURERS' INVESTMENT FUND

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Salt Lake City Utah 84114 2315
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www treasurer utah gov

BOUNTIFUL CITY-LANDFILL CLOSURE
MARK MCRAE
PO BOX 140102
SALT LAKE CITY UT 84114-0102

Account	Account Period
1029	September 01 2010 through September 30, 2010

Summary

Beginning Balance	$ 788,788 13	Average Daily Balance	$ 788,788 13
Deposits	$ 364 49	Interest Earned	$ 364 49
Withdrawals	$ 0 00	360 Day Rate	0 5545
Ending Balance	$ 789,152 62	365 Day Rate	0 5622

Date	Activity	Deposits	Withdrawals	Balance
09/01/2010	FORWARD BALANCE	$ 0 00	$ 0 00	$ 788,788 13
09/30/2010	REINVESTMENT	$ 364 49	$ 0 00	$ 789,152 62
09/30/2010	ENDING BALANCE	$ 0 00	$ 0 00	$ 789,152 62

ESCROW AGREEMENT

I SUMMARY

Parties to the Agreement

1 Depositor City of Bountiful, Utah (the 'Entity)
Address 790 South 100 East
P 0 Box 369
Bountiful, UT 84011-0369

Contact Galen D Rasmussen Tel No (801) 298-6117
Mark 0 McRae Tel No (801) 298-6090

2 State Agency Utah Division of Solid & Hazardous Waste (the "State)
Address P O Box 144880
Salt Lake City, Utah 84114-4880

Contact Ralph Bohn, Section Mgr Tel No 801-538-6170
Tel No
Tel No

3 Escrow Agent Utah State Treasurer (the "Treasurer")
215 State Capitol
Salt Lake City, Utah 84114

Contact Robert C Kirk, Financial Manager
Stephanie Baldes, Accountant

Telephone (801)538-1042 Telefax (801)538-1465 Toll free 800-395-7665

B Deposit Amount(s)

1 Principal amount $1,200,000 00 (the "Proceeds")

2 Additional amount(s), if any

$ From
$ From
$ From

C Authorizing Resolution
Financial Assurance Plan for closure & post-closure costs related to the Bountiful Sanitary Landfill. (the"Instrument")

D Project Description
Closure & post-closure costs related to the Bountiful Sanitary Landfill located at Pages Lane and 1300 West, W. Btfl. (the"Project')

This Summary is an integral part of the Escrow Agreement Utah

II AGREEMENT

The undersigned hereby deliver to the Treasurer the Proceeds and Additional amount(s) to be held and disposed of by the Treasurer in accordance with the duties instructions and upon the terms and conditions hereinafter set forth m this Escrow Agreement to which the undersigned hereby agree

1 For purposes of this Escrow Agreement and this Escrow Agreement only

(a) The Treasurer shall not incur any liability in acting upon any written authorization and request delivered hereunder and believed by the Treasurer to be genuine and to be signed by the proper parties

(b) The Treasurer may consult with legal counsel in the event of any dispute or question as to the construction of the Treasurer s duties hereunder and shall not be held to any liability for acting in accordance with advice so received

(c) The Treasurer shall have a first lien on the moneys held by it hereunder for its compensation and for any costs liability or expense or counsel fees it may incur

2 In the event of any disagreement between the undersigned or any of them and/or any other person resulting in adverse claims and demands being made m connection with or for any moneys involved herein or affected hereby the Treasurer shall be entitled at its option to refuse to comply with any such claim or demand so long as such disagreement shall continue and in so refusing the Treasurer may refrain from making any delivery or other disposition of any moneys involved herein or affected hereby and m so doing the Treasurer shall not be or become liable to the undersigned or any of them or to any person or party for its failure or refusal to comply with such conflicting or adverse demands and the Treasurer shall be entitled to continue so to refrain and refuse so to act until

(a) The rights of the adverse claimants have been finally adjudicated m a court assuming and having jurisdiction of the parties and the moneys involved herein or affected hereby and/or

(b) All differences shall have been adjusted by agreement and the Treasurer shall have been notified thereof in writing signed by all of the persons interested

3 The fees for the usual services of the Treasurer under the terms of this Escrow agreement are set forth m the schedule attached hereto as Exhibit A It is agreed that additional compensation shall be paid to the Treasurer for any additional or extraordinary service it may be requested to render hereunder and the Treasurer shall be reimbursed for any out-of-pocket expenses (including without limitation fees of counsel) reasonably incurred in connection with additional or extraordinary services

4 The Entity and the State hereby agree that the deposit of the Proceeds shall constitute compliance with applicable deposit and investment provisions of the Instrument

5 The duties of the Treasurer under the terms of this Escrow Agreement are as follows

(a) The Treasurer shall receive into a separate fund (the Escrow Account) Proceeds and any additional amounts to be used in connection with the Project

(b) The Treasurer shall reimburse Entity in amounts authorized in writing by the Entity and the State

(c) Each authorization must be signed by one official form both the Entity and the State except as provided in (i)of this section and shall be substantially the same as the form attached as Exhibit B On behalf of the Entity the written authorization and request shall be signed by any one of the officials of the Entity identified in Section I A I above On behalf of the State the written authorization and request shall be signed by any one of the officials of the State identified in Section I A 2 above The Treasurer assumes no responsibility for expenditure of moneys paid out of the Escrow Account pursuant to a written authorization and request properly signed and delivered the Treasurer as provided herein

(i)

If the Entity fails to provide closure post-closure or corrective action of the solid waste management facility as required by the *Utah Solid Waste Permitting and Management Rules* and the Entity s solid waste disposal permit the Executive Secretary will issue an order to close under the authority of Section 19-6-107(7) of the Utah Solid and Hazardous Waste Act Upon completion of the Administrative process including the Entity s right to contest and appeal the administrative action the State may independently request in writing reimbursement to a State-approved and authorized third party for the costs related to the third party s activities for closure post-closure or corrective actions at the facility

(d) If a written authorization and request indicates that an amount (the Retained Amount) payable to a Provider is to be held for retainage pending completion of the Project or the lapse of time the Treasurer shall segregate such amount and shall invest the Retained Amount in an interest-bearing account (the Separate Account') the interest on which shall accrue for the benefit of the Provider The Retained Amount and all accrued interest thereon shall be disbursed by the Treasurer in the same manner as provided in paragraph 5(b) hereof All fees charged or incurred by the Treasurer relating to the establishment, investment and disbursement of the Separate Account shall be borne solely by the Provider and may be withheld by the Treasurer from the Separate Account prior to the disbursement thereof, provided however that if such fees are home by the Separate Account and if the interest earned on the Separate Account is less than the amount of such fees then the fees withheld from such Separate Account shall not exceed the interest earned and the balance of such fees shall be paid by the Entity

(e) The funds deposited by the parties hereto in the Escrow Fund and in any Separate Account shall be invested by the Treasurer in the Utah Public Treasurers Investment Fund established by Secuon 51-7-5 of the Utah Code All interest earned on moneys held m the Escrow Account shall be retained therein and disbursed as provided herein

(f) The Treasurer shall report at least monthly concerning the receipts disbursements and status of the Escrow Account The reports shall be mailed to the Entity and to the State at their respective addresses as shown in Section I A above Notification of changes of address if any shall be in writing and mailed to the parties at their respective addresses as shown in Section I A above

(g) This Escrow Agreement will be terminated after payment of the fees and out-of-pocket expenses of the Treasurer and upon liquidation of the Escrow Account as provided herein This Escrow Account upon the earlier to occur of

(i) receipt by the Treasurer of a written authorization and request signed as provided in paragraph 5(c) hereof stating that the acquisition construction improvement and extension of the Project is complete that all obligations and costs in connection with the Project which are payable out of the Escrow Account have been paid and discharged and that the Treasurer is authorized and directed to transfer all moneys in the Escrow Fund to the Entity or such other disposition as may be agreed by the State and the Entity or

(ii) receipt by the Treasurer of a written certificate of the State signed by the appropriate (three) representatives thereof as identified in paragraph 5(c) hereof stating that at least 3 months have expired from the date of this Agreement and that all remaining moneys in the Escrow Account are to be transferred to the State as a prepayment on the Bond purchased by the State or such other disposition as may be specified by the State

This Agreement may be modified or amended only by a written Amendment attached to this Agreement and signed by the parties to this Agreement

Entity City of Bountiful, Utah

By

Title Administrative Services Director

Date December 1, 2005

Attest and Countersign

By

Title City Recorder

Date December 1, 2005

STATE Utah Division of Solid and Hazardous Waste

By ______________________

Title Executive Secretary
Utah Solid & Hazardous Waste Control Board

Date ______________________

Accepted

Utah State Treasurer

By ______________________

Title ______________________

Date ______________________

EXIIBIT A

Fees due to State Treasurer
as Escrow Agent

Maximum annual fee is 10 basis points (one-tenth of one percent (001)) applied to the average daily balance in each account The fee is assessed monthly based on the actual number of days in the month divided by 360 days

Minimum annual fee is zero

The Treasurer intends to deduct the administrative fee from gross earnings of each account before crediting earnings to the account(s) The amount of such fees in not reflected on monthly statements to the Entity and is payable only from gross earnings on the account(s)

Entity shall not be liable to the Treasurer for any other costs or expenses for usual services Usual services include

1 Acceptance of funds delivered for deposit

2 Deposit of funds and issuance of Treasurer's Receipt

3 Investment of all funds delivered to Treasurer

4 Credit net interest earnings to designated account(s) on a monthly basis

5 Reimburse entity for project costs pursuant to receipt of a written authorization and request properly signed and delivered to the Treasurer

6 Prepare and deliver to Entity and State a monthly accounting showing all deposits withdrawals, interest credits and rate, ending balance and average balance for each account

Entity will be liable to the Treasurer for out-of-pocket expenses resulting from any additional or extraordinary service Treasurer is requested to render and reasonably incurs in connection with additional or extraordinary services

EXHIBIT B -1

WRITTEN AUTHORIZATION AND REQUEST FOR REIMBURSEMENT
FROM ESCROW FUND

TO The Utah State Treasurer, as Escrow Agent (the 'Treasurer')

DATE _______

WRITTEN REQUEST NO ____________

I the undersigned authorized officer of ____________________________________, (the "Entity'), do hereby certify and request to the Treasurer as follows

7 Pursuant to the provisions of the Escrow Agreement by and between the Entity, the State and the Treasurer dated _________ (the "Escrow Agreement") the undersigned hereby authorizes and requests a reimbursement from the Escrow Account to pay the amounts shown on the attached Payment Schedule

8 Each payment proposed to be made as set forth on the Payment Schedule has been incurred and is a proper charge against the Escrow Account

9 To the extent that the payment of any item set forth on the Payment Schedule is for other than work, materials, equipment or supplies, in connection with this authorization and request, the undersigned certifies that each payment proposed to be made on the Payment Schedules is a proper charge against the Escrow Account, is a reasonable amount and has not been heretofore included in a prior Written Authorization and Request for Reimbursement for the Escrow Account

10 This Written Authorization and Request, including the Payment Schedule attached hereto, shall be conclusive evidence of the facts and statements set forth herein

11 A copy of this Written Authorization and Request is being kept on file m the official records of the Entity

The terms used herein which are defined m the Escrow Agreement shall have the respective meanings therein assigned to them

____

By ____________________________________

Title ___________________________________

EXHIBIT B-2

I/we the undersigned authorized officer(s) of the State do hereby certify and request to the Treasurer as follows

1 I/we have reviewed the foregoing statements of the authorized officer of the Entity attached hereto, and on behalf of the State approve the request for payment from the Escrow Fund made therein, provided that the State has not independently verified the statements of such authorized officer of the Entity attached hereto and makes no representations or certifications with respect thereto

2 A copy of this Written Authorization and Request is being kept on file in the official records of the State

The terms used herein shall have the same meanings assigned to them in the attached statements of the authorized officer of the Entity

Dated the date appearing at the top of the attached statements of the authorized officer of the Entity

STATE

By ______________________________

Title ______________________________

EXHIBIT B -3

<u>REIMBURSEMENT SCHEDULE</u>

Check No	Person or Firm	Amount	Purpose

Reimbursement for the above listed payments totaling $______________________ is to be made to ____ ________________________("Entity") by transfer of funds from the Escrow Account (PTIF#_____) to (CHECK ONE)

_______Entity's general account in the Public Treasurer's Investment Fund (PTIF#), or to

_______Entity's checking account at ___________________________________("Bank")
Account number____

RETAINAGE REQUEST

In addition to the above listed reimbursement, transfer the following retainage amounts

From Escrow Acct #	To Retainage Acct #	For Contractor (name)	#Amount
________________	________________	____________________	______________
________________	________________	____________________	______________
________________	________________	____________________	______________

Contact Person at time of Wire Transfer ____
(name) (phone #)

Appendix I

Frost Penetration Analysis

INTRODUCTION

This appendix provides a summary of the Frost Penetration Analysis conducted on the final cover for the Bountiful Sanitary Landfill The frost penetration analysis was conducted at the request of the State of Utah Department of Environmental Quality Division of Solid and Hazardous Waste (DSHW) to satisfy their concerns regarding the proposed standard landfill cover design Based on the results of the analysis conducted, the final cover design has been modified to include a fifteen inch layer of topsoil that will serve three distinct purposes These purposes are as follows

1 Act as topsoil to sustain plant growth
2 Act as a root zone for vegetation
3 Act as a frost protection zone for the final landfill cover

The reason that the decision was made to increase topsoil thickness as opposed to importing another soil type for frost protection was the availability of excess top soil already on site The topsoil which will be used is manufactured on site by land farming processed organic matter and sludge to produce high quality topsoil Sufficient topsoil will be available as needed, therefore this design will have very little effect on our financial assurance requirements

FROST PENETRATION ANALYSIS

The frost penetration analysis for the final cover design at the Bountiful Sanitary Landfill was conducted using the Modified Breggren Equation This is the most widely used equation to estimate seasonal freeze and thaw depths The equation is as follows

$$z = \sqrt{(((48)*(1\ 056)*(K)*(F)*(n))/L)}$$

where,

z = frost penetration depth
K = thermal conductivity of soil (Btu/ft-hr-°F)
L = volumetric latent heat of fusion (Btu/ft³)
F = air freezing index
n = air to surface index conversion factor

Thermal Conductivity, K

Thermal conductivity is defined as the quantity of heat flow in a unit time through a unit area of a substance caused by a unit thermal gradient

The thermal conductivity of the soil was determined using a graph developed by the US Army Corps of Engineers (attached) Values for thermal conductivity are based on variations on dry unit weight and moisture content We determined the thermal conductivity of the soil over a range of anticipated soil conditions ranging from 75 lb/cu ft to 95 lb/cu ft dry unit weight and from 15% to 40 % moisture content A copy of the spread sheet showing determined values is attached

Because grasses will be planted as erosion control on all areas of the landfill as it is closed, the n-factor for turf may be the most applicable in some areas However, the grass to be planted will be more of a wheat grass type and may not act similar to turf in all areas this suggests that a n-factor around 0 6 may be more appropriate In addition, it is possible that frost may occur before any grass has the opportunity to grow in some areas In these areas an n-factor of 0 7 will be appropriate Spread sheets showing the effect of varying the n-factors is attached

Frost Depth

Using the variables determined as described above, and varying the dry unit weight and moisture content of the soil over the range where it could reasonably be expected to fall produces frost penetration results ranging from 8 1-14 4 inches The worst case will be when the soil is relatively dry, relatively dense, and not covered with any vegetation Because the topsoil will be placed with little if any compactive effort, and the organic content of the soil is high, the densities will most likely remain low Also, the coldest times of the year is when much of the moisture is present in the soil and the intent of the topsoil layer is to produce plant growth Therefore, the likelihood of reaching the worst case conditions is minimal

Fifteen inches of topsoil will be effective in preventing frost dessication of the final clay cover on the Bountiful Sanitary Landfill

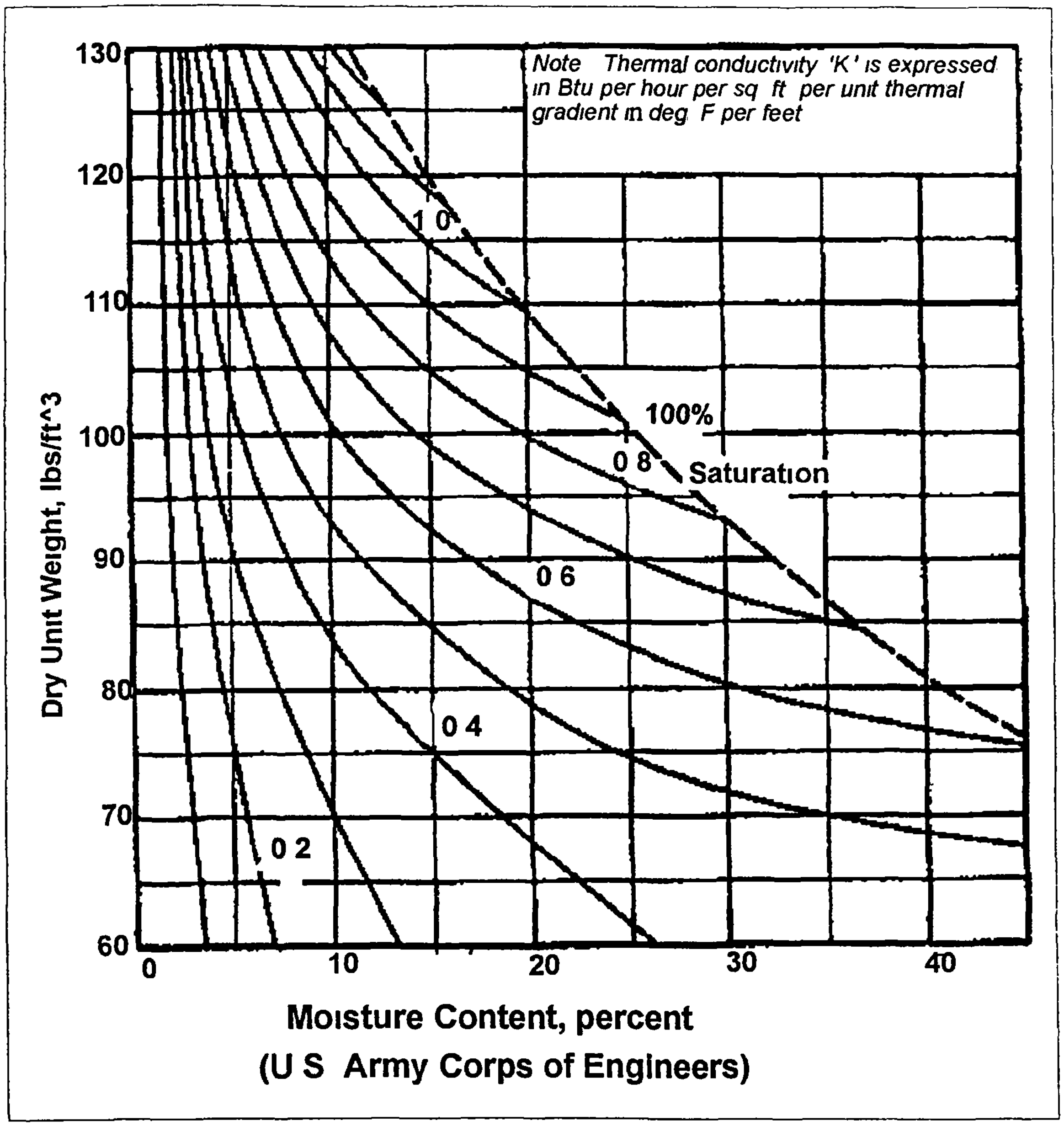


Figure 1 Average thermal conductivity for silt and clay soils, unfrozen

Frost Penetratıon Varıables and Results

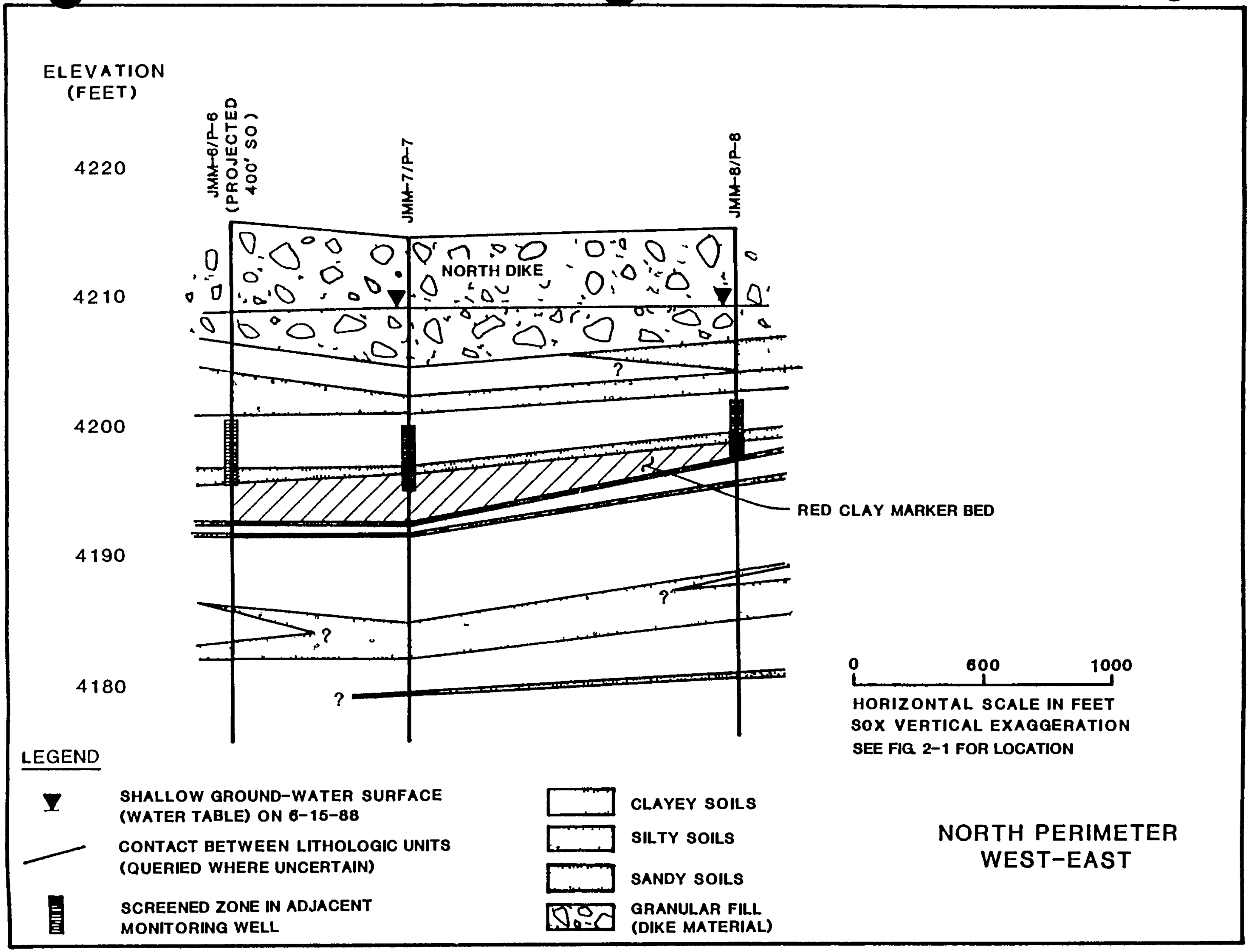
Freezıng Degree Days (F)	134

Aır to Surface ındex (n)	0 7

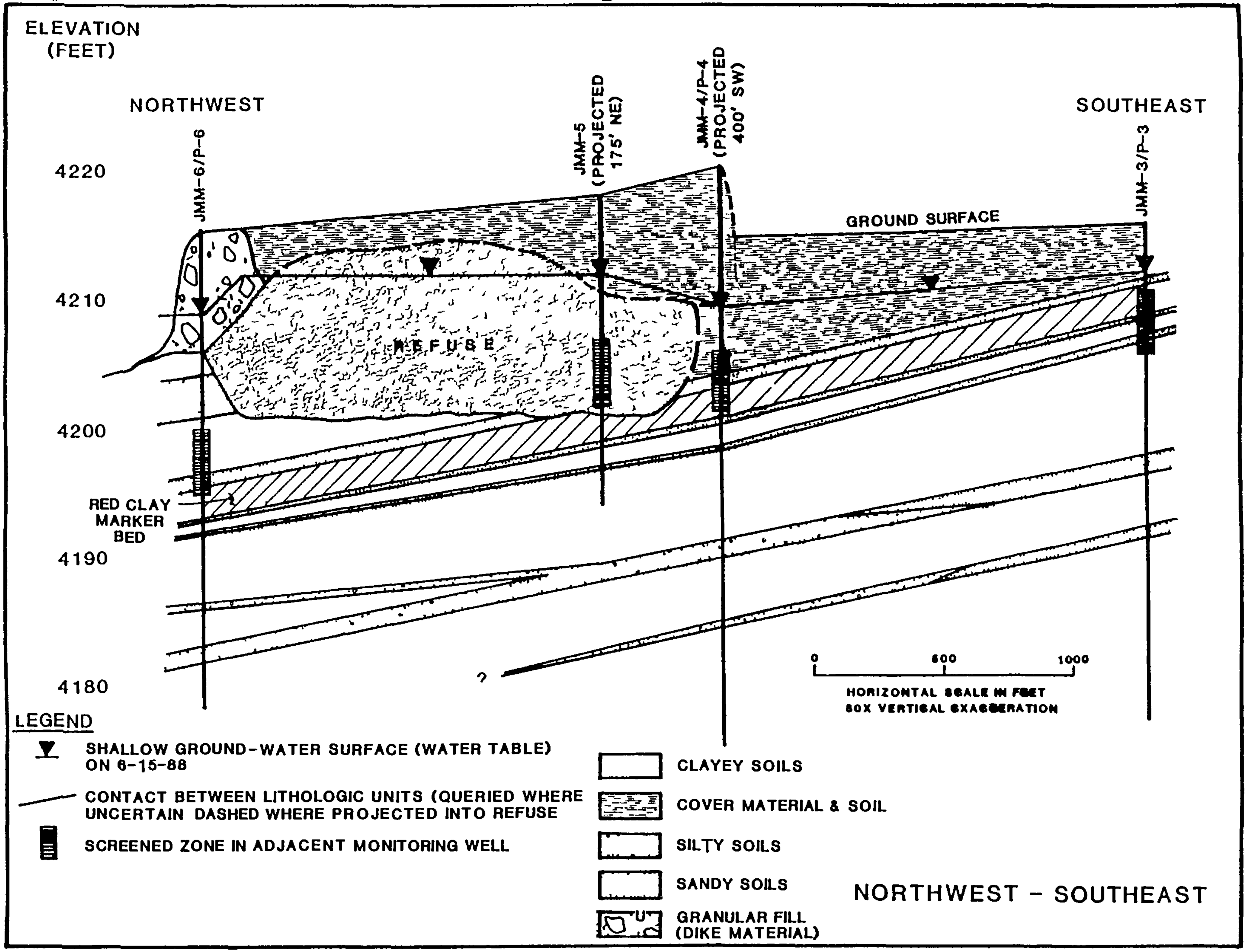
dry unıt weıght (lb/ft^3)	Moısture content (w) %	Thermal Conductıvıty (k)	Voulmetnc Heat of Latent Fusıon (L)	Frost Penetratıon (ft)	Frost Penetratıon (m)
75	15	0 4	1620	1 08	13 0
80	15	0 45	1728	1 11	13 4
85	15	0 5	1836	1 14	13 7
90	15	0 57	1944	1 18	14 2
95	15	0 62	2052	1 20	14 4
75	20	0 46	2160	1 01	12 1
80	20	0 51	2304	1 03	12 3
65	20	0 58	2448	1 06	12 7
90	20	0 64	2592	1 08	13 0
95	20	0 71	2736	1 11	13 3
75	30	0 53	3240	0 88	10 6
80	30	0 6	3456	0 91	10 9
85	30	0 68	3672	0 94	11 3
90	30	0 75	3888	0 96	11 5
95	30	1	4104	1 08	12 9
75	40	0 58	4320	0 80	9 6
80	40	0 64	4608	0 81	9 8
85	40	1	4896	0 99	11 8
90	40	1	5184	0 96	11 5
95	40	1	5472	0 93	11 2

Appendix J

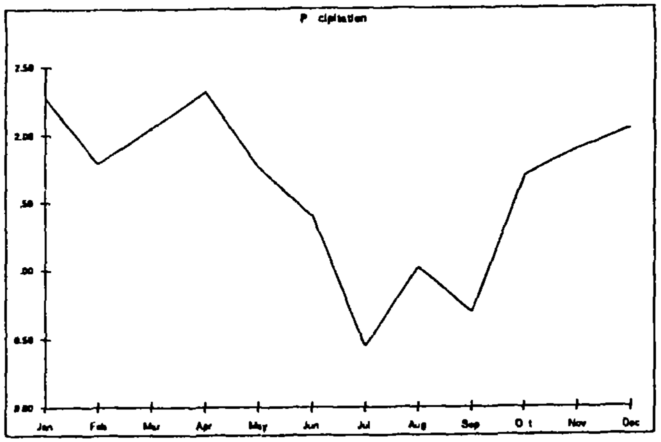
Geology and Ground Water Exhibits

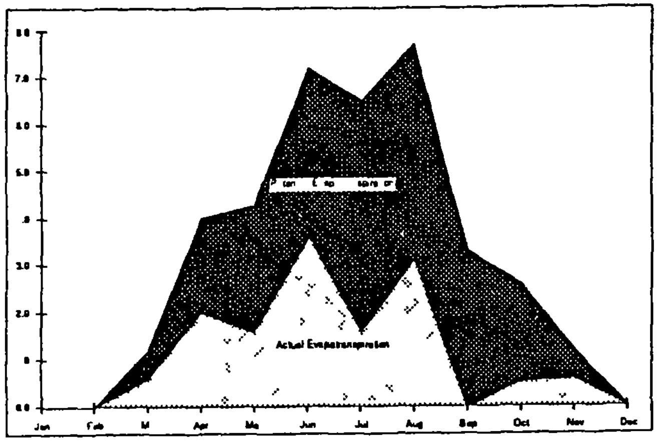


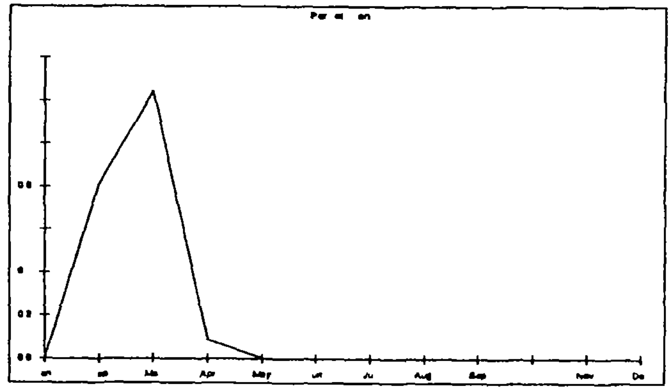
NORTH PERIMETER
WEST-EAST

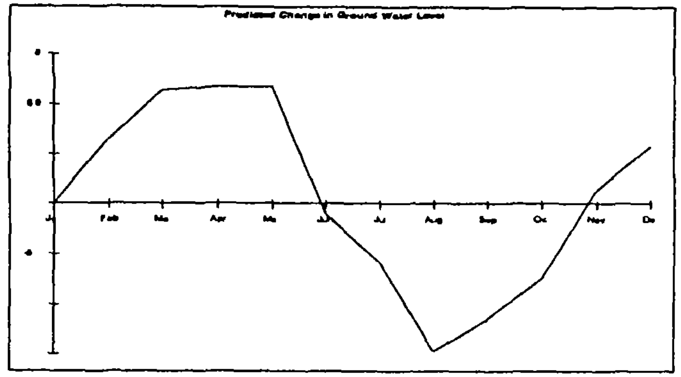


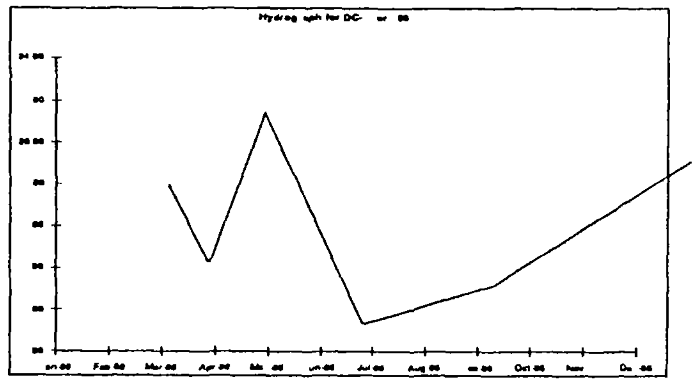
ELEVATION (FEET)
NORTHWEST
SOUTHEAST
JMM-6/P-6
JMM-5 (PROJECTED 175' NE)
JMM-4/P-4 (PROJECTED 400' SW)
JMM-3/P-3
GROUND SURFACE
REFUSE
RED CLAY MARKER BED
4220
4210
4200
4190
4180
0
500
1000
HORIZONTAL SCALE IN FEET
50X VERTICAL EXAGGERATION
LEGEND
SHALLOW GROUND-WATER SURFACE (WATER TABLE) ON 6-15-88
CONTACT BETWEEN LITHOLOGIC UNITS (QUERIED WHERE UNCERTAIN DASHED WHERE PROJECTED INTO REFUSE
SCREENED ZONE IN ADJACENT MONITORING WELL
CLAYEY SOILS
COVER MATERIAL & SOIL
SILTY SOILS
SANDY SOILS
GRANULAR FILL (DIKE MATERIAL)
NORTHWEST - SOUTHEAST











WATER BALANEE PARAMETERS

	Jun	P b	Mar	Apr	May	Jun	Jul	Aug	B p	Oct	N v	Dec
M an monthly temp (F)	28 1	33 6	41 0	50 8	50 8	66 4	78 6	73 8	64.7	33 7	39 8	32 4
Monthly precip tati n	2.28	1 80	2 08	2.32	1 76	1 41	0 42	1 02	0 69	1 80	1 80	2 04
Potenti l vapotranspirati	0 0	0 0	0 2	2 0	2 7	3.6	4 8	4 8	3 2	8 1	0 6	0 0
Run ff	0 2	0 2	0 2	0 3	0 2	0.1	0 0	0 1	0 1	0 2	0 2	0 2
Moi ture ailabl for infiltration	2.1	1 6	2 2	2.1	2 6	1 3	0.4	0 8	0 4	1 2	1 7	1 8
Infiltration less PET	2.1	1 6	2 2	0 1	2 1	2.3	-4 6	-8.7	2 7	-0 4	1 1	1 6
Accumul ted potential w ter loss	0 0	0 0	0 0	0.0	1 1	-3 4	2.8	21 4	14 3	14 8	0 0	0 0
Soil moisture storage	1 2	2 0	2.0	8 0	2 0	1.2	2 4	-1 6	-3 8	2.8	0 6	0 6
Chang in torage	0 0	0 8	0 0	0 0	0 0	-3.2	1.2	2 3	0 8	1 0	2 2	1 1
Actual pataaspirati n	0 0	0 0	0 2	2.0	2 6	2 0	1 6	2 1	0 0	0 5	0 6	0 0
Pur l il	0 0	0 2	1 2	0 1	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
Change i ground water level	0 0	6 4	12 4	21 8	21 8	1 0	-2.2	24 2	21 4	7 4	1 4	6 8

All values in inch s unless therwise noted.

ESTIMATED WATER BALANCE FOR THE BARD LANDFILL

FIGURE 4-6

WATER BALANCE FOR THE COMPLETED LANDFILL

FINAL COVER (ft) 3 SITE: BARO PROJ NO 558-02.01

(Type) Clay BY MI DATE 12/30/82

VEGETATION Short rooted___ Medium X Deep___ Farmington 41° 07' CHKD BLP DATE 12/30/82

	MONTH→	JAN	FEB.	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
MEAN MONTHLY TEMPERATURE °F	T	28 1	33 5	41 0	50 9	59 0	66 4	75 6	73 9	64.7	53 7	39 6	32 4	-
MONTHLY HEATING INDEX	H	0 00	0 06	1 00	3 08	5 28	7 62	10 89	10 26	7 05	3 79	0 77	0 01	49 81
UNADJUSTED DAILY POTENTIAL EVAPOTRANSPIRATION (In)	UPET	0	0	0.02	0 06	0 09	0 12	0 16	0 15	0 11	0 07	0 02	0	-
MEAN MONTHLY SUNLIGHT	L	24 9	24 9	30 9	33 3	37 5	37 8	38 1	35 7	31.2	28 8	24.6	24 0	-
ADJUSTED MONTHLY POTENTIAL EVAPOTRANSPIRATION (In)	PET	-	-	0 62	2 00	3 38	4 54	6 10	5 36	3 43	2 02	0 49	-	27 94
MEAN MONTHLY PRECIPITATION (In)	P	2 28	1 79	2 05	2 32	1 76	1 41	0 45	1 02	0 69	1 69	1 89	2 04	19 39
SURFACE RUNOFF COEFFICIENT	C-R/O	0.4	0 4	0 4	0 4	0 4	0 4	0 4	0 4	0 4	0 4	0 4	0 4	-
SURFACE RUNOFF (In)	R/O	0 91	0 72	0.82	0 93	0 70	0 56	0 18	0 41	0 28	0 68	0 76	0 82	7 77
INFILTRATION (In.)	I	1 37	1 07	1 23	1 39	1 06	0 85	0 27	0 61	0 41	1 01	1 13	1 22	11 62
INFILTRATION MINUS POTENTIAL EVAPOTRANSPIRATION (In.)	(I-PET)	1 37	1 07	0 61	-0 61	-2 32	-3 69	-5 83	-4 75	-3 02	-1 01	0 64	1 22	-
ACCUMULATED POTENTIAL WATER LOSS (In)	Neg (I-PET)	-	-	0	-0.61	-2.93	-6 62	-12 45	-17 20	-20 22	-21 23	-	-	-
SOIL MOISTURE STORAGE (In) Available water 3 6 in/ft x Depth 1 67 ft	ST	3 40	4 47	6 0	5.41	3 66	1 94	0 71	0 37	0 19	0 17	0 81	2 03	-
CHANGE IN MOISTURE STORAGE (In)	Δ ST	1 37	1 07	1 53	-0 59	-1 75	-1 72	-1 23	-0 34	-0 18	-0 02	0 64	1 22	-
ACTUAL EVAPOTRANSPIRATION (In)	AET	0	0	0 62	1 98	2 81	2 57	1 50	0 95	0 59	1 03	0 49	0	12 54
PERCOLATION (In)	PERC.	0	0	0	0	0	0	0	0	0	0	0	0	0

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS		GW	WELL GRADED GRAVELS GRAVEL SAND MIXTURES LITTLE OR NO FINES
		(LITTLE OR NO FINES)		GP	POORLY GRADED GRAVELS GRAVEL SAND MIXTURES LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO 4 SIEVE	GRAVELS WITH FINES		GM	SILTY GRAVELS GRAVEL SAND SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS GRAVEL SAND-CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SAND		SW	WELL GRADED SANDS GRAVELLY SANDS LITTLE OR NO FINES
		(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS GRAVELLY SANDS LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING NO 4 SIEVE	SANDS WITH FINES		SM	SILTY SANDS SAND-SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS ROCK FLOUR SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY GRAVELLY CLAYS SANDY CLAYS SILTY CLAYS LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OR LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT HUMUS SWAMP SOILS WITH HIGH ORGANIC CONTENTS

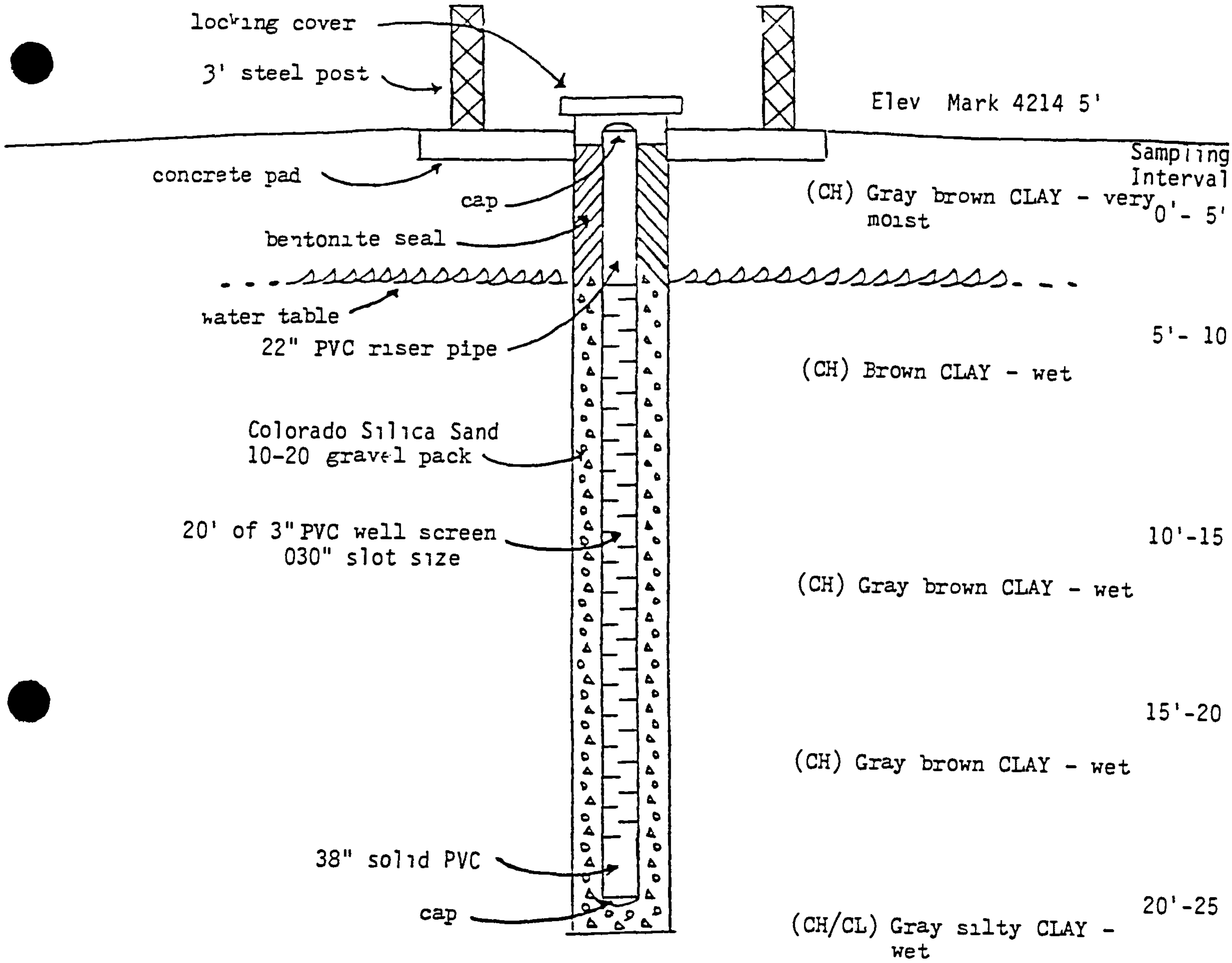
NOTE DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

SOIL CLASSIFICATION CHART

UNIFIED SOIL CLASSIFICATION SYSTEM

BARD MONITORING WELL # 1

DC-1



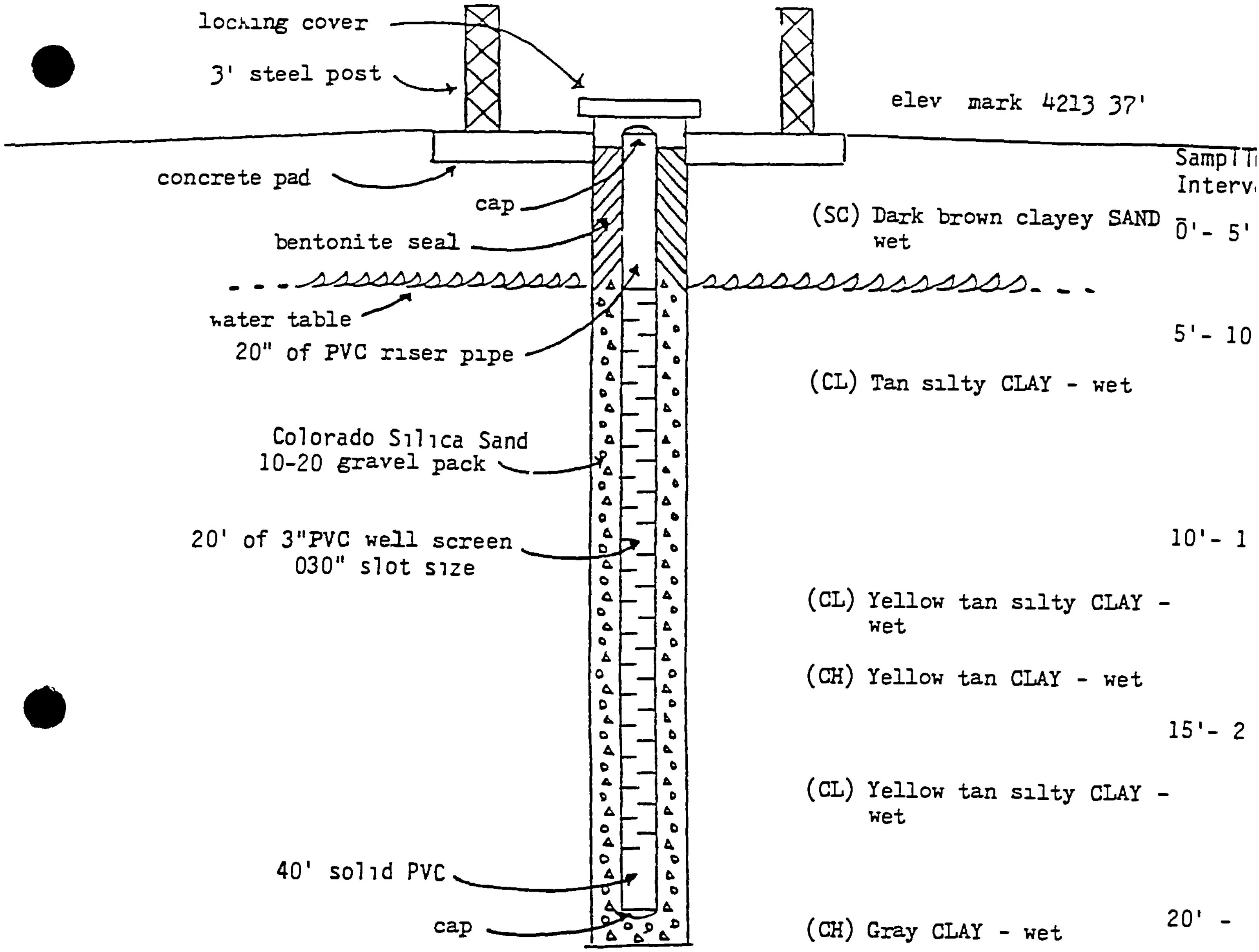
4/19/85

Drilling Method--Cable Tool
Development Method--Air Surge

Figure 3

BARD MONITORING WELL # 2

DC-2



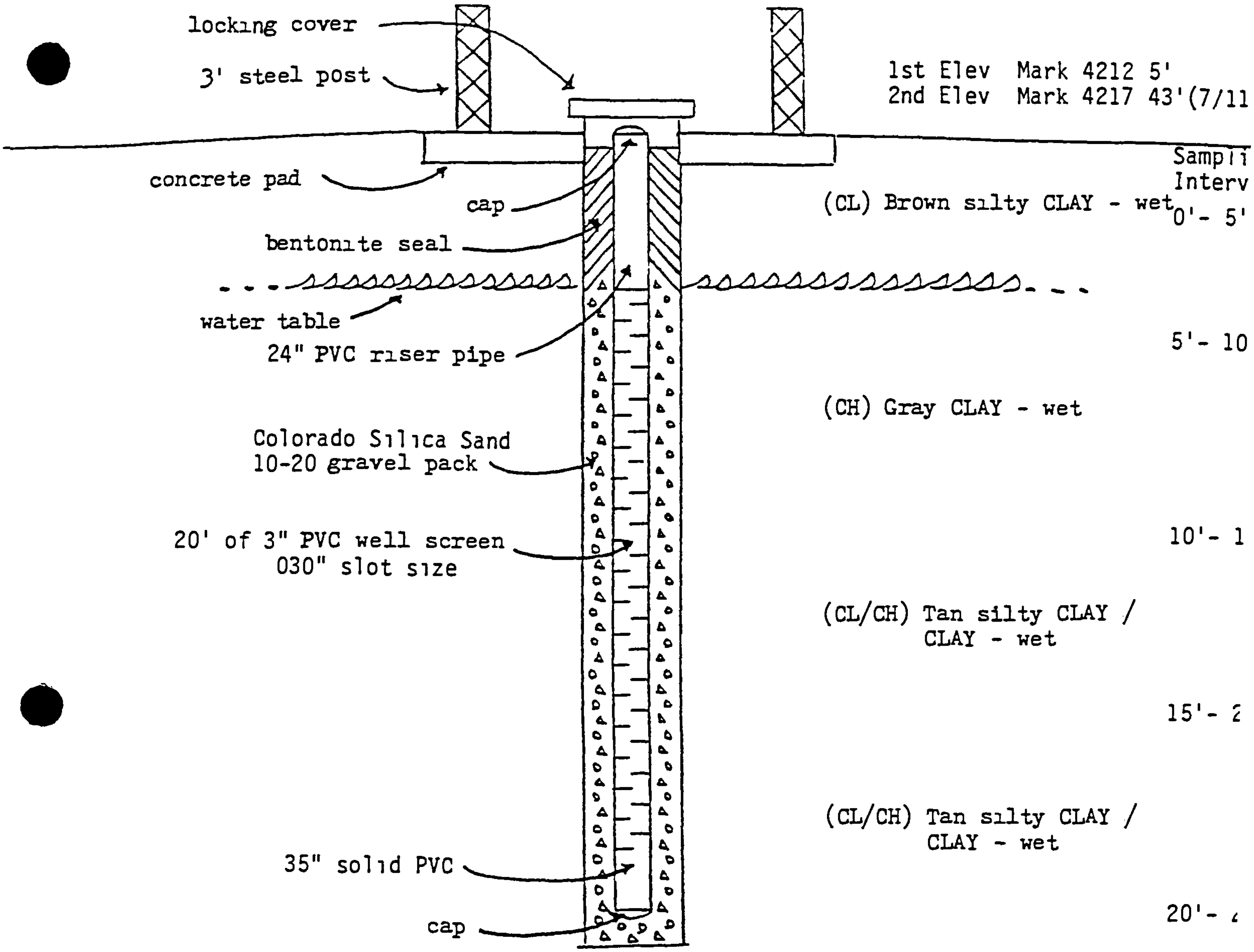
4/23/85

Drilling Method--Cable Tool
Development Method--Air Surge

Figure 4

BARD MONITORING WELL # 3

DC-3

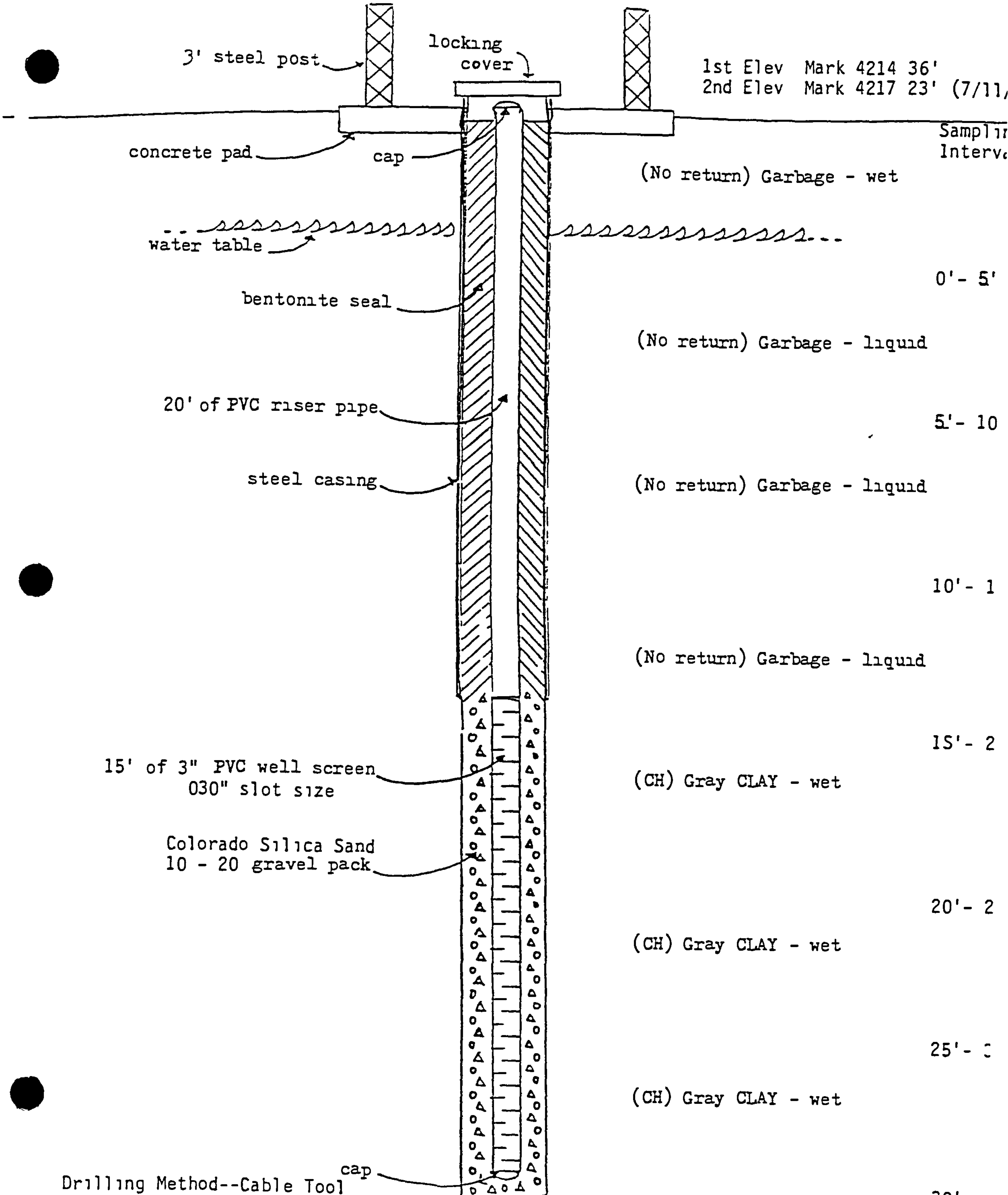


4/25/85

Drilling Method--Cable Tool
Development Method--Air Surge

Figure 5

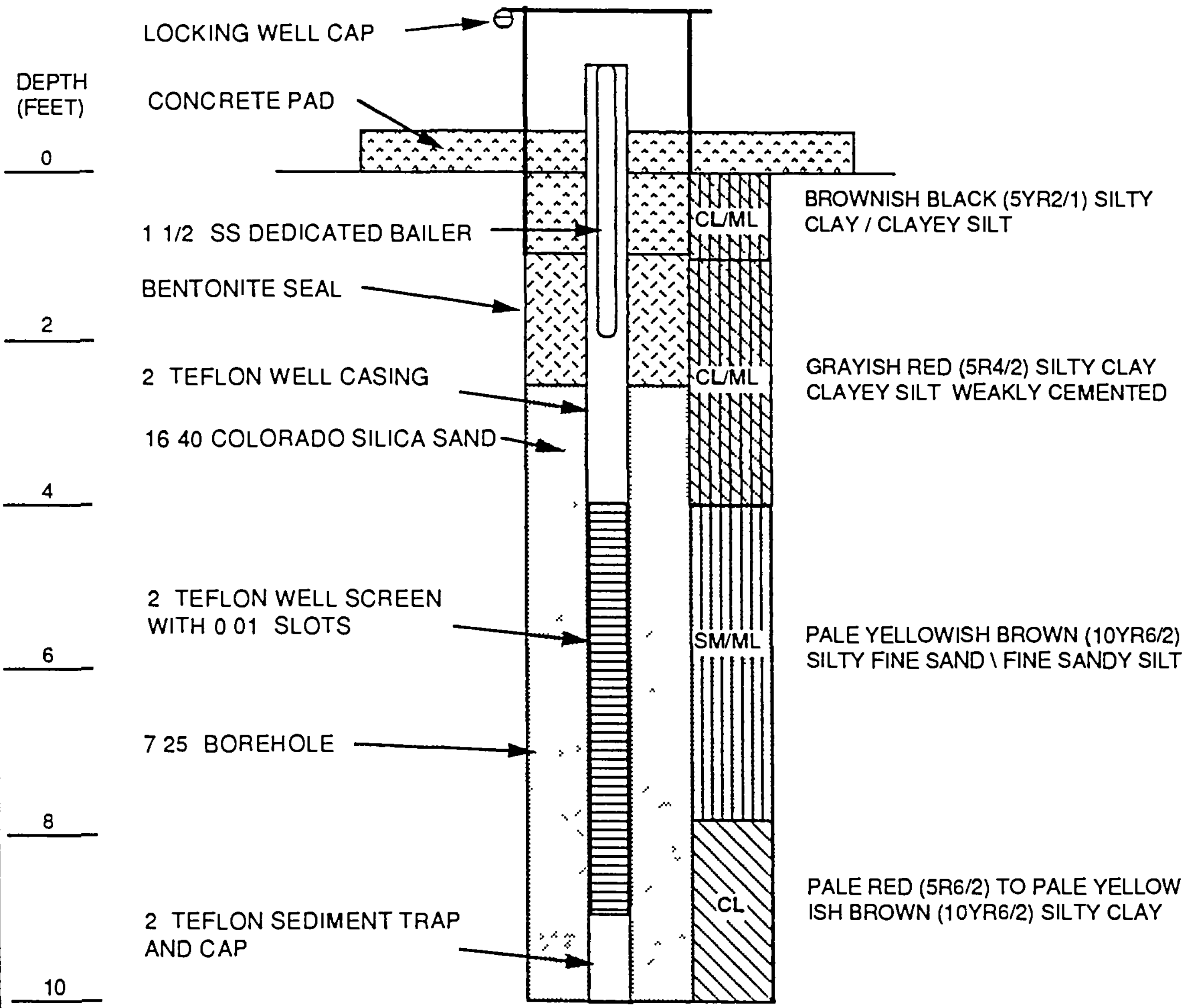
DC-4



Drilling Method--Cable Tool
Development Method--Air Surge

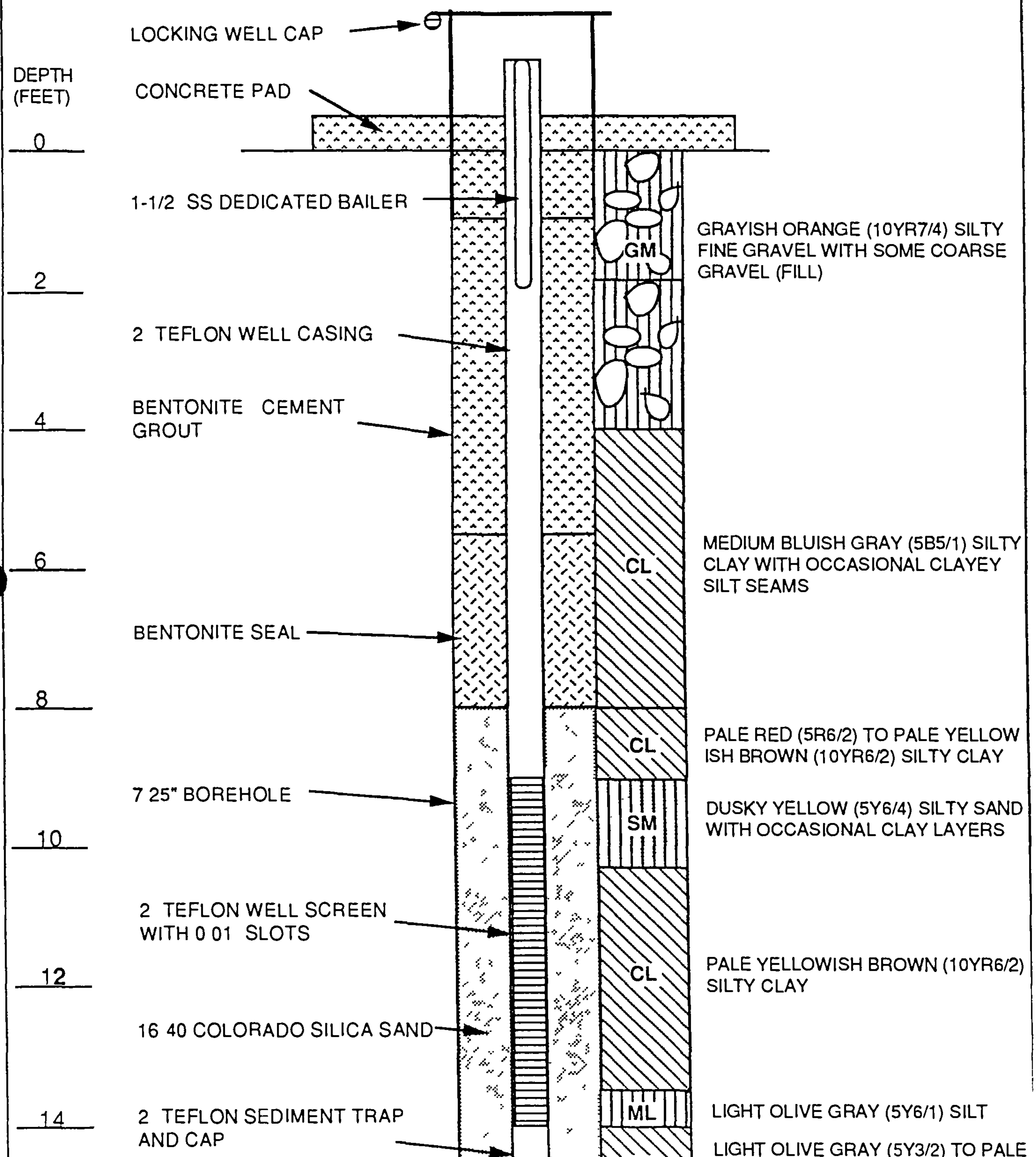
Figure 6

4/29/85



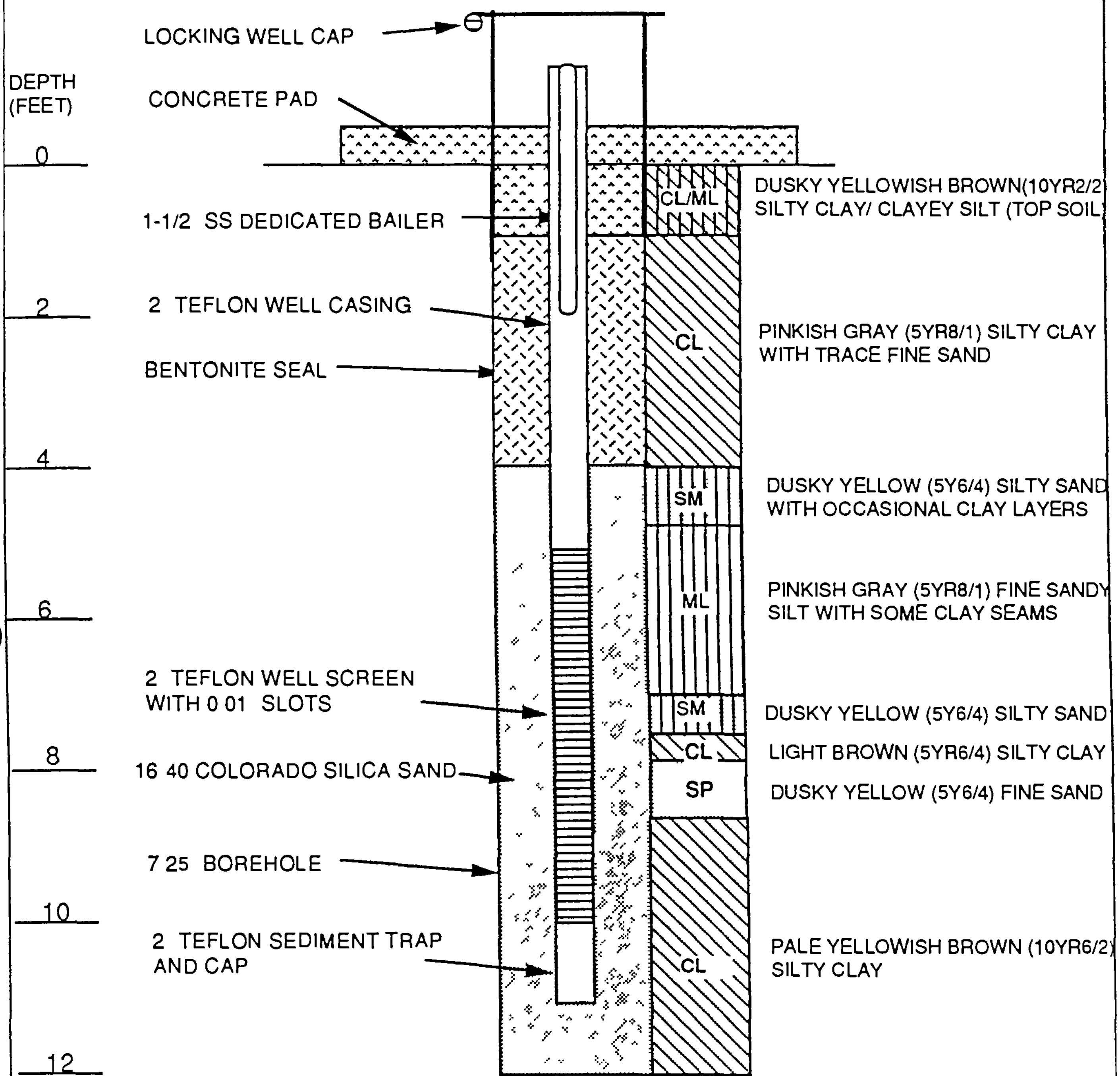
Monitonng well completed to 10 0
Static water level at 3 39 below
ground on 6/13/88

MONITORING WELL
JMM-1



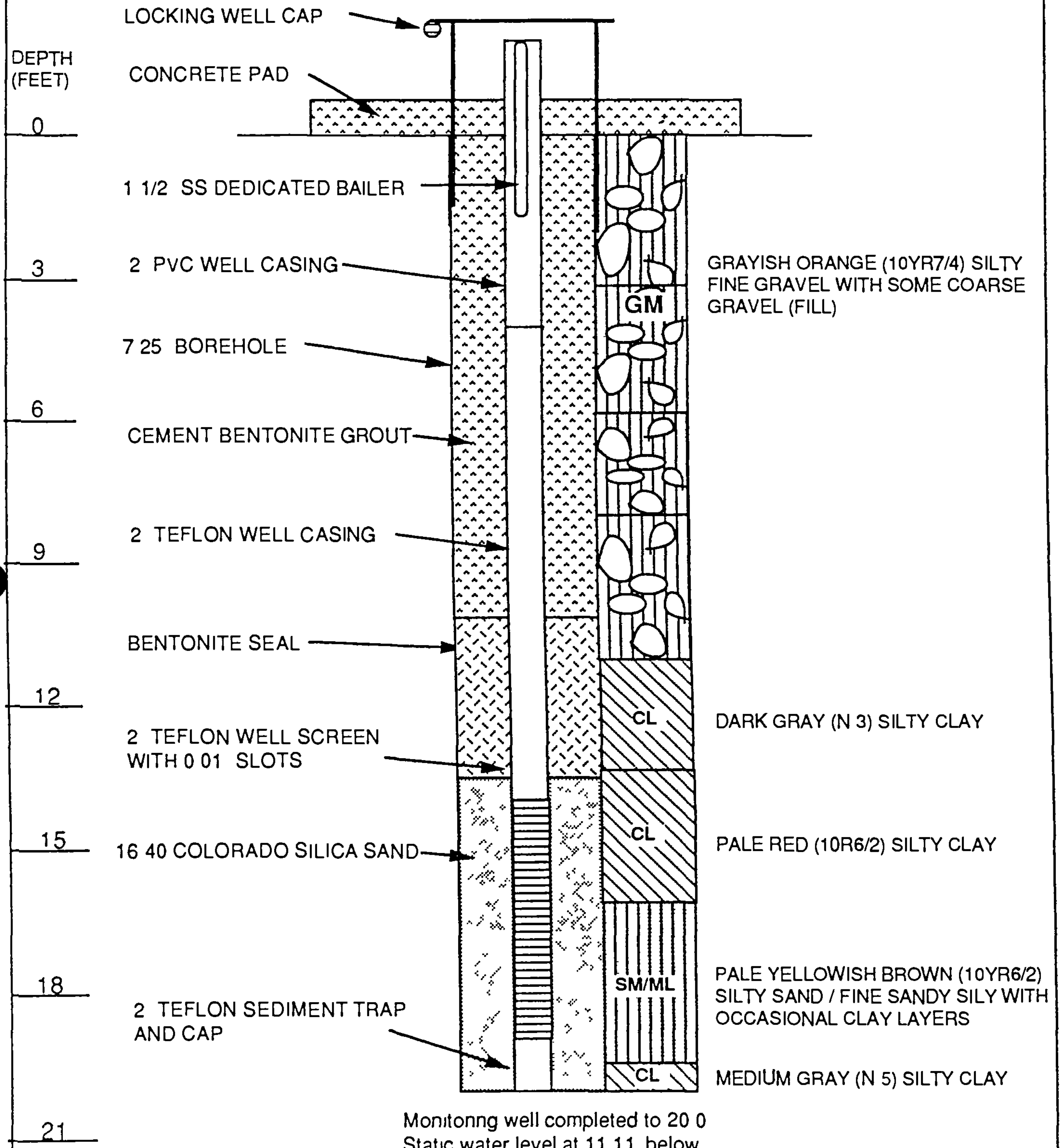
Monitoring well completed to 15 0
Static water level at 2 98 below
ground on 6/13/88

MONITORING WELL
JMM-2



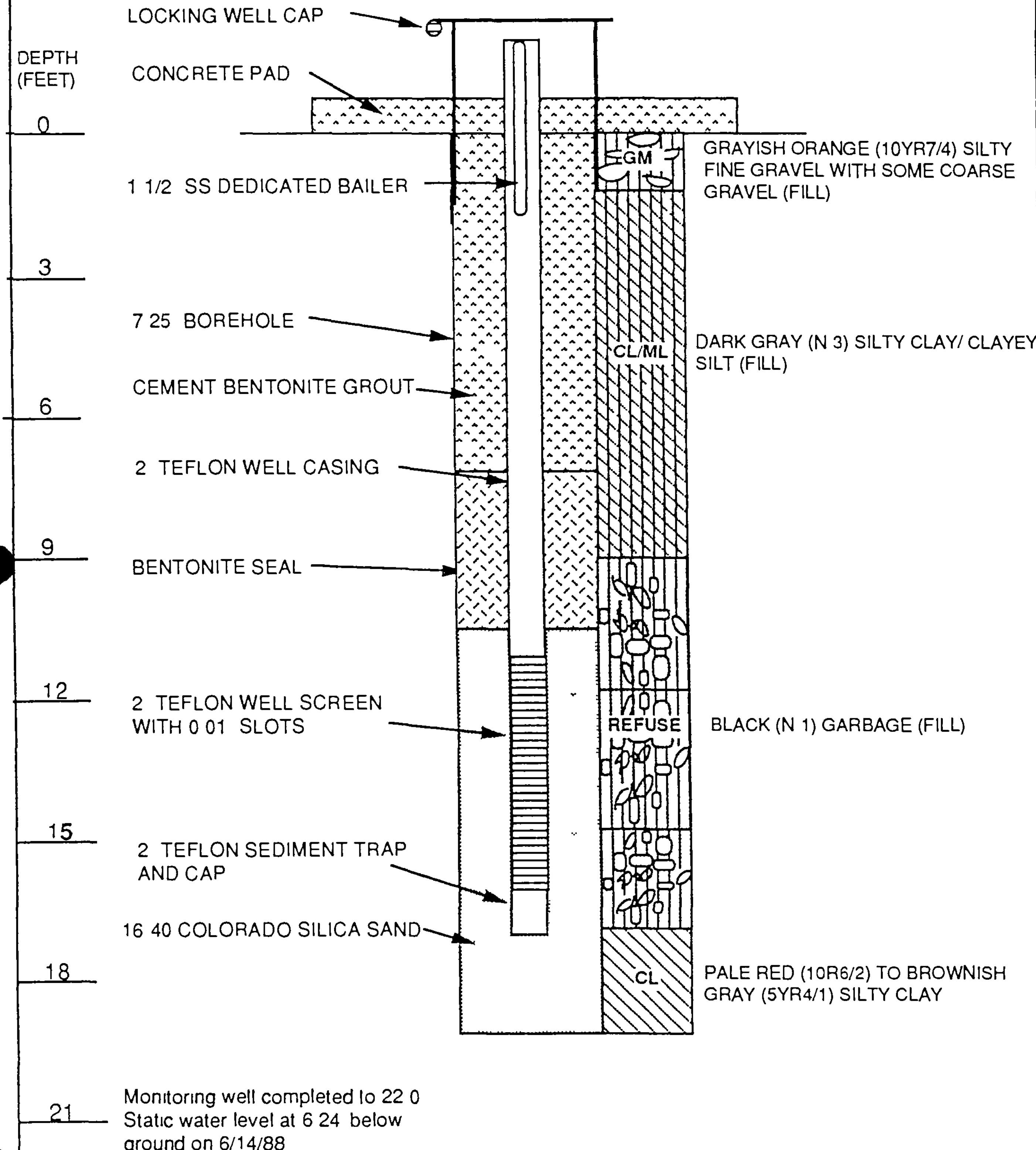
Monitoring well completed to 12 0
Static water level at 4 01 below
ground on 6/13/88

MONITORING WELL
JMM-3

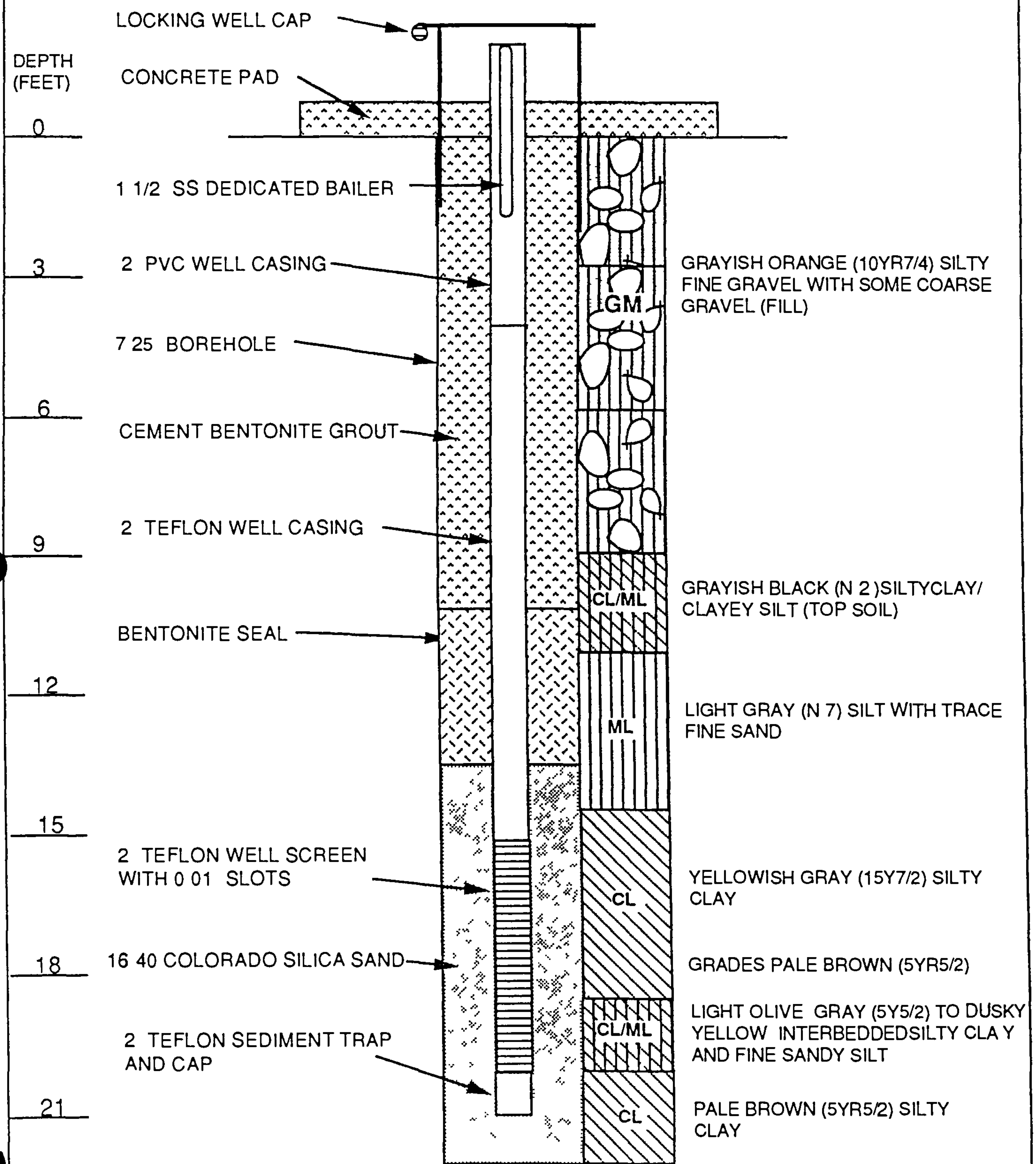


Monitoring well completed to 20 0
Static water level at 11 11 below
ground on 6/14/88

MONITORING WELL
JMM-4

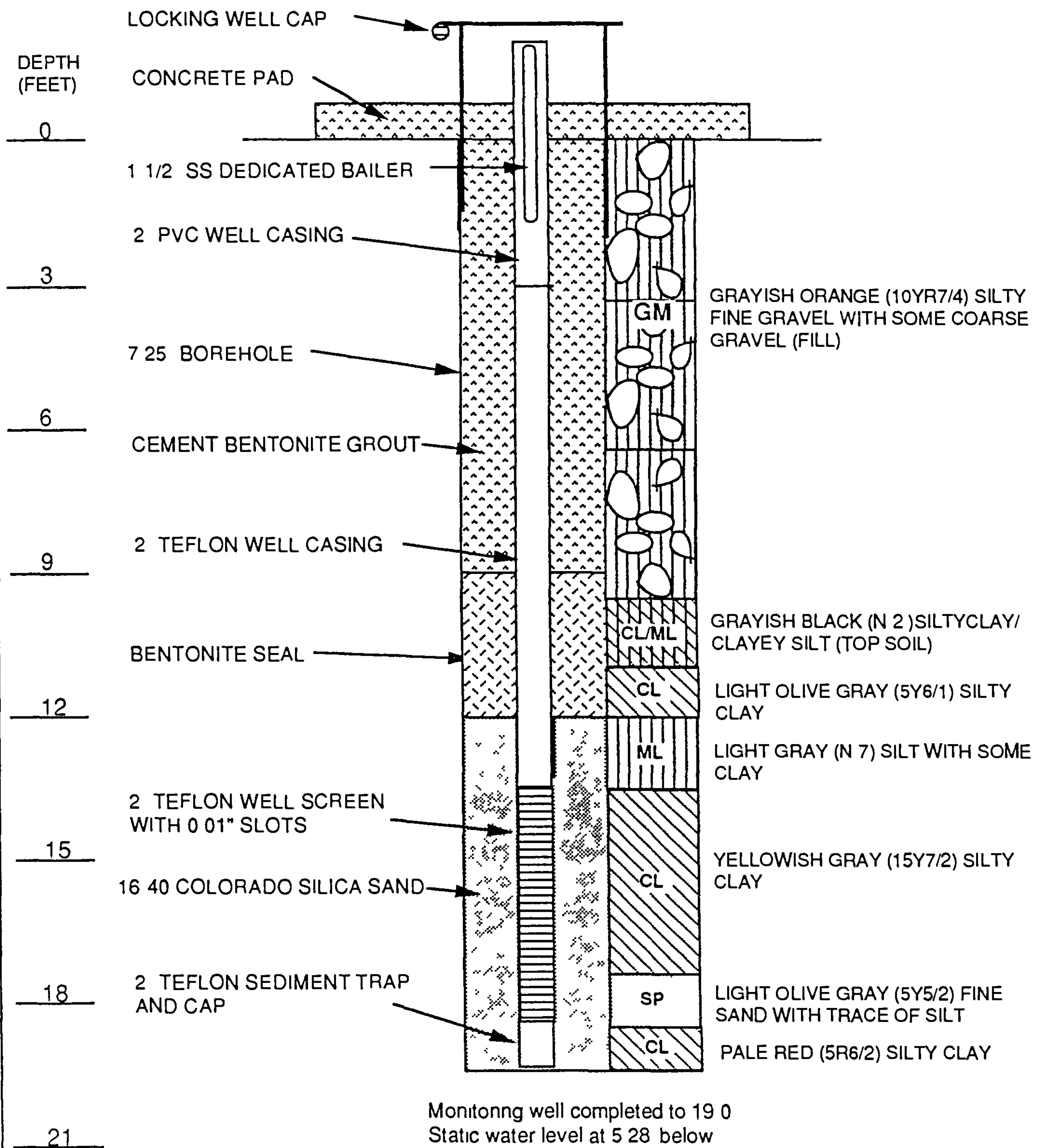


MONITORING WELL
JMM-5



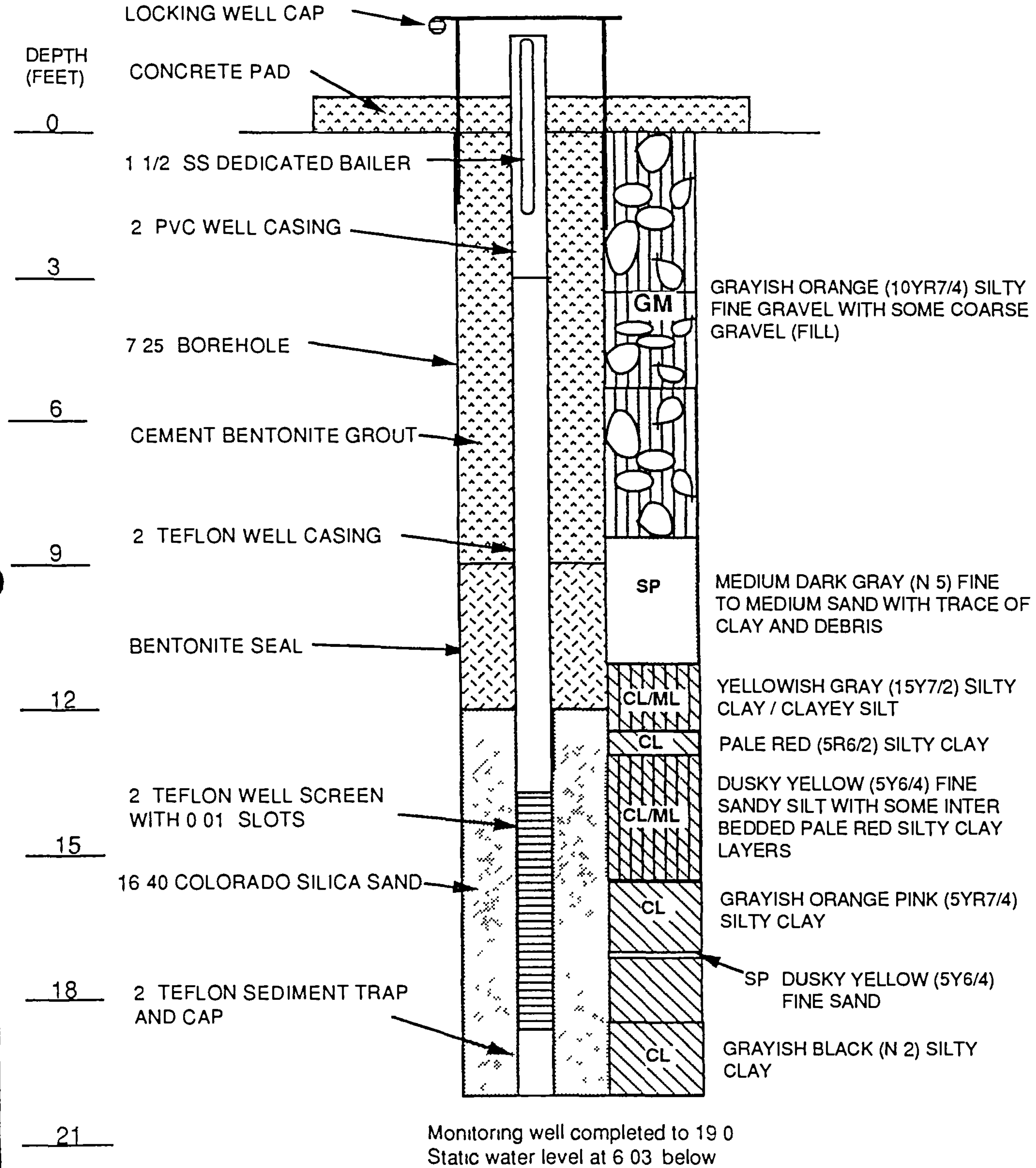
Monitonng well completed to 22 0
Static water level at 6 59 below ground on 6/16/88

MONITORING WELL JMM-6



Monitonng well completed to 19 0
Static water level at 5 28 below ground on 6/15/88

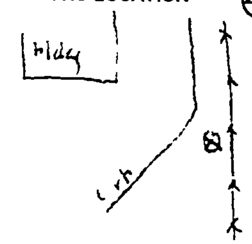
MONITORING WELL
JMM-7



Monitoring well completed to 19 0
Static water level at 6 03 below
ground on 6/14/88

MONITORING WELL
JMM-8

BORING LOCATION



Project [illegible] City landfill
Date Drilled 7-16-96 Date Completed 7-16-96
Logged By [illegible]

Water Elevation (ft) ______
Date Measured ______

Total Depth (ft) 15 ft
Diameter (in) ______

MW Monitoring Well No BSL-1
Northing ______ Easting ______

Ground Surface Elevation (ft) ______
Measuring Point (MP) Elevation (ft) ______
MP is Ground Surface Datum NGVD (1929)

Drilling Contractor [illegible] Drilling
Drilling Method ______

Well Screen Diameter 2 Depth 3-15 ft bgs Slot Size ______
Casing Diameter ______ Length ______ Type ______
Sand ______ Bentonite Seal ______ Cement Grout Seal ______

DEPTH (FEET)	GRAIN SIZE % GRAVEL	/ SAND	% FINES	MAX PID READING (ppm)	BLOWS (6 IN)	SAMPLE TYPE	SAMPLE RECOVERY	USCS CLASSIFICATION	LITHOLOGIC DESCRIPTION (USGS name color size and angularity of each component or plasticity density moisture content additional facts)	ELEVATION (FEET)
0					10			CM	Gravel and sand 10YR 3/3	
					6				Roots - sand, silt	
1					7					
				0	8		90		Sand lenses [illegible] granules, roots 10YR 3/2 subangular - subrounded few clay layers silty sand clayey sand	
2					6					
					9					
3					7			sand pack	white calcareous soil clayey sand small gravels	
				0	9		45		10YR 3/1 poorly graded subangular to subrounded	
4					4				10YR 4/3 sand layers throughout clay -	
					4		1	CL	contact - gray clay -	

C California Split Spoon Sampler (2.5 I.D.)
S Standard penetration test sampler
c Cuttings
▼ Elevation of ground water

PAGE 1 OF 2

MONITORING WELL LOG FORM
FIGURE 3-5

PROJECT NO 2208 0982 FSP

MW Monitoring Well No BSL-1

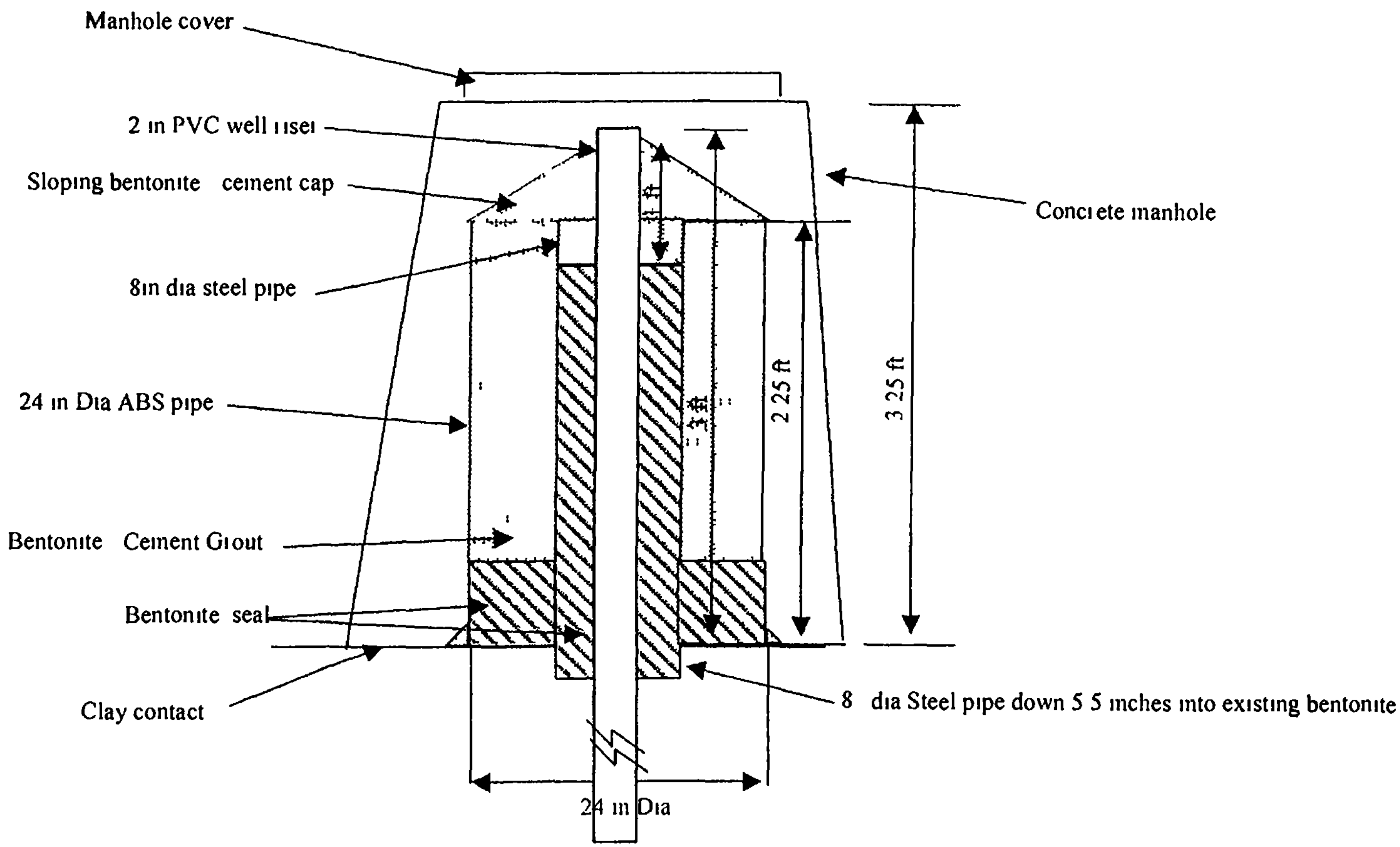
DEPTH (FEET)	% GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	USCS CLASSIFICAT	LITHOLOGIC DESCRIPTION (USCS name color size and angularity of each component or plasticity density moisture content additional facts)	ELEVATION (FEET)
5					5				screen begun 5.5'	
				0	7		95		10YR 5/3 gray clay - more silt some roots - clay moist, moldable	
6					7					
					10			SC	? sand lense through the clay moist ▽ moist - where sandy - clay tight	
7					11					
				0	11		95+	CL	10YR 5/4 - same clay wet as above	
8					4					
					4				[illegible] sand mix above ? [illegible] alternating with clays	
9					7					
				0	7		100		1YR 5/4 stiff clay - sandy clay - medium grained - fine grained sands	
10					4				saturated sandy clay 10YR 5/4	
					5		SC	SC	2' 4 sand lense - 10YR 4/3 iron staining	
11					7					
				-	10		100	CL	medium plastic - sandy clay	
12					4					
					5					
13					7					
				0	11		100		10YR 4/1, saturated clay - sandy clay 10YR 4/1	
14					2				Sand lenses (- [illegible] throughout)	
					3				" above	
15										

PROJECT NO

PAGE 2 OF 2 **MONITORING WELL LOG FORM**

4

TD 15.5 feet , CL blue clay (blue/gray clay) 10YR 5/1 saturated



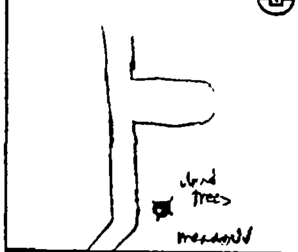
Generalized Detail
not to scale

Bountiful Landfill Observation Well Repair

BSL 1

M Hansen drawn 7/14/08

BORING LOCATION



Project [illegible] Landfill
Date Drilled 7/16/94 Date Completed ______
Logged By [illegible]

Water Elevation (ft) ______
Date Measured ______

Total Depth (ft) 5 bgs
Diameter (in) ______

Well Screen Diameter 2" Depth ~-15 Slot Size ______
Casing Diameter ______ Length ______ Type ______
Sand ______ Bentonite Seal ______ Cement Grout Seal ______

MW Monitoring Well No SX-2
Northing ______ Easting ______

Ground Surface Elevation (ft) ______
Measuring Point (MP) Elevation (ft) ______
MP Is Ground Surface Datum NGVD (1929)

Drilling Contractor [illegible] Drilling
Drilling Method ______

DEPTH (FEET)	GRAIN SIZE % GRAVEL	% SAND	% FINES	MAX PID READING (ppm)	BLOWS (6 IN)	SAMPLE TYPE	SAMPLE RECOVERY	USCS CLASSIFICATION	LITHOLOGIC DESCRIPTION (USCS name color size and angularity of each component or plasticity density moisture content additional facts)	ELEVATION (FEET)
0					2			SW	Sand & gravel	
					2				roots, sand	
1					3					
				0	5		50	SW	well graded sand 10YR 4/3 coarse grained sand moist well sorted	
2					3				as above	
					1			SM	more silt	
3					2			sand [illegible]	clay layer - 4" thick	
					2		85%	SM	10YR 2/1 black organic rich, root full - humus soil - more silt than above, silty sand	
4					2				as above	
					1			CL	as above more silt - clayey sand roots grey clay	

C California Split Spoon Sampler (2 5 I D)
S Standard penetration test sampler
c Cuttings
▼ Elevation of ground water

MONITORING WELL LOG FORM
FIGURE 3-5

PROJECT NO 2208 0982 FSP

MW Monitoring Well No BSL-2

DEPTH (FEET)	GRAIN SIZE % GRAVEL	% SAND	% FINES	MAX PID READING (ppm)	BLOWS (6 IN)	SAMPLE TYPE	SAMPLE RECOVERY	USCS CLASSIFICAT	LITHOLOGIC DESCRIPTION (USCS name color size and angularity of each component or plasticity density moisture content additional facts)	ELEVATION (FEET)
5					1				moist clay	
				0	3		90	CL		
6					2			SM	silty sand lense 4" 10YR 5/4 wet	
					1			CL		
7					2			SM	3 silty sand lense med-fine grained sand	
				0	2		100	CL	grey clay 10YR 5/1 wet, saturated	
8					3				as above	
					3				10YR 5/1	
9					5				sandy lenses throughout - clayey sand	
				0	7		100		grey/blue clay - wet, saturated - mod plastic	
10					3		40	CL		
					2			SM	6" clayey sand layer med fine grained sand	
11					3					
					4		100	CL	blue/grey clay - tight low-med plastic	
12					3				4' sandy lense clayey sand	
					3			CL	5YR 5/0 blue/grey clay tight clay, wet where more sand-	
13					6				low medium plastic	
					5			CL	as above	
14										

PROJECT NO

PAGE 2 OF 2

MONITORING WELL LOG FORM

TD, 15

2" Well set to 15' bgs

WELL NUMBER BSL-2

GEOLOGIST TOM BURRUP

DATE CONSTRUCTION STARTED 7-16-96

DATE CONSTRUCTION COMPLETED 7-16-96

RELEVANT INFORMATION (Problems corrective actions)

CASING SCHEDULE

RISER TYPE SCHEDULE 40 PVC

RISER DIAMETER 2 INCH I D

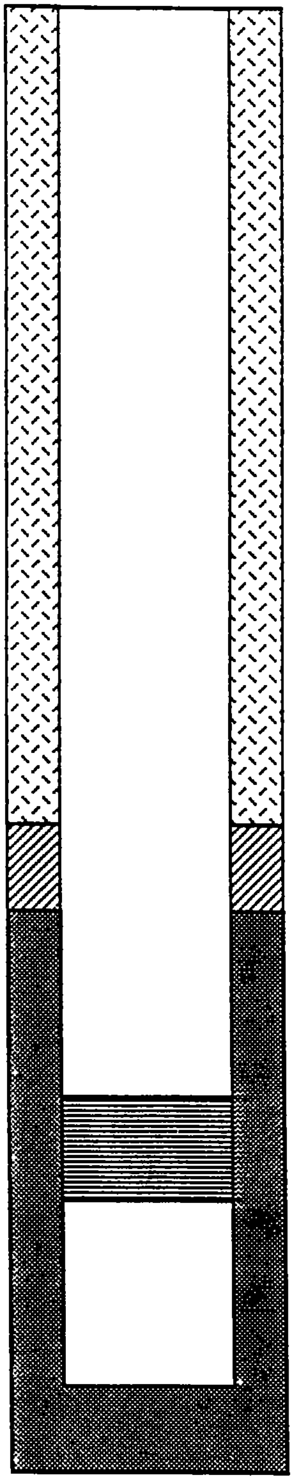
RISER LENGTH 8 FEET

SCREEN TYPE SCHEDULE 40 PVC - FACTORY SLOTTED

SCREEN LENGTH 10 FEET

SCREEN DIAMETER 2 INCH I D

PROTECTIVE CASING TYPE , LENGTH DIAMETER ABOVEGROUND, STEEL 5 FT, 3 FT ABOVE GROUND, 2 FT BELOW GROUND



(NOT TO SCALE)

0-1 FOOT CEMENT GROUT INTERVAL

1-3 FEET TOP OF BENTONITE SEAL

BENTONITE TYPE HYDRATED CHIPS

3 FEET TOP OF SAND PACK

SAND SIZE 16/30

5-15 FEET SCREENED INTERVAL (Beginning and ending depth below ground surface)

SLOT SIZE 0 010

CL - SM USCS CLASSIFICATION OF FORMATION MATERIAL IN SCREENED INTERVAL

15 FEET DEPTH OF CASING (Below ground surface)

15 FEET BOREHOLE DEPTH

ANNULAR VOLUME

$V = \pi H (R_1^2 - R_2^2)$

WHERE

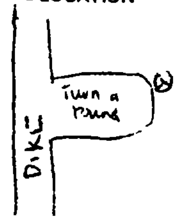
V = Annular Volume (ft^3)
π = 3 142
H = Length of Interval (ft)
R_1 = Borehole Radius (ft)
R_2 = Well Casing Radius (ft)

CALCULATIONS

PROJECT NO 1738 0040

MONTGOMERY WATSON

MONITORING WELL CONSTRUCTION FORM

BORING LOCATION		
 	Project Date Drilled 7-16-96 Data Completed 7-16-96 Logged By [illegible] Water Elevation (ft) Date Measured Total Depth (ft) 16' bgs Diameter (in) 2"	MW Monitoring Well No BSL 3 Northing Easting Ground Surface Elevation (ft) Measuring Point (MP) Elevation (ft) MP Is Ground Surface Datum NGVD (1929) Drilling Contractor BC Drilling Drilling Method [illegible]

Well Screen Diameter 2" Depth 6-16 bgs Slot Size
Casing Diameter Length Type
Sand Bentonite Seal Cement Grout Seal

DEPTH (FEET)	% GRAVEL	% SAND	% FINES	MAX PID READING (ppm)	BLOWS (6 IN)	SAMPLE TYPE	SAMPLE RECOVERY	USCS CLASSIFICATION	LITHOLOGIC DESCRIPTION (USCS name color size and angularity of each component or plasticity density moisture content additional facts)	ELEVATION (FEET)
0									fill - boulders, cobbles, rocks and sand	
1										
2										
3					12					
4					13			fill		
					9			Sand pack		
5	35	50	15		9		35	GP	gravel and sand fill material few fines coarse med grained	

C California Split Spoon Sampler (2 5 I D)
S Standard penetration test sampler
c Cuttings
▼ Elevation of ground water

MONITORING WELL LOG FORM
FIGURE 3-5

PROJECT NO 2208 0982 FSP

MW Monitoring Well No BSL-3

DEPTH (FEET)	GRAIN SIZE % GRAVEL	% SAND	% FINES	MAX PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE	SAMPLE RECOVERY	USCS CLASSIFICATION	LITHOLOGIC DESCRIPTION (USCS name, color, size and angularity of each component or plasticity, density, moisture content, additional facts)	ELEVATION (FEET)
5										
6					1			GP	wet sand, gravel and silt 10YR4/5	
					1			CL	clayey clayey sand - high humus content PT, root, organic	
7					1			CL	blue/grey, clay - roots, not so rich as above	
				100+	1		70	|| ▽	as above ▽ seeming water table	
8					1			SM PT	4" sand wet, saturated rich line in organic soil	
					1			||		
9					1			||	as above	
				40	1		90	CL	blue/grey clay - roots throughout moist -	
10					1				sand lense -	
					1			CL		
11					1					
				0+	2		90	CL	as above	
12					3				sand lenses throughout more moist than	
					4				clay lenses clay is hard plastic 10YR5/1	
13					3					
					-			CL	as above	
14					3					
					6			SM	4' clayey sand lense	
15					7			CL		
					7			||	as above TD 16 bgs	

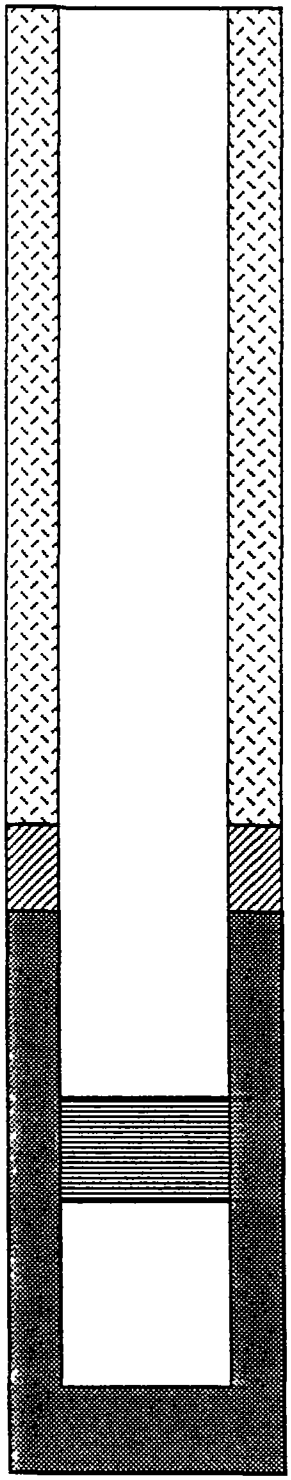
1240

1305

PROJECT NO

PAGE 1 OF 2

MONITORING WELL LOG FORM



(NOT TO SCALE)

WELL NUMBER BSL - 3

GEOLOGIST TOM BURRUP

DATE CONSTRUCTION STARTED 7-16-96

DATE CONSTRUCTION COMPLETED 7-16-96

RELEVANT INFORMATION (Problems, corrective actions)

CASING SCHEDULE

RISER TYPE SCHEDULE 40 PVC

RISER DIAMETER 2 INCH I D

RISER LENGTH 8 5 FEET, 2 5 FOOT STICK-UP ABOVE GROUND SURFACE

SCREEN TYPE SCHEDULE 40 PVC - FACTORY SLOTTED

SCREEN LENGTH 10 FEET

SCREEN DIAMETER 2 INCH I.D

PROTECTIVE CASING TYPE , LENGTH, DIAMETER 5 FEET, 8" DIA

0 - 1 FOOT CEMENT GROUT INTERVAL

1 FOOT TOP OF BENTONITE SEAL

BENTONITE TYPE HYDRATED CHIPS

4 FEET TOP OF SAND PACK

SAND SIZE 16/30

6 - 16 FEET SCREENED INTERVAL (Beginning and ending depth below ground surface)

SLOT SIZE 0 020 INCH

CL-SM USCS CLASSIFICATION OF FORMATION MATERIAL IN SCREENED INTERVAL

16 FEET DEPTH OF CASING (Below ground surface)

16 FEET BOREHOLE DEPTH

ANNUAL VOLUME

$V = \pi H (R_1^2 - H_2^2)$

WHERE

V = Annular Volume (ft³)

π = 3 142

H = Length of Interval (ft)

R_1 = Borehole Radius (ft)

R_2 = Wall Casing Radius (ft)

CALCULATIONS

MONITORING WELL CONSTRUCTION FORM

MONTGOMERY WATSON

PROJECT NO ______

CITY OF BOUNTIFUL
WELL DEVELOPMENT

WELL NAME BSI 1 Sampling Personnel Tom Burrup

Date 8-6-16 Weather Sunny mostly, some clouds, warm

MEASUREMENT SUMMARY ct 919 x .17 = 1.56 gal x 24 gallons 3.13 gallons 1 borehole

Well Diameter 2" PVC Total Casing Depth 14.63 2" PVC Column Height 9.19

Depth to water 5.47 Time 8 30 Measuring point TOC N Depth of Product

Final pH 7.33 Final SC 225 Final Temp(°C) 18.4 Product Thickness

DEVELOPMENT SUMMARY

Casing evacuated with Dedicated Pump ___ Portable Submersible Pump ✓ Bailer ✓

Pump started at 10 20 Stopped at 11 22 Total gallons 53 gallons

Time	pH	SC	Temp	Volume removed (gal.)	Comments
9 46	7.36	223	15.4	NTU 7999	Initial water initial TD - 14.66
9 15	7.49	231	16.6	5 gallons	NTU 7999 DO 2.01 Sandy, silty
9 25	7.59	225	16.2	9 gallons	NTU 7999 DO 3.26
9 50	7.53	224	16.4	14 gallons	NTU 7999 DO 2.64
10 05	7.49	223	16.4	19 gallons	NTU 7999 DO 2.48 silty
10 15	7.55	221	16.0	23 gallons	NTU 7999 DO - 3.13 10 20 pump on
10 32	7.47	226	19.3	28 gallons	NTU = 690 DO 1.17 ½ gpm murky
10 42	7.47	226	19.5	33 gallons	NTU = 80 DO: 0.96
10 52	7.42	226	19.5	38 gallons	NTU 27 DO - 1.15 clear
11 02	7.36	224	19.0	43 gallons	NTU 0 DO - 0.75
* 11 12	7.33	225	19.0	48 gallons	NTU = 0 DO. 0.62
11 22	7.31	224	18.4	53 gallons	NTU - 420 DO - 0.73 (Level of pump lowered & turbidity elevated)
	Ending depth to water			5.72	
	Ending total depth.			4.63	

INSTRUMENTATION pH meter Horiba Calibrated with buffers 4 ___ 7 ✓ 10 ✓

Horiba

SC meter Horiba Calibrated with standard solution 2000 µmhos/cm

PROJECT NO BARD

CITY OF BOUNTIFUL
WELL DEVELOPMENT

WELL NAME SW 2 Sampling Personnel Tom Burrup

Oate 8-6-96 Weather Sunny, warm

MEASUREMENT SUMMARY

Well Diameter 2' PVC Total Casing Depth 16.95 Column Height 10.27

Depth to water 6.68 Time 11 50 Measunng point TOC N Depth of Product

Final pH 7.25 Final SC 368 Final Temp(°C) 16.1 Product Thickness

DEVELOPMENT SUMMARY

Casing evacuated with Dedicated Pump ___ Portable Submersible Pump ✓ Bailer ✓

Pump started at 12 54 Stopped at 13 46 Total gallons 52+ gallons

Time	pH	SC	Temp	Volume removed (gal)	Comments
11 55	7.27	360	14.2	First water	NTU 7999 DO - 0.98
12 10	7.24	303	14.0	5½ gallons	NTU 7999 DO - 2.93
12 25	7.25	30.3	13.7	12 gallons	NTU 7999 DO = 2.54
12 35	7.26	366	13.6	16 gallons	NTU 7999 DO = 2.49
12 54	7.25	366	16.6	25 gallons	NTU 7999 DO 2.64 12 54 pump on
13 06	7.18	368	16.1	32 gallons	NTU 372 DO 3.40 2/3 gpm
13 16	7.24	369	16.1	37 gallons	NTU 77 DO 3.52 yellowish tint
13 26	7.23	369	16.2	42 gallons	NTU 0 DO - 3.30 yellowish color
13 36	7.22	369	16.3	47 gallons	NTU 0 DO 3.10
13 46	7.25	368	16.1	52 gallons	NTU=0 DO 3.57
		Final Depth to Water - 7.77			
		Final Total Depth - 16.96			

INSTRUMENTATION pH meter Horiba Calibrated with buffers 4 ___ 7 ✓ 10 ✓

SC meter Horiba Calibrated with standard solution 2000 µmhos/cm

PROJECT NO BARD

CITY OF BOUNTIFUL
WELL DEVELOPMENT

WELL NAME BSC 3 Sampling Personnel Tom [illegible]
Date 8-6 96 Weather Sunny, warm

MEASUREMENT SUMMARY

Well Diameter 2' PVC Total Casing Depth 18 08 Column Height 10 13
Depth to water 9 95 Time ____ Measuring point TOC N Depth of Product ____
Final pH 7 46 Final SC 611 Final Temp(°C) 18 2 Product Thickness ____

DEVELOPMENT SUMMARY

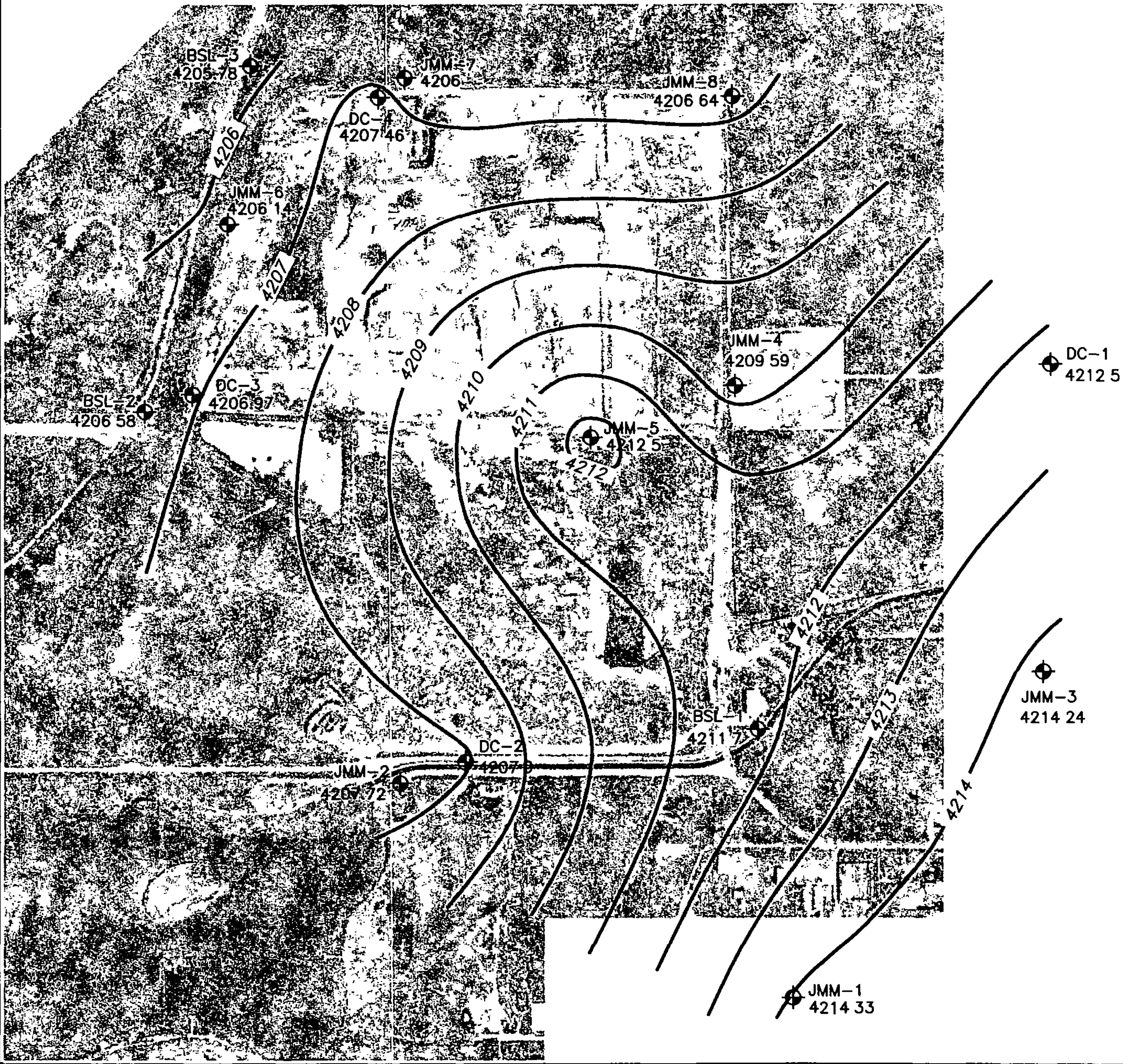
Casing evacuated with Dedicated Pump ___ Portable Submersible Pump ✓ Bailer ✓
Pump started at 15 54 Stopped at 16 37 Total gallons 53 gallons

Time	pH	SC	Temp	Volume removed (gal)	Comments
15 10	7 92	621 ms/cm	18 5	First water	NTU 7 999 DO = 7 61
15 20	7 39	523	17 3	5 gallons	NTU 7 999 DO - 225 Sandy, silty
15 30	7 51	618	15 5	10 gallons	NTU 7 999 DO = 2 61
15 40	7 57	621	15 6	17 gallons	NTU 7 999 DO = 3 39 fines
15 50	7 58	661	14 8	24 gallons	NTU 7 999 DO = 3 62
pump on 15 54	7 59	632	17 2	29 gallons	NTU 7 999 DO - 3 10 1/4 gpm
16 02	7 56	627	17 5	34 gallons	NTU - 142 DO - 2 14 water clearer
16 12	7 50	624	17 8	39 gallons	NTU 1 DO = 2 38 yellowish tint
16 22	7 48	612	18 1	44 gallons	NTU 0 DO - 2 15 " "
16 32	7 44	613	17 9	49 gallons	NTU - 0 DO = 2 31 Clear/yellow
16 37	7 46	611	18 2	53 gallons	NTU - 1 9 DO = 2 18
		Final Depth to Water = 10 69			
		Final Total Depth = 18 03			

INSTRUMENTATION pH meter Horizon Calibrated with buffers 4 ___ 7 ✓ 10 ✓
SC meter Horizon Calibrated with standard solution 2000 µmhos/cm

PROJECT NO BARD

CAD File	Drawn By	Date	Project No
G \\011560800-01 DWG	J Estrada	08/11/10	0115608 00



Potentiometric Surface Map
March 2010

ERM *08/10*

TABLE 1
BOUNTIFUL SANITARY LANDFILL
SUMMARY OF WATER LEVEL MEASUREMENTS

Date/Well	DC 1	DC 2	DC 3	DC-4	JMM 1	JMM 2	JMM 3	JMM-4	JMM 5	JMM 6	JMM 7	JMM 8	BSL 1	BSL 2	BSL 3	P 1	P 2	P 3	P-4	P 5	P 6	P 7	P 8
8/26/92	7 68	5 62	12 56	8 26	8 16	7 46	5 88	14 02	6 48	11 1	10 88	13 28	NM	NM	NM	2 32	NM	1 36	8 54	NM	5 1	6	3 7
9/29/92	7 76	5 49	12 36	8 18	7 9	7 32	3 54	13 78	6 58	11 98	10 24	13 4	NM	NM	NM	2 34	NM	1 46	8 78	NM	4 8	5 94	3 78
10/23/92	7 84	5 68	12	8 38	8 84	7 48	5 68	13 42	6 84	11 99	10 24	12 76	NM	NM	NM	2 26	NM	1 54	8 82	NM	5 04	5 96	3 8
1/20/93	4 94	5 09	10 12	7 85	3 54	6 13	2 45	12 37	NM	9 96	9 59	9 57	NM	NM	NM	0 9	NM	NM	8	NM	4 21	4 86	3 21
2/20/93	1 06	4 18	9 34	7 3	2 46	5 52	2	11 94	5 42	9 2	9 1	9 34	NM	NM	NM	OTC	NM	OTC	7 86	NM	3 14	5 1	3 1
3/26/93	1 44	4 5	10 04	6 72	3 44	6 04	2 89	12 36	5 62	9 38	9 22	9 82	NM	NM	NM	OTC	NM	OTC	8 04	NM	3 82	4 9	2 96
4/21/93	1 72	4 56	10 29	7 02	3 68	6 14	3 1	12 46	6 04	9 76	9 6	9 72	NM	NM	NM	0 5	NM	OTC	8 06	NM	4 24	5 22	2 92
5/20/93	2 22	4 56	9 54	6 54	4 28	5 86	4 04	12 48	5 64	8 44	8 34	9 34	NM	NM	NM	0 6	NM	OTC	4 08	NM	3 34	4 64	2 96
6/16/93	3 4	4 54	10 4	6 74	4 86	6 5	5 12	12 52	5 74	9 16	9 06	10 06	NM	NM	NM	0 74	NM	0 45	8 12	NM	3 96	4 84	3 02
7/21/93	5 38	5 1	13 64	7 24	6 52	7	4 54	13 52	6 18	9 72	9 56	12	NM	NM	NM	1 4	NM	0 98	8 24	NM	3 84	5 14	3 1
8/18/93	6 24	5 34	11 62	7 4	7 18	6 92	6 58	13 44	7 34	9 76	9 56	12 02	NM	NM	NM	1 64	NM	0 16	8 38	NM	4 28	5 26	3 12
9/15/93	7 28	5 58	12	7 64	7 28	7 12	8 22	13 96	6 54	10 04	9 8	12 54	NM	NM	NM	1 92	NM	1 64	8 52	NM	4 52	5 3	3 18
10/26/93	6 88	5 68	11 08	7 9	5 84	6 34	7 14	12 72	6 84	10 08	9 8	11 4	NM	NM	NM	1 62	NM	0 82	8 7	NM	4 72	5 4	3 26
11/17/93	6 72	5 6	11 24	7 98	5 82	6 62	6 76	12 98	6 72	10 64	9 82	11 54	NM	NM	NM	1 44	NM	1 1	8 68	NM	4 44	5 34	3 3
1/1/94	5 32	5 32	10 84	8 22	4 68	6 1	5 12	12 46	7 1	9 8	10 74	9 72	NM	NM	NM	1 71	NM	3 12	8 52	NM	4 6	5 14	3 26
2/17/94	3 1	5 04	10 52	7 88	3 52	6 02	3 9	12 35	6 96	9 98	9 8	9 6	NM	NM	NM	0 5	NM	1 04	8 44	NM	3 74	5 12	3 24
3/16/94	1 68	5 16	10 18	8 06	3 48	5 92	3 14	12 46	6 64	10 02	9 82	9 7	NM	NM	NM	0 45	NM	0 3	8 34	NM	4	5 3	3 24
4/21/94	2 06	4 74	10 54	8 02	3 96	6 08	3 66	12 5	6 9	9 7	9 6	10 16	NM	NM	NM	0 06	NM	OTC	8 26	NM	4 46	5 34	3 16
5/25/94	3 78	5 1	11	8 04	4 74	6 58	5 1	12 7	7	9 92	9 6	11 38	NM	NM	NM	0 74	NM	0 25	8 3	NM	4 46	5 32	3 18
6/21/94	5 28	4 76	11 76	8 4	5 86	6 88	7 02	13 6	7 3	10 44	9 84	12 2	NM	NM	NM	1 24	NM	0 92	8 36	NM	4 82	5 54	3 26
7/13/94	6 48	5 32	12 3	8 58	6 18	6 86	8 74	14	7 54	10 88	10 1	12 44	NM	NM	NM	1 38	NM	1 4	8 5	NM	4 9	5 6	3 38
7/29/94	NM	5 57	12 92	NM	6 89	6 99	NM	14 33	NM	12 07	10 32	12 7	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
8/17/94	7 72	5 72	12 7	9 14	6 12	6 98	6 12	14 48	7 86	10 46	11 26	12 98	NM	NM	NM	1 62	NM	1 46	8 74	NM	5 3	5 8	3 52
9/21/94	8 3	5 94	12 58	9 9	5 84	7	8 02	14 76	8 12	10 86	12 12	13 48	NM	NM	NM	1 76	NM	1 74	9	NM	5 4	6 4	3 68
1/5/95	NM	5 14	10 27	NM	3 71	5 91	NM	12 36	NM	9 68	9 55	9 78	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
1/9/96	6 18	5 25	10 29	8 36	4 18	5 83	4 47	12 51	6 73	9 3	9 39	10 52	NM	NM	NM	NM	NM	NM	9 08	NM	5 22	8 33	3 56
6/5/96	3 47	4 15	10 58	8 14	3 74	6 14	5 26	12 54	5 7	9 5	9 39	10 52	NM	NM	NM	NM	NM	3 78	8 25	NM	4 44	5 2	3 48
9/23/96	7 78	5 33	10 48	8 6	5 15	6 09	3 49	14 35	6 95	9 45	9 44	12 57	5 63	6 01	8 2	NM	NM	3 75	8 75	NM	4 59	5 26	3 84
12/10/96	3 42	4 27	NM	NM	2 58	4 76	2 23	12 21	NM	NM	9 3	9 7	5 11	4 96	8 11	NM	NM	3 75	9 09	NM	NM	4 97	3 85
3/17/97	NM	NM	10 54	9 12	3 87	6 02	3 29	12 6	6 08	9 98	9 97	10 16	5 71	5 82	8 62	NM	NM	4 02	8 48	NM	4 92	5 47	3 78
6/19/97	NM	4 3	10 64	8 47	3 45	5 76	3 93	12 52	5 61	9 53	9 52	10 92	5 42	5 91	8 47	NM	NM	3 81	8 44	NM	4 56	5 17	3 53
9/12/97	4	5 33	11 93	8 85	4 39	6 34	6 58	14 72	6 46	9 8	9 82	12 76	7 82	6 79	8 56	NM	NM	4 02	8 96	NM	4 86	5 44	3 98
12/10/97	3 49	5 23	10 38	8 93	4 21	5 42	5 47	14 01	7 33	9 31	9 39	10 89	5 58	5 41	8 05	NM	NM	3 74	9 15	NM	4 79	8 38	3 75
3/12/98	0 58	3 58	9 23	7 26	2 09	5 15	2 28	11 66	5 8	9 27	9 2	9 39	5 13	4 59	7 98	NM	NM	3 58	8 25	NM	4 63	4 17	3 49
6/15/98	2 09	4 2	10 08	8 2	3 66	5 52	4 59	12 48	5 52	9 4	9 35	9 95	5 11	5 5	8 16	NM	NM	4 03	8 44	NM	4 74	5 02	3 62
9/16/98	6 1	4 76	11 49	8 31	5 21	5 91	6 84	13 96	5 98	9 65	9 56	12 53	5 56	6 45	8 4	NM	NM	3 75	8 47	NM	4 7	5 15	3 51
12/16/98	6 58	5 16	10 51	8 77	4 58	5 75	4 54	13 32	6 96	9 53	9 57	11 04	5 67	5 66	8 31	NM	NM	3 81	8 78	NM	5 22	4 83	3 55
3/25/99	2 95	4 81	10 54	8 8	3 8	5 83	3 86	12 86	6 03	9 76	9 81	10 53	5 52	5 82	8 55	NM	NM	3 69	8 33	NM	4 57	4 95	3 56
6/24/99	4 03	2 3	11 1	8 64	3 61	5 86	4 86	12 16	5 28	10	9 79	11 7	5 62	6 37	8 63	NM	NM	3 22	8 15	NM	4 55	5 28	3 58
9/23/99	7 22	4 64	11 6	8 9	4 2	6 55	8 06	10 21	6 35	9 7	9 73	12 34	5 75	6 6	8 51	NM	NM	3 66	8 61	NM	4 87	5 32	3 77
12/17/99	6 16	5 21	10 76	9 06	3 86	5 7	6 71	13 75	7 01	9 77	9 84	11 62	5 66	5 93	8 58	NM	NM	3 66	8 88	NM	4 98	5 46	3 75
4/1/00	2 61	4 88	10 15	8 91	3 71	5 71	3 43	12 36	6 17	9 55	9 61	10 08	5 53	5 47	8 35	NM	NM	3 78	8 25	NM	4 89	NM	3 81

All Measurements are from the top of PVC casing measured in feet
NM=Not Measured
OTC=Over the Casing

TABLE 1
BOUNTIFUL SANITARY LANDFILL
SUMMARY OF WATER LEVEL MEASUREMENTS

Date/Well	DC 1	DC 2	DC 3	DC-4	JMM 1	JMM 2	JMM 3	JMM 4	JMM 5	JMM 6	JMM 7	JMM 8	BSL 1	BSL 2	BSL 3	P 1	P 2	P 3	P-4	P 5	P 6	P 7	P 8
6/22/00	4 86	5 37	11 22	8 71	5 03	6 86	7 98	13 81	6 07	9 5	9 55	11 89	5 95	6 2	8 29	NM	NM	3 98	8 58	NM	5 47	5 16	3 82
9/14/00	8 21	5 72	10 78	8 53	6 61	6 58	6 73	14 85	6 68	9 37	9 41	13 55	5 85	5 81	8 17	NM	NM	3 7	8 97	NM	4 8	4 98	4
12/13/00	7 02	5 35	10 09	8 72	4 79	5 96	3 47	13 18	6 49	9 55	9 56	10 09	5 61	5 45	8 32	NM	NM	3 74	9 1	NM	5 24	5 26	3 9
3/22/01	1 28	4 28	9 86	7 84	3 31	5 79	2 3	11 97	5 65	9 45	9 51	9 69	5 38	5 38	8 33	NM	NM	3 47	8 13	NM	4 98	0 1	3 7
6/28/01	4 57	4 7	11 46	8 91	6 01	6 59	2 96	13 74	5 71	9 69	9 64	12 09	5 87	7 05	8 41	NM	NM	3 19	8 23	NM	4 85	5 12	3 62
9/14/01	7 85	5 56	11 66	8 77	7 42	6 72	4 39	14 92	6 42	9 68	9 62	12 99	5 86	6 51	8 35	NM	NM	3 52	8 67	NM	4 85	4 76	3 82
12/5/01	3 3	4 54	9 5	8 57	4 78	5 62	2 14	12 62	6 15	9 11	9 37	6 75	5 36	5	7 97	NM	NM	3 59	9 04	NM	4 78	4 62	3 75
3/21/02	1 27	4 7	9 95	8 93	2 98	5 88	2 18	12 4	5 94	9 6	9 61	9 69	8 49	4 7	8 35	NM	NM	NM	8 24	NM	5 01	5 03	3 65
6/20/02	4 38	4 52	11 33	9	5 14	6 66	3 31	13 36	5 54	10 01	9 76	11 96	5 04	6 4	8 54	NM	NM	NM	8 53	NM	4 8	5 08	3 75
9/26/02	7 57	5 65	11 04	8 81	7 86	6 88	4 08	14	6 47	9 45	9 48	11 69	5 84	6 1	8 22	NM	NM	NM	6 76	NM	4 94	4 84	4 04
12/4/02	7 46	5 7	10 81	9 05	7 1	6 72	4 95	14	7 04	9 61	9 65	11 35	5 82	5 92	8 41	NM	NM	NM	7 94	NM	5 16	4 95	4
3/27/03	4 24	5 08	10 15	9 08	3 85	5 7	2 93	13 21	7 03	9 48	9 59	10 28	5 6	5 39	8 303	NM	NM	NM	8 16	NM	7 21	5 04	3 76
6/18/03	5 73	5 66	11 36	9 06	5 55	6 8	3 44	13 61	6 54	9 7	9 75	12 16	5 92	6 38	8 43	NM	NM	NM	8 22	NM	4 68	5 16	3 83
9/24/03	8 38	5 17	11 13	8 89	Dry	7 02	3 56	14 2	7 13	9 38	9 49	11 5	4 94	6 14	8 17	NM	NM	NM	8 73	NM	4 72	4 9	4 04
12/12/03	7 03	5 45	10 26	9 12	Dry	6 22	3 81	13 7	7 07	9 16	9 86	10 32	5 79	5 81	8 65	NM	NM	NM	8 77	NM	4 74	5 03	3 89
3/12/2004	1 07	3 73	9 65	8 44	2 83	5 49	2 2	10 24	6 23	9 16	9 28	9 59	5 29	5 05	8 8	NM	NM	NM	7 83	NM	4 64	4 84	3 49
6/18/2004	4 18	4 5	10 86	8 79	6 76	6 44	4 15	11 46	6 35	9 47	9 65	11 63	5 7	6 42	8 31	NM	NM	NM	7 47	NM	4 6	4 92	3 51
9/30/2004	7 7	6 02	11 16	9 64	Dry	7 02	4 37	13 74	NM	9 54	10 36	13 51	6	6 04	8 62	NM	NM	NM	8 4	NM	4 8	5 6	3 98
12/10/2004	5 59	5 1	9 62	9 12	6 32	5 6	2 16	12 44	NM	9 3	9 7	9 82	5 42	4 94	8 24	NM	NM	NM	8 33	NM	5 28	6 16	3 76
3/18/2005	2 3	4 45	10 24	8 8	4 31	6 03	3 14	11	5 34	9 33	9 56	10 46	5 6	5 7	8 21	NM	NM	NM	7 53	NM	4 66	5 02	3 54
6/24/2005	3	3 98	10 51	8 58	5 45	5 56	4 28	10 68	5 3	9 3	9 54	10 95	5 56	5 84	8 2	NM	NM	NM	6 98	NM	4 66	4 7	3 28
9/19/05	6 64	5 52	11 36	9	Dry	6 58	4 7	12 82	5 4	9 6	9 74	12 02	5 03	6 35	8 41	NM	NM	NM	7 55	NM	4 91	4 88	3 51
12/6/2005	5 7	5 25	10 36	8 86	Dry	6 18	4 36	12 74	6 8	9 4	9 66	10 7	5 79	6 42	8 31	NM	NM	NM	8 12	NM	4 81	5 82	4 34
3/17/06	1	4 7	9 44	9 92	2 83	5 46	3 76	10 68	5 28	9 56	9 3	9 6	5 28	4 88	8 14	NM	NM	NM	7 49	NM	2 96	4 8	5 36
6/23/2006	4 36	4 14	10 8	8 94	6 7	5 76	4 5	11 26	4 48	9 66	9 9	11 44	5 58	5 98	8 58	NM	NM	NM	7 1	NM	4 84	5 52	3 4
9/14/06	6 68	5 2	11 38	8 8	Dry	5 76	5 4	13 18	5 12	9 65	9 62	12 88	5 36	6 52	8 32	NM	NM	NM	7 74	NM	4 56	5 24	3 08
12/5/2006	5 7	5 27	10 26	8 7	7 8	5 94	4 2	12 64	6 44	9 16	9 36	10 4	5 7	5 6	8 02	NM	NM	NM	8 1	NM	4 62	4 7	NM
3/22/07	1 52	4 78	9 9	12 78	3 79	5 44	4 14	11 74	5 34	9	9 36	9 88	5 36	4 94	8 06	NM	NM	NM	7 5	NM	5 14	5 04	NM
6/15/2007	3 82	4 92	10 5	12 87	7 27	6 25	3	NM	5 3	9 1	9 11	11 32	5 68	5 75	8 17	NM	NM	NM	4 11	NM	5 09	5 28	NM
9/27/07	7 08	5 73	10 34	12 7	Dry	6 52	4 71	9 72	6 28	8 86	10 23	10 8	5 08	5 5	7 91	NM	NM	NM	4 72	NM	4 99	5 02	NM
12/20/2007	2 55	5 82	9 53	12 43	Dry	5 46	3 57	9 72	5 81	8 84	9 2	9 56	NM	4 71	7 79	NM	NM	NM	4 3	NM	5 74	4 83	NM
3/27/08	1 52	4 14	9 87	12 58	3 97	5 79	3 63	7 78	4 9	8 91	9 25	10 06	4 04	6 26	7 9	NM	NM	NM	5 59	NM	5 01	5 01	NM
6/27/2008	3 16	4 91	10 87	12 68	3 97	6 45	3 84	8 71	NM	9 04	9 44	11 95	3 21	5 98	8 07	NM	NM	NM	NM	NM	5 01	5 28	NM
9/23/08	6 82	4 46	10 83	12 78	Dry	6 61	4 47	9 76	7 86	9 07	9 44	11 77	5 3	5 82	8 08	NM	NM	NM	4 54	NM	5 08	5 23	NM
12/22/2008	4 96	4 49	10 14	12 59	Dry	6 32	3 92	NM	5 56	9 3	9 83	10 16	4 15	5 49	8 47	NM	NM	NM	NM	NM	4 64	4 83	NM
3/12/2009	1 22	3 88	9 81	12 98	3 65	5 67	3 48	7 46	NM	9 42	10 06	9 76	3 59	6 31	8 57	NM	NM	NM	4 5	NM	5 18	7 54	NM
6/16/2009	2 51	4 48	9 88	12 66	5 26	5 74	3 27	7 92	4 27	9 08	10 44	10 51	4 1	6 29	8 12	NM	NM	NM	4 3	NM	5 08	5 43	NM
9/24/2009	5 51	5 64	10 68	13 15	Dry	6 58	3 49	9 34	4 26	9 45	9 96	13 31	5 27	5 7	8 53	NM	NM	NM	4 78	NM	5 41	5 83	NM
12/21/2009	4 73	4 52	10 15	12 98	Dry	6 34	3 54	8 38	5 68	9 54	9 98	10 96	4 32	5 57	8 68	NM	NM	NM	4 34	NM	5 24	5 54	NM
3/19/2010	1 62	5	9 76	12 62	4 72	5 63	3 27	7 51	5 46	9 27	9 96	9 82	3 64	5 35	8 42	NM	NM	NM	4 35	NM	5 26	5 65	NM

All Measurements are from the top of PVC casing measured in feet
NM=Not Measured
OTC=Over the Casing

TABLE 2

CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS
BOUNTIFUL SANITARY LANDFILL
(Page 1 of 12)

Well Number	Date Sampled	Acetone (µg/l)	Acrolein (µg/l)	Acrylonitrile (µg/l)	Benzene (µg/l)	Bromodichloromethane (µg/l)	Bromochloromethane (µg/l)	Bromoform (µg/l)	Bromomethane (µg/l)	2-Butanone (µg/l) (methyl/ethyl ketone;MEK)	Carbon disulfide (µg/l)	Carbon tetrachloride (µg/l)	Chlorobenzene (µg/l)	Chloroethane (µg/l)	2-Chlroethyl vinyl ether (µg/l)	Chloroform (µg/l)	Chloromethane (µg/l)	Dibromomethane (µg/l)	Dibromochloromethane (µg/l)	Dibromochloropropane (1,2-Dibromo-3-chloropropane)(DBCP)(µg/l)	1,2-Dichlorobenzene (µg/l)	1,3-Dichlorobenzene (µg/l)	1,4-Dichlorobenzene (µg/l)	trans-1,4 Dichloro-2-Butene (µg/l)	1,1-Dichloroethane (µg/l)	1,2-Dichloroethane (µg/l)	1,1-Dichloroethene (µg/l)
	Regulatory Standards	4,000		100	5	100	10	100		170	4,000	5	100	15,000		100			100	0.2	600		75		400	5	7
BSL-1	26-Sep-96	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-1	11-Dec-96	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-1	18-Mar-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-1	19-Jun-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.02	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-1	15-Sep-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-1	30-Dec-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-1	13-Mar-98	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-1	16-Jun-98	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-1	17-Sep-98	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	17-Dec-98	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	26-Mar-99	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	25-Jun-99	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0	<2.0	<10	<2.0	<2.0	<2.0
BSL-1	23-Sep-99	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0	<2.0	<10	<2.0	<2.0	<2.0
BSL-1	17-Dec-99	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-1	17-Dec-99(b)	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-1	28-Mar-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.18	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	28-Mar-00(b)	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.18	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	22-Jun-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	22-Jun-00(b)	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	15-Sep-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	15-Sep-00(b)	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	14-Dec-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	14-Dec-00(b)	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	22-Mar-01	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	22-Mar-01(b)	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	14-Sep-01	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	14-Sep-01(b)	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	21-Mar-02	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	26-Sep-02	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	27-Mar-03	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0

TABLE 2

CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS
BOUNTIFUL SANITARY LANDFILL
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Well Number	Date Sampled	trans 1,2-Dichloroethene (µg/l)	cis-1,2-Dichloroethene (µg/l)	1,2-Dichloropropane (µg/l)	1,3-Dichloropropane (µg/l)	cis-1,3-Dichloropropene (µg/l)	trans-1,3-Dichloropropene (µg/l)	Ethylbenzene (µg/l)	Ethylene Dibromide (EDB)(1,2-Dibromoethane)(µg/l)	2-Hexanone (µg/l)	Iodomethane (µg/l)	Methylene chloride (µg/l)	4-Methyl-2-pentanone (µg/l)	Styrene (µg/l)	1,1,1,2-Tetrachloroethane (µg/l)	1,1,2,2-Tetrachloroethane (µg/l)	Tetrachloroethene (PCE)(µg/l)	Toluene (µg/l)	1,1,1-Trichloroethane (TCA)(µg/l)	1,1,2-Trichloroethane (µg/l)	Trichloroethene (TCE)(µg/l)	Trichlorofluoromethane (Fluorotrichloromethane) (Freon II)(µg/l)	1,2,3-Trichloropropane (µg/l)	Vinyl acetate (µg/l)	Vinyl chloride (µg/l)	Xylenes (µg/l)	Tetrahydrofuran (mg/l)
	Regulatory Standards	100	70	5		2	2	700	0.05	1,500		5	3,000	100	70	5	5	1,000	200	5	5	10,000	40	37,000	2	10,000	
BSL-1	26-Sep-96	<2.0	<2.0	<2.0	NA	<2.0	<10	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-1	11-Dec-96	<2.0	<2.0	<2.0	NA	<2.0	<10	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-1	18-Mar-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-1	19-Jun-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.02	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-1	15-Sep-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-1	30-Dec-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-1	13-Mar-98	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-1	16-Jun-98	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-1	17-Sep-98	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-1	17-Dec-98	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-1	26-Mar-99	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	0.025	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-1	25-Jun-99	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	5.1	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-1	23-Sep-99	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-1	17-Dec-99	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-1	17-Dec-99 (b)	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-1	28-Mar-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.18	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-1	28-Mar-00 (b)	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.18	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-1	22-Jun-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-1	22-Jun-00 (b)	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-1	15-Sep-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-1	15-Sep-00 (b)	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-1	14-Dec-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-1	14-Dec-00 (b)	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-1	22-Mar-01	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.050	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-1	22-Mar-01 (b)	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.050	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-1	14-Sep-01	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-1	14-Sep-01 (b)	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-1	21-Mar-02	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-1	21-Mar-02	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-1	27-Mar-03	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA

TABLE 2

CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS
BOUNTIFUL SANITARY LANDFILL

Well Number	Date Sampled	Acetone (µg/l)	Acrolein (µg/l)	Acrylonitrile (µg/l)	Benzene (µg/l)	Bromodichloromethane (µg/l)	Bromochloromethane (µg/l)	Bromoform (µg/l)	Bromomethane (µg/l)	2-Butanone (µg/l) (methyl/ethyl ketone;MEK)	Carbon disulfide (µg/l)	Carbon tetrachloride (µg/l)	Chlorobenzene (µg/l)	Chloroethane (µg/l)	2-Chloroethyl vinyl ether (µg/l)	Chloroform (µg/l)	Chloromethane (µg/l)	Dibromomethane (µg/l)	Dibromochloromethane (µg/l)	Dibromochloropropane (1,2-Dibromo-3-chloropropane)(DBCP)(µg/l)	1,2-Dichlorobenzene (µg/l)	1,3-Dichlorobenzene (µg/l)	1,4-Dichlorobenzene (µg/l)	trans-1,4 Dichloro-2-Butene (µg/l)	1,1-Dichloroethane (µg/l)	1,2-Dichloroethane (µg/l)	1,1-Dichloroethene (µg/l)
Regulatory Standards		4,000		100	5	100	10	100		170	4,000	5	100	15,000		100			100	0.2	600		75		400	5	7
BSL-1	24-Sep-03	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	12-Mar-04	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	30-Sep-04	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	18-Mar-05	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	19-Sep-05	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	17-Mar-06	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	14-Sep-06	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	22-Mar-07	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	27-Sep-07	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	27-Mar-08	<10	NA	<20	<1.0	<1.0	<1.0	<1.0	<2.0	<6.0	<2.0	<1.0	<1.0	<2.0	NA	<1.0	<2.0	<1.0	<1.0	<0.020	<1.0	NA	<1.0	<3.0	<1.0	<1.0	<1.0
BSL-1	23-Sep-08	<10	NA	<20	<1.0	<1.0	<1.0	<1.0	<2.0	<6.0	<2.0	<1.0	<1.0	<2.0	NA	<1.0	<2.0	<1.0	<1.0	<0.020	<1.0	NA	<1.0	<3.0	<1.0	<1.0	<1.0
BSL-1	12-Mar-09	<10	NA	<20	<1.0	<1.0	<1.0	<1.0	<2.0	<6.0	<2.0	<1.0	<1.0	<2.0	NA	<1.0	<2.0	<1.0	<1.0	<0.020	<1.0	NA	<1.0	<3.0	<1.0	<1.0	<1.0
BSL-1	24-Sep-09	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	19-Mar-10	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<6	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<1.0	NA	<1.0	<2.0	<1.0	<1.0	<1.0

TABLE 2

CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS
BOUNTIFUL SANITARY LANDFILL
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Well Number	Date Sampled	trans 1,2-Dichloroethene (µg/l)	cis-1,2-Dichloroethene (µg/l)	1,2-Dichloropropane (µg/l)	1,3-Dichloropropane (µg/l)	cis-1,3-Dichloropropene (µg/l)	trans-1,3-Dichloropropene (µg/l)	Ethylbenzene (µg/l)	Ethylene Dibromide (EDB)(1,2-Dibromoethane)(µg/l)	2-Hexanone (µg/l)	Iodomethane (µg/l)	Methylene chloride (µg/l)	4-Methyl-2-pentanone (µg/l)	Styrene (µg/l)	1,1,1,2-Tetrachloroethane (µg/l)	1,1,2,2-Tetrachloroethane (µg/l)	Tetrachloroethene (PCE)(µg/l)	Toluene (µg/l)	1,1,1-Trichloroethane (TCA)(µg/l)	1,1,2-Trichloroethane (µg/l)	Trichloroethene (TCE)(µg/l)	Trichlorofluoromethane (Fluorotrichloromethane) (Freon II)(µg/l)	1,2,3-Trichloropropane (µg/l)	Vinyl acetate (µg/l)	Vinyl chloride (µg/l)	Xylenes (µg/l)	Tetrahydrofuran (mg/l)
	Regulatory Standards	100	70	5		2	2	700	0.05	1,500		5	3,000	100	70	5	5	1,000	200	5	5	10,000	40	37,000	2	10,000	
BSL-1	24-Sep-03	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-1	12-Mar-04	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-1	30-Sep-04	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-1	18-Mar-05	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-1	19-Sep-05	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-1	17-Mar-06	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-1	14-Sep-06	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-1	22-Mar-07	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-1	27-Sep-07	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-1	27-Mar-08	<1.0	<1.0	<1.0	NA	<1.0	<3.0	<1.0	<0.020	<5.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.5	<3.0	<1.0	<2.0	NA
BSL-1	23-Sep-08	<1.0	<1.0	<1.0	NA	<1.0	<3.0	<1.0	<0.020	<5.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.5	<3.0	<1.0	<2.0	NA
BSL-1	12-Mar-09	<1.0	<1.0	<1.0	NA	<1.0	<3.0	<1.0	<0.020	<5.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.5	<3.0	<1.0	<2.0	NA
BSL-1	24-Sep-09	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.014	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-1	19-Mar-10	<2.0	<2.0	<1.0	NA	<2.0	<2.0	<2.0	<0.014	<5.0	<5.0	<2.0	<5.0	<2.0	<1.0	<1.0	<2.0	<2.0	<1.0	<1.0	<2.0	<2.0	<2.5	<10	<1.0	<2.0	NA

TABLE 2

CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS
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Well Number	Date Sampled	Acetone (µg/l)	Acrolein (µg/l)	Acrylonitrile (µg/l)	Benzene (µg/l)	Bromodichloromethane (µg/l)	Bromochloromethane (µg/l)	Bromoform (µg/l)	Bromomethane (µg/l)	2-Butanone (µg/l) (methyl/ethyl ketone;MEK)	Carbon disulfide (µg/l)	Carbon tetrachloride (µg/l)	Chlorobenzene (µg/l)	Chloroethane (µg/l)	2-Chlroethyl vinyl ether (µg/l)	Chloroform (µg/l)	Chloromethane (µg/l)	Dibromomethane (µg/l)	Dibromochloromethane (µg/l)	Dibromochloropropane (1,2-Dibromo-3-chloropropane)(DBCP)(µg/l)	1,2-Dichlorobenzene (µg/l)	1,3-Dichlorobenzene (µg/l)	1,4-Dichlorobenzene (µg/l)	trans-1,4 Dichloro-2-Butene (µg/l)	1,1-Dichloroethane (µg/l)	1,2-Dichloroethane (µg/l)	1,1-Dichloroethene (µg/l)
Regulatory Standards		4,000		100	5	100	10	100		170	4,000	5	100	15,000		100			100	0.2	600		75		400	5	7
BSL-2	23-Sep-96	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-2	10-Dec-96	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-2	17-Mar-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-2	19-Jun-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.02	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-2	20-Jun-97[a]	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.02	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-2	15-Sep-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-2	30-Dec-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-2	13-Mar-98	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-2	16-Jun-98	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-2	17-Sep-98	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	17-Dec-98	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	26-Mar-99	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	25-Jun-99	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0	<2.0	<10	<2.0	<2.0	<2.0
BSL-2	25-Jun 99 [b]	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0	<2.0	<10	<2.0	<2.0	<2.0
BSL-2	23-Sep-99	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0	<2.0	<10	<2.0	<2.0	<2.0
BSL-2	23-Sep-99[b]	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0	<2.0	<10	<2.0	<2.0	<2.0
BSL-2	17-Dec-99	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-2	28-Mar-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.18	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	22-Jun-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	15-Sep-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	14-Dec-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	22-Mar-01	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	14-Sep-01	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	21-Mar-02	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	26-Sep-02	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	27-Mar-03	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	24-Sep-03	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	24-Sep-03[b]	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	12-Mar-04	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	30-Sep-04	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0

TABLE 2

CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS
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Well Number	Date Sampled	trans-1,2-Dichloroethene (µg/l)	cis-1,2-Dichloroethene (µg/l)	1,2-Dichloropropane (µg/l)	1,3-Dichloropropane (µg/l)	cis-1,3-Dichloropropene (µg/l)	trans-1,3-Dichloropropene (µg/l)	Ethylbenzene (µg/l)	Ethylene Dibromide (EDB)(1,2-Dibromoethane)(µg/l)	2-Hexanone (µg/l)	Iodomethane (µg/l)	Methylene chloride (µg/l)	4-Methyl-2-pentanone (µg/l)	Styrene (µg/l)	1,1,1,2-Tetrachloroethane (µg/l)	1,1,2,2-Tetrachloroethane (µg/l)	Tetrachloroethene (PCE)(µg/l)	Toluene (µg/l)	1,1,1-Trichloroethane (TCA)(µg/l)	1,1,2-Trichloroethane (µg/l)	Trichloroethene (TCE)(µg/l)	Trichlorofluoromethane (Fluorotrichloromethane) (Freon II)(µg/l)	1,2,3-Trichloropropane (µg/l)	Vinyl acetate (µg/l)	Vinyl chloride (µg/l)	Xylenes (µg/l)	Tetrahydrofuran (mg/l)
	Regulatory Standards	100	70	5		2	2	700	0.05	1,500		5	3,000	100	70	5	5	1,000	200	5	5	10,000	40	37,000	2	10,000	
BSL-2	23-Sep-96	<2.0	<2.0	<2.0	NA	<2.0	<10	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-2	10-Dec-96	<2.0	<2.0	<2.0	NA	<2.0	<10	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-2	17-Mar-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-2	19-Jun-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.02	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-2	20-Jun-97[a]	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.02	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-2	15-Sep-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-2	30-Dec-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-2	13-Mar-98	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-2	16-Jun-98	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-2	17-Sep-98	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-2	17-Dec-98	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-2	26-Mar-99	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-2	25-Jun-99	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-2	25-Jun 99[b]	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	4.1	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-2	23-Sep-99	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-2	23-Sep-99[b]	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-2	17-Dec-99	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-2	28-Mar-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.18	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-2	22-Jun-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-2	15-Sep-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-2	14-Dec-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-2	22-Mar-01	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.050	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-2	14-Sep-01	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-2	21-Mar-02	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-2	26-Sep-02	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-2	27-Mar-03	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-2	24-Sep-03	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-2	24-Sep-03[b]	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-2	12-Mar-04	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-2	30-Sep-04	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA

TABLE 2

CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS
BOUNTIFUL SANITARY LANDFILL

Well Number	Date Sampled	Acetone (µg/l)	Acrolein (µg/l)	Acrylonitrile (µg/l)	Benzene (µg/l)	Bromodichloromethane (µg/l)	Bromochloromethane (µg/l)	Bromoform (µg/l)	Bromomethane (µg/l)	2-Butanone (µg/l) (methyl/ethyl ketone;MEK)	Carbon disulfide (µg/l)	Carbon tetrachloride (µg/l)	Chlorobenzene (µg/l)	Chloroethane (µg/l)	2-Chlroethyl vinyl ether (µg/l)	Chloroform (µg/l)	Chloromethane (µg/l)	Dibromomethane (µg/l)	Dibromochloromethane (µg/l)	Dibromochloropropane (1,2-Dibromo-3-chloropropane)(DBCP)(µg/l)	1,2-Dichlorobenzene (µg/l)	1,3-Dichlorobenzene (µg/l)	1,4-Dichlorobenzene (µg/l)	trans-1,4 Dichloro-2-Butene (µg/l)	1,1-Dichloroethane (µg/l)	1,2-Dichloroethane (µg/l)	1,1-Dichloroethene (µg/l)
Regulatory Standards		4,000		100	5	100	10	100		170	4,000	5	100	15,000		100			100	0.2	600		75		400	5	7
BSL-2	18-Mar-05	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	19-Sep-05	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	17-Mar-06	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	17-Mar-06[(b)]	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	14-Sep-06	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	14-Sep-06[(b)]	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	22-Mar-07	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	22-Mar-07[(b)]	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	27-Sep-07	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.011	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	27-Sep-07[(b)]	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	27-Mar-08	<10	NA	<20	<1.0	<1.0	<1.0	<1.0	<2.0	<6.0	<2.0	<1.0	<1.0	<2.0	NA	<1.0	<2.0	<1.0	<1.0	<0.020	<1.0	NA	<1.0	<3.0	<1.0	<1.0	<1.0
BSL-2	27-Mar-08[(b)]	<10	NA	<20	<1.0	<1.0	<1.0	<1.0	<2.0	<6.0	<2.0	<1.0	<1.0	<2.0	NA	<1.0	<2.0	<1.0	<1.0	<0.020	<1.0	NA	<1.0	<3.0	<1.0	<1.0	<1.0
BSL-2	23-Sep-08	<10	NA	<20	<1.0	<1.0	<1.0	<1.0	<2.0	<6.0	<2.0	<1.0	<1.0	<2.0	NA	<1.0	<2.0	<1.0	<1.0	<0.020	<1.0	NA	<1.0	<3.0	<1.0	<1.0	<1.0
BSL-2	23-Sep-08[(b)]	<10	NA	<20	<1.0	<1.0	<1.0	<1.0	<2.0	<6.0	<2.0	<1.0	<1.0	<2.0	NA	<1.0	<2.0	<1.0	<1.0	<0.020	<1.0	NA	<1.0	<3.0	<1.0	<1.0	<1.0
BSL-2	12-Mar-09	<10	NA	<20	<1.0	<1.0	<1.0	<1.0	<2.0	<6.0	<2.0	<1.0	<1.0	<2.0	NA	<1.0	<2.0	<1.0	<1.0	<0.020	<1.0	NA	<1.0	<3.0	<1.0	<1.0	<1.0
BSL-2	12-Mar-09[(b)]	<10	NA	<20	<1.0	<1.0	<1.0	<1.0	<2.0	<6.0	<2.0	<1.0	<1.0	<2.0	NA	<1.0	<2.0	<1.0	<1.0	<0.020	<1.0	NA	<1.0	<3.0	<1.0	<1.0	<1.0
BSL-2	24-Sep-09	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	24-Sep-09[(b)]	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	19-Mar-10	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<6	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<1.0	NA	<1.0	<2.0	<1.0	<1.0	<1.0
BSL-2	19-Mar-10[(b)]	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<6	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<1.0	NA	<1.0	<2.0	<1.0	<1.0	<1.0

TABLE 2

CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS
BOUNTIFUL SANITARY LANDFILL

Well Number	Date Sampled	trans-1,2-Dichloroethene (µg/l)	cis-1,2-Dichloroethene (µg/l)	1,2-Dichloropropane (µg/l)	1,3-Dichloropropane (µg/l)	cis-1,3-Dichloropropene (µg/l)	trans-1,3-Dichloropropene (µg/l)	Ethylbenzene (µg/l)	Ethylene Dibromide (EDB)(1,2-Dibromoethane)(µg/l)	2-Hexanone (µg/l)	Iodomethane (µg/l)	Methylene chloride (µg/l)	4-Methyl-2-pentanone (µg/l)	Styrene (µg/l)	1,1,1,2-Tetrachloroethane (µg/l)	1,1,2,2-Tetrachloroethane (µg/l)	Tetrachloroethene (PCE)(µg/l)	Toluene (µg/l)	1,1,1-Trichloroethane (TCA)(µg/l)	1,1,2-Trichloroethane (µg/l)	Trichloroethene (TCE)(µg/l)	Trichlorofluoromethane (Fluorotrichloromethane) (Freon 11)(µg/l)	1,2,3-Trichloropropane (µg/l)	Vinyl acetate (µg/l)	Vinyl chloride (µg/l)	Xylenes (µg/l)	Tetrahydrofuran (mg/l)
	Regulatory Standards	100	70	5		2	2	700	0.05	1,500		5	3,000	100	70	5	5	1,000	200	5	5	10,000	40	37,000	2	10,000	
BSL-2	18-Mar-05	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-2	19-Sep-05	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-2	17-Mar-06	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-2	17-Mar-06[b]	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-2	14-Sep-06	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-2	14-Sep-06[b]	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-2	22-Mar-07	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-2	22-Mar-07[b]	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-2	27-Sep-07	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.011	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-2	27-Sep-07[b]	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-2	27-Mar-08	<1.0	<1.0	<1.0	NA	<1.0	<3.0	<1.0	<0.020	<5.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.5	<3.0	<1.0	<2.0	NA
BSL-2	27-Mar-08[b]	<1.0	<1.0	<1.0	NA	<1.0	<3.0	<1.0	<0.020	<5.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.5	<3.0	<1.0	<2.0	NA
BSL-2	23-Sep-08	<1.0	<1.0	<1.0	NA	<1.0	<3.0	<1.0	<0.020	<5.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.5	<3.0	<1.0	<2.0	NA
BSL-2	23-Sep-08[b]	<1.0	<1.0	<1.0	NA	<1.0	<3.0	<1.0	<0.020	<5.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.5	<3.0	<1.0	<2.0	NA
BSL-2	12-Mar-09	<1.0	<1.0	<1.0	NA	<1.0	<3.0	<1.0	<0.020	<5.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.5	<3.0	<1.0	<2.0	NA
BSL-2	12-Mar-09[b]	<1.0	<1.0	<1.0	NA	<1.0	<3.0	<1.0	<0.020	<5.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.5	<3.0	<1.0	<2.0	NA
BSL-2	24-Sep-09	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.014	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-2	24-Sep-09[b]	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.014	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-2	19-Mar-10	<2.0	<2.0	<1.0	NA	<2.0	<2.0	<2.0	<0.014	<5.0	<5.0	<2.0	<5.0	<2.0	<1.0	<1.0	<2.0	<2.0	<1.0	<1.0	<2.0	<2.0	<2.5	<10	<1.0	<2.0	NA
BSL-2	19-Mar-10[b]	<2.0	<2.0	<1.0	NA	<2.0	<2.0	<2.0	<0.014	<5.0	<5.0	<2.0	<5.0	<2.0	<1.0	<1.0	<2.0	<2.0	<1.0	<1.0	<2.0	<2.0	<2.5	<10	<1.0	<2.0	NA

TABLE 2

CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS
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Well Number	Date Sampled	Acetone (µg/l)	Acrolein (µg/l)	Acrylonitrile (µg/l)	Benzene (µg/l)	Bromodichloromethane (µg/l)	Bromochloromethane (µg/l)	Bromoform (µg/l)	Bromomethane (µg/l)	2-Butanone (µg/l) (methyl/ethyl ketone;MEK)	Carbon disulfide (µg/l)	Carbon tetrachloride (µg/l)	Chlorobenzene (µg/l)	Chloroethane (µg/l)	2-Chlroethyl vinyl ether (µg/l)	Chloroform (µg/l)	Chloromethane (µg/l)	Dibromomethane (µg/l)	Dibromochloromethane (µg/l)	Dibromochloropropane (1,2-Dibromo-3-chloropropane)(DBCP)(µg/l)	1,2-Dichlorobenzene (µg/l)	1,3-Dichlorobenzene (µg/l)	1,4-Dichlorobenzene (µg/l)	trans-1,4 Dichloro-2-Butene (µg/l)	1,1-Dichloroethane (µg/l)	1,2-Dichloroethane (µg/l)	1,1-Dichloroethene (µg/l)
	Regulatory Standards	4,000		100	5	100	10	100		170	4,000	5	100	15,000		100			100	0.2	600		75		400	5	7
BSL-3	23-Sep-96	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-3	10-Dec-96	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-3	17-Mar-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-3	20-Jun-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.02	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-3	15-Sep-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-3	30-Dec-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-3	13-Mar-98	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-3	16-Jun-98	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-3	17-Sep-98	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	17-Dec-98	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	26-Mar-99	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	26-Mar-99(b)	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	25-Jun-99	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0	<2.0	<10	<2.0	<2.0	<2.0
BSL-3	23-Sep-99	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0	<2.0	<10	<2.0	<2.0	<2.0
BSL-3	17-Dec-99	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<10	<2.0	<2.0	<2.0
BSL-3	28-Mar-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.18	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	22-Jun-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	15-Sep-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	14-Dec-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	22-Mar-01	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	14-Sep-01	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	21-Mar-02	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	21-Mar-02(c)	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	26-Sep-02	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	26-Sep-02(b)	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	27-Mar-03	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	27-Mar-03(b)	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	24-Sep-03	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	12-Mar-04	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	12-Mar-04(b)	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0

TABLE 2

CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS
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Well Number	Date Sampled	trans-1,2-Dichloroethene (µg/l)	cis-1,2-Dichloroethene (µg/l)	1,2-Dichloropropane (µg/l)	1,3-Dichloropropane (µg/l)	cis-1,3-Dichloropropene (µg/l)	trans-1,3-Dichloropropene (µg/l)	Ethylbenzene (µg/l)	Ethylene Dibromide (EDB)(1,2-Dibromoethane)(µg/l)	2-Hexanone (µg/l)	Iodomethane (µg/l)	Methylene chloride (µg/l)	4-Methyl-2-pentanone (µg/l)	Styrene (µg/l)	1,1,1,2-Tetrachloroethane (µg/l)	1,1,2,2-Tetrachloroethane (µg/l)	Tetrachloroethene (PCE)(µg/l)	Toluene (µg/l)	1,1,1-Trichloroethane (TCA)(µg/l)	1,1,2-Trichloroethane (µg/l)	Trichloroethene (TCE)(µg/l)	Trichlorofluoromethane (Fluorotrichloromethane) (Freon 11)(µg/l)	1,2,3-Trichloropropane (µg/l)	Vinyl acetate (µg/l)	Vinyl chloride (µg/l)	Xylenes (µg/l)	Tetrahydrofuran (mg/l)
	Regulatory Standards	100	70	5		2	2	700	0.05	1,500		5	3,000	100	70	5	5	1,000	200	5	5	10,000	40	37,000	2	10,000	
BSL-3	23-Sep-96	<2.0	<2.0	<2.0	NA	<2.0	<10	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-3	10-Dec-96	<2.0	<2.0	<2.0	NA	<2.0	<10	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-3	17-Mar-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-3	20-Jun-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.02	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-3	15-Sep-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-3	30-Dec-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-3	13-Mar-98	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-3	16-Jun-98	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-3	17-Sep-98	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-3	17-Dec-98	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-3	26-Mar-99	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-3	26-Mar-99(b)	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-3	25-Jun-99	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	2.7	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-3	23-Sep-99	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-3	17-Dec-99	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-3	28-Mar-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.18	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-3	22-Jun-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<4.0	NA
BSL-3	15-Sep-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-3	14-Dec-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-3	22-Mar-01	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.050	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-3	14-Sep-01	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-3	21-Mar-02	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-3	21-Mar-02(c)	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-3	26-Sep-02	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-3	26-Sep-02(b)	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-3	27-Mar-03	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-3	27-Mar-03(b)	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-3	24-Sep-03	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-3	12-Mar-04	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA
BSL-3	12-Mar-04(b)	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	NA

TABLE 2

CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS
BOUNTIFUL SANITARY LANDFILL

Well Number	Date Sampled	Acetone (µg/l)	Acrolein (µg/l)	Acrylonitrile (µg/l)	Benzene (µg/l)	Bromodichloromethane (µg/l)	Bromochloromethane (µg/l)	Bromoform (µg/l)	Bromomethane (µg/l)	2-Butanone (µg/l) (methyl/ethyl ketone;MEK)	Carbon disulfide (µg/l)	Carbon tetrachloride (µg/l)	Chlorobenzene (µg/l)	Chloroethane (µg/l)	2-Chlroethyl vinyl ether (µg/l)	Chloroform (µg/l)	Chloromethane (µg/l)	Dibromomethane (µg/l)	Dibromochloromethane (µg/l)	Dibromochloropropane (1,2-Dibromo-3-chloropropane)(DBCP)(µg/l)	1,2-Dichlorobenzene (µg/l)	1,3-Dichlorobenzene (µg/l)	1,4-Dichlorobenzene (µg/l)	trans-1,4 Dichloro-2-Butene (µg/l)	1,1-Dichloroethane (µg/l)	1,2-Dichloroethane (µg/l)	1,1-Dichloroethene (µg/l)
Regulatory Standards		4,000		100	5	100	10	100		170	4,000	5	100	15,000		100			100	0.2	600		75		400	5	7
BSL-3	30-Sep-04	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	30-Sep-04[b]	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	18-Mar-05	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	18-Mar-05[b]	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	19-Sep-05	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	19-Sep-05[b]	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	17-Mar-06	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	14-Sep-06	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	22-Mar-07	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	27-Sep-07	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.011	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	27-Mar-08	<10	NA	<20	<1.0	<1.0	<1.0	<1.0	<2.0	<6.0	<2.0	<1.0	<1.0	<2.0	NA	<1.0	<1.0	<1.0	<1.0	<0.020	<1.0	NA	<1.0	<3.0	<1.0	<1.0	<1.0
BSL-3	23-Sep-08	<10	NA	<20	<1.0	<1.0	<1.0	<1.0	<2.0	<6.0	<2.0	<1.0	<1.0	<2.0	NA	<1.0	<1.0	<1.0	<1.0	<0.020	<1.0	NA	<1.0	<3.0	<1.0	<1.0	<1.0
BSL-3	12-Mar-09	<10	NA	<20	<1.0	<1.0	<1.0	<1.0	<2.0	<6.0	<2.0	<1.0	<1.0	<2.0	NA	<1.0	<1.0	<1.0	<1.0	<0.020	<1.0	NA	<1.0	<3.0	<1.0	<1.0	<1.0
BSL-3	24-Sep-09	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	19-Mar-10	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<6	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<1.0	NA	<1.0	<2.0	<1.0	<1.0	<1.0

TABLE 2

CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS
BOUNTIFUL SANITARY LANDFILL
(Page 12 of 12)

Well Number	Date Sampled	trans-1,2-Dichloroethene (µg/l)	cis-1,2-Dichloroethene (µg/l)	1,2-Dichloropropane (µg/l)	1,3-Dichloropropane (µg/l)	cis-1,3-Dichloropropene (µg/l)	trans-1,3-Dichloropropene (µg/l)	Ethylbenzene (µg/l)	Ethylene Dibromide (EDB)(1,2-Dibromoethane)(µg/l)	2-Hexanone (µg/l)	Iodomethane (µg/l)	Methylene chloride (µg/l)	4-Methyl-2-pentanone (µg/l)	Styrene (µg/l)	1,1,1,2-Tetrachloroethane (µg/l)	1,1,2,2-Tetrachloroethane (µg/l)	Tetrachloroethene (PCE)(µg/l)	Toluene (µg/l)	1,1,1-Trichloroethane (TCA)(µg/l)	1,1,2-Trichloroethane (µg/l)	Trichloroethene (TCE)(µg/l)	Trichlorofluoromethane (Fluorotrichloromethane) (Freon II)(µg/l)	1,2,3-Trichloropropane (µg/l)	Vinyl acetate (µg/l)	Vinyl chloride (µg/l)	Xylenes (µg/l)	Tetrahydrofuran (mg/l)
	Regulatory Standards	100	70	5		2	2	700	0.05	1,500		5	3,000	100	70	5	5	1,000	200	5	5	10,000	40	37,000	2	10,000	
BSL-3	30-Sep-04	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-3	30-Sep-04(b)	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-3	18-Mar-05	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-3	18-Mar-05(b)	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-3	19-Sep-05	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-3	19-Sep-05(b)	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-3	17-Mar-06	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-3	14-Sep-06	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-3	22-Mar-07	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-3	27-Sep-07	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.011	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-3	27-Mar-08	<1.0	<1.0	<1.0	NA	<1.0	<3.0	<1.0	<0.020	<5.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.5	<3.0	<1.0	<2.0	NA
BSL-3	23-Sep-08	<1.0	<1.0	<1.0	NA	<1.0	<3.0	<1.0	<0.020	<5.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.5	<3.0	<1.0	<2.0	NA
BSL-3	12-Mar-09	<1.0	<1.0	<1.0	NA	<1.0	<3.0	<1.0	<0.020	<5.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.5	<3.0	<1.0	<2.0	NA
BSL-3	24-Sep-09	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.014	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<1.0	<2.0	NA
BSL-3	19-Mar-10	<2.0	<2.0	<1.0	NA	<2.0	<2.0	<2.0	<0.014	<5.0	<5.0	<2.0	<5.0	<2.0	<1.0	<1.0	<2.0	<2.0	<1.0	<1.0	<2.0	<2.0	<2.5	<10	<1.0	<2.0	NA

NA Not analyzed
µg/l Micrograms per liter
mg/l Milligrams per liter

(a) Duplicate sample, originally designated as BSL-4
(b) Duplicate sample, originally designated as JMM-9
(c) Duplicate sample, originally designated as 1JMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards
Shaded analytes are specified in the Utah R315-308-4 analyte list

TABLE 3

CHRONOLOGICAL SUMMARY OF METALS ( ) ANALYSIS
BOUNTIFUL SANITARY LANDFILL
(Page 1 of 5)

Well Number	Date Sampled	Antimony (mg/l)	Arsenic (mg/l)	Barium (mg/l)	Beryllium (mg/l)	Cadmium (mg/l)	Chromium (mg/l)	Cobalt (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Mercury (mg/l)	Nickel (mg/l)	Selenium (mg/l)	Silver (mg/l)	Thallium (mg/l)	Tin (mg/l)	Vanadium (mg/l)	Zinc (mg/l)
	Regulatory Standards	0 006	0 01	2	0 004	0 005	0,1	2	1,3		0 015		0 002	0 1	0 05	0 1	0 002		0 3	5
BSL-1	24 Sep-96	<0 005	0 021	0 40	0 002	<0 004	0 06	0 02	0 058	38	<0 005	0 62	<0 0002	0 04	<0 005	<0 01	<0 001	NA	0 084	0 088
BSL-1	10-Dec 96	<0 005	0 010	0 27	0 001	<0 004	0 03	0 01	0 022	15	<0 005	0 28	<0 0002	0 022	<0 005	<0 01	<0 001	NA	0 043	<0 005
BSL 1	18-Mar 97	<0 005	0 009	0 28	<0 005	<0 004	0 03	<0 01	0 028	7 4	0 012	0 25	<0 001	0 013	<0 005	<0 01	<0 001	NA	0,023	0 022
BSL-1	19 Jun 97	<0 005	0 021	0 34	0 001	<0 004	0 06	0 02	0 052	34	0 024	0 55	<0 001	0 04	<0 005	<0 01	<0 001	NA	0 075	0 076
BSL-1	15 Sep-97	<0 005	0 018	0 54	0 005	<0 004	0 15	0 03	0 12	68	0 038	1 0	<0 001	0 15	<0 005	<0 01	<0 001	NA	0 18	0 19
BSL-1	11 Dec 97	0 011	0 013	0 27	<0 001	<0 004	0 018	0 013	0 026	14	0 011	0 33	<0 001	0 025	<0 005	<0 01	<0 001	NA	0 030	0 056
BSL-1	13 Mar 98	<0 005	0 01	0 48	0 002	<0 004	0 07	0 02	0 068	53	0 021	0 96	<0 001	0 05	<0 005	<0 01	<0 001	NA	0 088	0 16
BSL-1	16-Jun 98	<0 005	0 033	0 40	0 004	<0 004	0 06	0 02	0 06	42	0 026	0 71	<0 001	0 043	<0 005	<0 01	<0 001	NA	0 081	0 13
BSL-1	17 Sep-98	<0 005	0 013	0 32	0 001	0 004	0 04	0 02	0 034	25	0 013	0 41	<0 001	0 042	<0 005	<0 01	<0 001	NA	0 064	0 089
BSL-1	17 Dec 98	<0 005	<0 005	0 16	<0 001	<0 004	<0 01	<0 01	<0 004	0 20	<0 005	64 0	<0 001	<0 005	<0 005	<0 01	<0 001	NA	0 0060	<0 005
DSL-1	26-Mar 99	<0 005	<0 010	0 35	<0 001	<0 004	<0 050	0 020	0 046	37	0 020	0 54	<0 001	0 047	<0 005	<0 01	<0 001	NA	0 070	0 12
USL-1	25 Jun 99	<0 005	0 021	0 26	<0 001	<0 004	0 050	<0 01	0 020	23	<0 005	0 34	<0 001	0 014	<0 005	<0 01	<0 001	NA	0 053	0 053
BSL-1	23 Sep-99	<0 005	0 016	0 31	<0 001	<0 004	0 040	<0 01	0 031	27	0 013	0 41	<0 001	0 010	<0 005	<0 01	<0 001	NA	0 055	0 088
BSL-1	17 Dec 99	<0 005	0 016	0 28	<0 001	<0 004	0 030	<0 01	0 015	25	0 022	0 37	<0 001	<0 005	<0 005	<0 01	<0 001	0 070	0 039	0 077
BSL-1	17 Dec 99( )	<0 005	0 010	0 21	<0 001	<0 004	<0 01	<0 01	<0 004	10	0 014	0 19	<0 001	<0 005	<0 005	<0 01	<0 001	0 080	0 014	0 036
BSL-1	28-Mar-00	<0 005	0 025	0 34	0 001	<0 004	0 060	0 020	0 044	36	0 015	0 49	<0 001	0 039	<0 005	<0 01	<0 001	NA	0 069	0 12
BSL-1	28 Mar-00( )	<0 005	0 019	0 31	<0 001	<0 004	0 040	0 010	0 032	26	0 013	0 37	<0 001	0 030	<0 005	<0 01	<0 001	NA	0 056	0 091
BSL-1	22 Jun 00	<0 005	0 011	0 25	<0 001	<0 004	0 020	<0 010	0 025	14	0 008	0 24	<0 001	0 013	<0 005	<0 01	<0 001	NA	0 031	0 063
BSL-1	22 Jun-00( )	<0 005	0 011	0 32	<0 001	<0 004	0 040	<0 010	0 039	25	0 013	0 37	<0 001	0 024	<0 005	<0 001	<0 001	NA	0 056	0 094
BSL-1	15 Sep-00	<0 005	0 019	0 32	0 001	<0 004	0 050	<0 010	0 011	35	0 020	0 52	<0 0010	0 028	<0 005	<0 001	<0 001	NA	0 053	0 088
BSL-1	15-Sep-00( )	<0 005	0 018	0 33	0 001	<0 004	0 050	0 010	0 018	40	0 020	0 56	<0 0010	0 034	<0 005	<0 001	<0 001	NA	0 062	0 100
DSL-1	14-Dec-00	<0 003	0 014	0 34	<0 001	<0 004	0 052	0 013	0 036	26	0 014	0 42	<0 0010	0 029	<0 005	<0 001	<0 001	NA	0 059	0 090
BSL-1	14-Dec-00( )	<0 005	0 013	0 31	<0 001	<0 004	0 044	0 011	0 029	22	0 014	0 34	<0 0010	0 023	<0 003	<0 001	<0 001	NA	0 031	0 073
BSL-1	22 Mar-01	<0 005	0 014	0 31	<0 001	<0 004	0 022	<0 010	0 019	16	0 017	0 28	<0 00020	0 017	<0 005	<0 001	<0 001	NA	0 043	0 035
BSL-1	22 Mar-01( )	<0 005	0 017	0 33	<0 001	<0 004	0 027	<0 010	0 022	21	0 022	0 33	<0 00020	0 023	<0 005	<0 001	<0 001	NA	0 050	0 043
BSL-1	14 Sep-01	<0 005	0 013	0 30	<0 001	<0 004	0 026	<0 010	0 030	17	<0 005	0 32	<0 0010	0 021	<0 005	<0 010	<0 001	NA	0 040	0 044
BSL-1	14 Sep-01( )	<0 005	0 016	0 34	<0 001	<0 004	0 034	<0 010	0 035	22	0 0082	0 40	<0 0010	0 026	<0 005	<0 010	<0 001	NA	0 051	0 048
BSL 1	21 Mar-02	<0 005	0 0057	0 19	0 0023	<0 0040	0 024	<0 010	0 022	1 8	<0 0050	0 13	<0 0010	<0 0050	<0 005	<0.010	<0 0010	NA	0 009	<.0050
BSL 1	21 Mar-02( )	<0 005	<0 0050	0 19	0 0012	<0 0040	<0 010	<0 010	0 0075	0 020	<0 0050	0 069	<0 0010	<0 0050	<0 005	<0 010	<0 0010	NA	<0 0050	<0 0050
BSL 1	26-Sep-02	<0 005	0 0054	0 18	<0 0010	<0 0040	<0 010	<0 010	<0 0040	<0 010	<0 0050	0 088	<0 00020	<0 0050	<0 005	<0 010	<0 0020	NA	<0 0050	0 0087
BSL-1	27 Mar-03	<0 0050	<0 0050	0 20	<0 0010	<0 0040	<0 010	<0 010	<0 0040	<0 010	<0 0050	0 080	<0 0010	<0 0050	<0 0050	<0 010	<0 0010	NA	<0 0050	0 010
DSL-1	24-Sep-03	<0 0050	<0 0050	0 21	<0 0010	<0 0040	<0 010	<0 010	<0 0040	0 039	<0 0050	0 10	<0 00020	<0 0050	<0 0050	<0 010	<0 0020	NA	0 0066	0 014
BSL 1	12 Mar-04	<0 0050	0 0060	0 27	<0 0010	<0 0040	<0 010	<0 010	0 0052	<0 050	<0 0050	0 12	<0 00020	<0 0050	<0 0050	<0 0050	<0 0010	NA	0 0076	0 085
BSL-1	30-Sep-04	<0 0050	0 0060	0 25	<0 0010	<0 0040	<0 010	<0 010	0 0040	<0 050	<0 0050	0 12	<0 00020	<0 0050	<0 0050	<0 0050	<0 0020	NA	<0 0050	0 094
BSL-1	18 Mar-05	<0 0050	<0 0050	0 24	0 0011	<0 0040	<0 010	<0 010	0 0050	0 038	<0 0050	0 15	<0 00020	0 0053	<0 0050	<0 010	0 0024	NA	0 011	<0 20

TABLE 3

CHRONOLOGICAL SUMMARY OF METALS ( ) ANALYSIS
BOUNTIFUL SANITARY LANDFILL
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Well Number	Date Sampled	Antimony (mg/l)	Arsenic (mg/l)	Barium (mg/l)	Beryllium (mg/l)	Cadmium (mg/l)	Chromium (mg/l)	Cobalt (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Mercury (mg/l)	Nickel (mg/l)	Selenium (mg/l)	Silver (mg/l)	Thallium (mg/l)	Tin (mg/l)	Vanadium (mg/l)	Zinc (mg/l)
	Regulatory Standards	0 006	0 01	2	0 004	0 00S	0 t	2	1.3		0 015		0 002	0 1	0 05	0 1	0 002		0.3	5
BSL 1	19 Sep-05	<0 0050	0 0073	0 28	<0 0010	<0 0040	<0 010	<0 010	<0 0040	0 078	<0 0050	0 13	<0 00020	<0 0050	<0 0050	<0 010	<0 0010	NA	0 0062	0 0074
BSL-1	17 Mar-06	<0 0050	0 0076	0 26	<0 0010	<0 0040	<0 010	<0 010	0 0070	0 15	<0 0050	0 16	<0 00020	<0 0050	<0 0050	<0 10	<0 0010	NA	0 0051	0 0087
BSL 1	14 Sep-06	<0 0050	0 0059	0 23	<0 0010	<0 0040	<0 010	<0 010	<0 0040	0 074	<0 0050	0 14	<0 00020	0 0070	<0 0050	<0 010	<0 0010	NA	<0 0050	<0 0050
BSL 1	22 Mar-07	<0 0050	<0 0050	0 28	<0 0010	<0 0040	<0 010	<0 010	<0 0040	<0 050	<0 0050	0 16	<0 00020	0 0086	<0 0050	<0 10	<0 0010	NA	<0 0050	0 0052
BSL-1	27-Sep-07	<0 0050	0 0064	0 29	<0 0010	<0 0040	<0 010	<0 010	<0 0040	0 012	<0 0050	0 15	<0 00020	0 0070	<0 0050	<0 010	<0 0010	NA	0 0058	0 0083
BSL-1	27 Mar-08	<0 010	<0 015	0 21	<0 001	<0 005	<0 010	<0 010	<0 015	<0 1	<0 009	0 079	<0 00020	<0 040	<0 015	<0 010	<0 015	NA	0 013	<0 020
BSL 1	23 Sep-08	<0 010	<0 015	0 18	<0 001	<0 005	<0 010	<0 010	<0 015	<0 1	<0 009	0 110	<0 00020	<0 040	<0 015	<0 010	<0 015	NA	0 013	<0 020
BSL 1	12 Mar 09	<0 010	<0 015	0 22	<0 001	<0 005	<0 010	<0 010	<0 015	<0 1	<0 009	0 130	<0 00020	<0 040	<0 015	<0 010	<0 015	NA	<0 010	<0 020
BSL-1	24-Sep-09	<0 0050	0 0069	0 12	<0 0010	<0 0040	<0 010	<0 010	<0 0040	<0 10	<0 0050	0 19	<0 00020	<0 0050	<0 0050	<0 010	<0 0010	NA	0 0063	0 0059
BSL 1	19 Mar 10	<0 0050	0 0077	0 078	<0 0010	<0 0040	<0 010	<0 010	<0 0056	<0 10	<0 0050	0 19	<0 00020	<0 0050	<0 0070	<0 010	<0 0010	NA	<0 010	<0 020

TABLE 3

CHRONOLOGICAL SUMMARY OF METALS( ) ANALYSIS
BOUNTIFUL SANITARY LANDFILL
(Page 3 of 8)

Well Number	Date Sampled	Antimony (mg/l)	Arsenic (mg/l)	Barium (mg/l)	Beryllium (mg/l)	Cadmium (mg/l)	Chromium (mg/l)	Cobalt (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Mercury (mg/l)	Nickel (mg/l)	Selenium (mg/l)	Silver (mg/l)	Thallium (mg/l)	Tin (mg/l)	Vanadium (mg/l)	Zinc (mg/l)
	Regulatory Standards	0 006	0 01	2	0 004	0 00S	0 1	2	1.3		0 015		0 002	0 1	0 0S	0 1	0 002		0.3	5
BSL-2	23 Sep-96	<0 005	<0 005	0 18	<0 001	0 008	<0 01	0 01	0 017	5 9	<0 005	0 85	<0 0002	<0 005	<0 005	<0 01	<0 001	NA	0 032	<0 005
BSL-2	10-Dec 96	<0 005	<0 005	0 19	<0 001	<0 004	<0 01	0 01	<0 004	2 3	<0 005	1 7	<0 0002	<0 005	<0 005	<0 01	<0 001	NA	0 033	<0 005
BSL 2	17 Mar 97	<0 005	0 011	0 17	<0 005	<0 004	0 09	<0 01	0 032	3 1	<0 005	1 8	<0 0001	<0 005	<0 005	<0 01	<0 001	NA	<0 005	<0 005
BSL-2	20-Jun 97	<0 005	0 018	0 24	0 001	<0 004	<0 01	0 03	0 030	8 3	<0 005	2 0	<0 0001	0 083	<0 005	<0 01	<0 001	NA	0 048	<0 005
BSL 2	20-Jun 97( )	<0 005	0 014	0 20	0 001	<0 004	<0 01	0 03	0 021	5 7	<0 005	1 8	<0 0001	0 078	<0 005	<0 01	<0 001	NA	0 015	<0 005
BSL-2	15 Sep-97	<0 005	0 011	0 23	<0 005	<0 004	<0 01	0 02	0 020	7 1	<0 005	1 9	<0 001	0 14	<0 005	<0 01	<0 001	NA	0 040	<0 005
BSL-2	11 Dec 97	<0 005	0 018	0 16	<0 001	0 024	<0 01	0 038	0 019	4 9	<0 005	1 4	<0 001	0 094	<0 005	0 05	<0 001	NA	0 045	<0 005
BSL-2	13 Mar 98	0 019	0 013	0 16	0 002	<0 004	<0 01	<0 01	<0 004	4 1	<0 005	1 8	<0 001	<0 005	<0 005	<0 01	<0 001	NA	<0 005	<0 005
BSL-2	16-Jun 98	<0 005	0 016	0 18	<0 001	0 021	<0 01	<0 01	<0 004	3 9	<0 005	1 7	<0 001	<0 005	<0 005	<0 01	<0 001	NA	<0 005	<0 005
BSL-2	17 Sep-98	<0 005	<0 005	0 14	<0 001	0 006	<0 01	<0 01	<0 004	1 3	<0 005	1 8	<0 001	0 031	<0 005	<0 01	<0 001	NA	0 02	<0 00S
BSL-2	17 Dec 98	<0 005	0 005	0 13	<0 001	<0 004	<0 01	<0 01	<0 004	1 0	<0 005	1 4	<0 001	<0 005	<0 005	<0 01	<0 001	NA	0 007	<0 005
BSL-2	26-Mar 99	<0 005	0 008	NA	<0 001	<0 004	<0 01	<0 01	<0 004	3 6	<0 005	NA	<0 001	<0 005	<0 005	<0 01	<0 001	<0 05	<0 005	<0 005
BSL-2	25 Jun 99	<0 005	0 027	0 12	<0 001	<0 004	0 070	<0 01	<0 004	7 2	<0 005	1 5	<0 001	<0 005	<0 005	<0 01	<0 001	NA	0 039	<0 005
BSL-2	25 Jun 99( )	<0 005	0 030	0 071	<0 001	<0 004	0 070	<0 01	<0 004	3 4	<0 005	1 3	<0 001	<0 005	<0 005	<0 01	<0 001	NA	0 030	<0 005
BSL-2	23 Sep-99	<0 005	0 007	0 16	<0 001	<0 004	<0 01	<0 01	<0 004	4 6	<0 005	1 2	<0 001	<0 005	<0 005	<0 01	<0 001	NA	<0 005	0 0080
BSL-2	23 Sep-99( )	<0 005	0 008	0 15	<0 001	<0 004	<0 01	<0 01	<0 004	4 2	<0 005	1 2	<0 001	<0 005	<0 005	<0 01	<0 001	NA	<0 005	<0 005
BSL-2	17 Dec 99	<0 005	0 012	0 12	<0 001	<0 004	<0 01	<0 01	<0 004	4 6	<0 005	0 80	<0 001	<0 005	<0 005	<0 01	<0 001	0 070	<0 005	<0 005
DSL-2	28 Mar-00	<0 005	0 034	0 20	<0 001	<0 004	<0 01	<0 01	0 027	6 6	0 017	1 4	<0 001	0 014	<0 005	<0 01	<0 001	NA	0 011	0 089
BSL-2	22 Jun-00	<0 005	0 036	0 29	<0 001	<0 004	0 020	<0 01	0 050	16	0 009	1 2	<0 001	0 013	<0 005	<0 01	<0 001	NA	0 025	0 099
BSL-2	15 Sep-00	<0 005	0 018	0 16	<0 001	<0 004	<0 01	<0 01	<0 004	5 6	<0 0050	0 88	<0 001	<0 0050	<0 005	<0 01	<0 001	NA	0 010	<0 0050
BSL-2	14 Dec-00	<0 005	0 013	0 24	<0 001	<0 004	0 037	<0 01	0 110	8 5	0 0084	2 20	<0 001	0 010	<0 005	<0 01	<0 001	NA	0 016	0 044
BSL-2	22 Mar-01	<0 005	0 020	0 22	<0 001	<0 004	<0 01	<0 01	<0 005	8 7	0 05	1 8	<0 002	0 0082	<0 005	<0 01	<0 001	NA	0 015	<0 0050
BSL-2	28-Jun-01	<0 005	0 012	0 23	<0 001	<0 004	<0 01	<0 01	0 022	6 8	0 011	1 9	<0 002	0 013	<0 005	<0 01	<0 001	NA	0 010	<0 0050
BSL-2	14 Sep-01	<0 005	0 014	0 12	<0 001	<0 004	<0 01	<0 01	0 020	3 7	<0 005	0 93	<0 001	0 012	<0 005	<0 01	<0 001	NA	0 0068	<0 0050
BSL-2	5 Dec 01	<0 005	0 0088	0 17	<0 001	<0 004	<0 01	<0 01	0 016	3 8	<0 005	0 75	<0 001	0 0096	<0 005	<0 01	<0 001	NA	0 0060	<0 0050
BSL-2	21 Mar-02	<0 005	0 0099	0 2	0 0056	<0 004	0 150	<0 01	0 062	2 6	<0 005	1 40	<0 001	<0 005	<0 005	<0 01	<0 001	NA	0 0110	<0 0050
BSL-2	21 Mar-02[a]	<0 005	0 0099	0 18	0 0021	<0 004	0 073	<0 01	<0 004	0 033	<0 005	1 30	<0 001	<0 003	<0 005	<0 01	<0 001	NA	<0 005	0 0057
BSL-2	20-Jun-02	<0 0050	0 0084	0 13	<0 0010	<0 0040	<0 010	<0 010	0 042	<0 010	<0 0050	1 2	<0 00020	<0 0050	<0 0050	<0 010	<0 0010	NA	0 0099	0 10
BSL-2	26-Sep-02	<0 0050	0 010	0 069	<0 0010	<0 0040	<0 010	<0 010	0 0065	0 059	<0 0050	0 42	<0 00020	<0 0050	<0 0050	<0 010	<0 0020	NA	<0 0050	0 023
BSL-2	4-Dec-02	<0 0050	0 018	0 067	<0 0010	<0 0040	<0 010	<0 010	0 0072	0 079	<0 0050	0 41	<0 00020	<0 0050	<0 0050	<0 010	<0 0020	NA	0 0086	0 016
BSL-2	4 Dec-02( )	<0 0050	0 015	0 064	<0 0010	<0 0040	<0 010	<0 010	0 0065	0 082	<0 0050	0 37	<0 00020	<0 0050	<0 0050	<0 010	<0 0020	NA	0 0086	0 014
BSL-2	27 Mar-03	<0 0050	0 013	0 15	<0 0010	0 0041	<0 010	<0 010	0 0041	<0 010	<0 0050	0 98	<0 0010	<0 0050	<0 0050	<0 010	<0 0010	NA	0 0075	0 033
BSL-2	18 Jun-03	<0 0050	<0 0050	0 16	<0 0010	<0 0040	<0 010	<0 010	0 0067	1 4	<0 0050	1 1	<0 00020	<0 0050	<0 0050	<0 010	<0 0020	NA	<0 0050	0 048
BSL-2	24-Sep-03	<0 0050	0 013	0 071	<0 0010	<0 0040	<0 010	<0 010	<0 0040	0 67	<0 0050	0 41	<0 00020	<0 0050	<0 0050	<0 010	<0 0020	NA	0 0052	0 035
BSL-2	24 Sep-03( )	<0 0050	0 014	0 072	<0 0010	<0 0040	<0 010	<0 010	<0 0040	0 70	<0 0050	0 43	<0 00020	<0 0050	<0 0050	<0 010	<0 0020	NA	0 0061	0 033

TABLF 3

CIIRONOLOCICAL SUMMARY OF METALS ( ) ANALYSIS
BOUNTIFUL SANITARY LANDFILL
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Well Number	Date Sampled	Antimony (mg/l)	Arsenic (mg/l)	Barium (mg/l)	Beryllium (mg/l)	Cadmium (mg/l)	Chromium (mg/l)	Cobalt (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Mercury (mg/l)	Nickel (mg/l)	Selenium (mg/l)	Silver (mg/l)	Thallium (mg/l)	Tin (mg/l)	Vanadium (mg/l)	Zinc (mg/l)
	Regulatory Standards	0 006	0 01	2	0 004	0 005	0 1	2	1.3		0 015		0 002	0 1	0 05	0 1	0 002		0 3	5
BSL-2	17 Dec-03	<0 0050	<0 0050	0 12	<0 0010	<0 0040	<0 010	<0 010	0 015	0 50	<0 0050	0 58	<0 00020	<0 0050	<0 0050	<0 010	<0 0020	NA	<0 0050	0 036
BSL-2	12 Mar-04	<0 0050	0 0080	0 15	<0 0010	<0 0040	<0 010	<0 010	0 016	<0 050	<0 0050	1 0	<0 00020	<0 0050	<0 0050	<0 0050	<0 0010	NA	0 0068	0 057
BSL-2	18 Jun-04	<0 0050	0 015	0 21	<0 0010	<0 0040	<0 010	<0 010	0 0065	0 31	<0 0050	1 3	<0 00020	<0 0050	<0 0050	<0 010	<0 0010	NA	<0 0050	0 079
BSL-2	18 Jun-04( )	<0 0050	0 036	0 17	<0 0010	<0 0040	<0 010	<0 010	0 0062	0 81	<0 0050	1 1	<0 00020	<0 0050	<0 0050	<0 010	<0 0010	NA	0 0051	0 073
BSL-2	30-Sep-04	<0 0050	0 0070	0 069	<0 0010	<0 0040	<0 010	<0 010	<0 0040	0 14	<0 0050	0 23	<0 00020	0 010	<0 0050	<0 0050	<0 0020	NA	0 010	0 081
BSL-2	10-Dec-04	<0 0050	0 011	0 21	<0 0010	<0 0040	<0 010	<0 010	0 017	0 023	<0 0050	1 0	<0 00020	0 033	<0 0050	<0 010	<0 0010	NA	<0 0050	0 033
BSL 2	10 Dec 04( )	<0 0050	0 011	0 21	<0 0010	<0 0040	<0 010	<0 010	0 020	0 027	<0 0050	1 0	<0 00020	0 038	<0 0050	<0 0050	<0 0020	NA	<0 0050	0 037
BSL-2	18 Mar 05	0 0068	0 014	0 22	<0 020	<0 0040	<0 010	<0 010	<0 080	0 058	<0 0050	1 3	<0 00020	<0 10	<0 0050	<0 010	0 0013	NA	0 011	<0 10
BSL-2	24 Jun-05	<0 10	<0 10	0 40	<0 050	<0 20	<0 010	<0 20	<0 080	0 015	<0 0050	1 3	<0 00020	<0 10	<0 10	<0 50	<0 010	NA	<0 0050	0 52
BSI 2	24 Jun-05( )	<0 10	<0 10	0 42	<0 050	<0 080	<0 010	<0 20	<0 080	0 025	<0 0050	1 5	<0 00020	<0 10	<0 10	<0 20	<0 010	NA	<0 0050	<0 10
BSL-2	19 Sep-05	<0 0050	0 0089	0 18	0 0020	<0 0040	0 017	<0 010	0 0045	0 69	<0 0050	0 84	<0 00020	0 018	<0 0050	<0 010	<0 0010	NA	<0 0050	0 015
BSL-2	6-Dec-05	<0 0050	0 024	0 11	<0 0010	<0 0040	<0 010	<0 010	0 024	0 87	<0 0050	0 59	<0 00020	0 046	<0 0050	<0 0050	<0 0010	NA	<0 0050	<0 0050
BSL-2	6-Dec-05( )	<0 0030	0 019	0 11	<0 0010	<0 0040	<0 010	<0 010	0 024	0 83	<0 0050	0 54	<0 00020	0 043	<0 0050	<0 0050	<0 0010	NA	<0 0050	0 010
BSL-2	17 Mar 06	<0 0050	0 026	0 23	<0 0010	<0 0040	0 018	<0 010	0 11	1 3	<0 0050	1 4	<0 00020	0 038	<0 0050	<0 10	<0 0010	NA	0 0054	0 018
BSL-2	17 Mar-06( )	<0 0050	0 021	0 21	<0 0010	<0 0040	0 016	<0 010	0 0085	1 3	<0 0050	1 1	<0 00020	0 024	0 0054	<0 10	<0 0010	NA	<0 0050	0 0074
BSL 2	23 Jun-06	<0 0050	0 018	0 24	<0 0010	<0 0040	<0 010	<0 010	<0 0040	0 039	<0 0050	1 1	<0 00020	0 049	<0 0050	<0 010	<0 0010	NA	<0 0050	0 074
BSL 2	23 Jun-06( )	<0 0050	0 016	0 22	<0 0010	<0 0040	<0 010	<0 010	<0 0040	0 037	<0 0050	1 1	<0 00020	0 049	<0 0050	<0 010	<0 0010	NA	<0 0050	0 077
DSL-2	14 Sep-06	<0 0050	0 019	0 16	<0 0010	<0 0040	<0 010	<0 010	0 0049	1 1	<0 0050	0 76	<0 00020	0 031	<0 0050	<0 010	<0 0010	NA	<0 0050	<0 0050
BSL-2	14-Sep-06( )	<0 0050	0 017	0 16	<0 0010	<0 0040	<0 010	<0 010	0 0071	1 1	<0 0050	0 79	<0 00020	0 029	<0 0050	<0 010	<0 0010	NA	<0 0050	<0 0050
BSL 2	5 Dec-06	<0 0050	0 020	0 19	<0 0010	<0 0040	<0 010	<0 010	0 0040	0 13	<0 0050	0 97	<0 00020	0 029	<0 0050	<0 010	<0 0010	NA	<0 0050	<0 0050
BSL 2	5 Dec 06( )	<0 0050	0 021	0 19	<0 0010	<0 0040	<0 010	<0 010	0 0040	0 094	<0 0050	0 97	<0 00020	0 029	<0 0050	<0 010	<0 0010	NA	<0 0050	<0 0050
BSL-2	22 Mar-07	<0 0050	0 021	0 18	<0 0010	<0 0040	0 010	<0 010	0 0066	0 075	<0 0050	1 2	<0 00020	0 043	<0 0050	<0 10	<0 0010	NA	<0 0050	<0 0050
BSL-2	22 Mar-07( )	<0 0050	0 021	0 19	0 0027	<0 0040	0 011	<0 010	0 012	0 07	<0 0050	1 2	<0 00020	0 034	<0 0050	<0 10	<0 0010	NA	<0 0050	0 0084
BSL-2	15 Jun 07	<0 0050	0 023	0 19	<0 0010	<0 0040	<0 010	<0 010	0 0084	2 0	<0 0050	1 1	<0 00020	0 057	<0 0050	<0 010	<0 0010	NA	<0 0050	0 0056
BSL-2	15 Jun-07( )	<0 0050	0 026	0 20	<0 0010	0 017	0 011	<0 010	0 0072	1 9	<0 0050	1 1	<0 00020	0 041	<0 0050	<0 010	<0 0010	NA	<0 0050	0 0490
BSL 2	27 Sep-07	<0 0050	0 0074	0 13	<0 0010	<0 0040	0 012	<0 010	0 0042	0 068	<0 0050	0 61	<0 00020	0 022	<0 0050	<0 010	<0 0010	NA	<0 0050	0 012
BSL-2	27 Sep 07( )	<0 0050	0 0059	0 14	<0 0010	<0 0040	0 013	<0 010	<0 0042	0 067	<0 0050	0 61	<0 00020	0 020	<0 0050	<0 010	<0 0010	NA	<0 0050	0 012
BSL 2	20-Dec-07	<0 0010	0 026	0 17	<0 0006	<0 00018	0 013	0 0038	0 023	1 3	<0 0050	0 69	<0 00020	0 069	<0 00080	<0 0004	0 00099	NA	<0 0050	0 052
BSL-2	20-Dec-07( )	<0 0010	0 034	0 16	<0 0006	<0 00018	0 012	0 0040	0 024	1 4	<0 00010	0 66	<0 00020	0 069	<0 00040	<0 0004	0 00053	NA	<0 0050	0 023
BSL-2	27 Mar-08	<0 010	0 041	0 18	<0 0010	<0 0030	<0 010	<0 010	<0 013	1 6	<0 0090	1 1	<0 00020	<0 040	<0 013	<0 010	<0 015	NA	<0 010	<0 020
BSL 2	27 Mar 08( )	<0 010	0 033	0 18	<0 0010	<0 0050	<0 010	<0 010	<0 015	1 5	<0 0090	1 1	<0 00020	<0 040	<0 015	<0 010	<0 015	NA	<0 010	<0 020
BSL-2	27 Jun-08	<0 050	<0 075	0 19J	<0 0050	<0 025	<0 050	<0 050	<0 075	1 4	<0 045	1 1J	<0 00020	<0 20	<0 075	<0 050	<0 075	NA	<0 050	<0 10
BSL 2	27 Jun-08( )	<0 050	<0 075	0 19J	<0 0050	<0 025	<0 050	<0 050	<0 075	1 5	<0 045	1 1J	<0 00020	<0 20	<0 075	<0 050	<0 075	NA	<0 050	<0 10
BSL-2	23 Sep-08	<0 010	0 020	0 150	<0 0010	<0 005	<0 010	<0 010	<0 015	1 1	<0 0090	0 75	<0 00020	<0 040	<0 015	<0 010	<0 015	NA	<0 010	<0 020
BSL 2	23 Sep-08( )	<0 010	0 022	0 160	<0 0010	<0 005	<0 010	<0 010	<0 015	1 1	<0 0090	0 76	<0 00020	<0 040	<0 015	<0 010	<0 015	NA	<0 010	<0 020

TABLE 3

CHRONOLOGICAL SUMMARY OF METALS ( ) ANALYSIS
BOUNTIFUL SANITARY LANDFILL
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Well Number	Date Sampled	Antimony (mg/l)	Arsenic (mg/l)	Barium (mg/l)	Beryllium (mg/l)	Cadmium (mg/l)	Chromium (mg/l)	Cobalt (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Mercury (mg/l)	Nickel (mg/l)	Selenium (mg/l)	Silver (mg/l)	Thallium (mg/l)	Tin (mg/l)	Vanadium (mg/l)	Zinc (mg/l)
	Regulatory Standards	0 006	0 01	2	0 004	0 00S	0 1	2	1.3		0 01S		0 002	0 1	0.05	0 t	0 002		0 3	5
BSL-2	22 Dec-08	<0 010	0 020	0 150 J	<0 0010	<0 0050	<0 010	<0 010	<0 015	1 2	<0 0090	1 0 J	<0 00020	<0 040	<0 015	<0 010	<0 015	NA	<0 010	<0 020
BSL-2	22 Dec-08( )	<0 010	0 024	0 150 J	<0 0010	<0 0050	<0 010	<0 010	<0 015	1 2	<0 0090	1 0 J	<0 00020	<0 040	<0 015	<0 010	<0 015	NA	< 0010	<0 020
BSL-2	12 Mar-09	0 018	0 026	0 160	<0 0024	0 0063	<0 010	<0 010	<0 013	1 6	<0 013	1 1	<0 00020	<0 040	<0 024	<0 010	<0 025	NA	<0 010	<0 023
BSI 2	12 Mar-09( )	<0 016	0 032	0 160	<0 0024	0 0064	<0 010	<0 010	<0 015	1 5	<0 013	1 1	<0 00020	<0 040	<0 024	<0 010	<0 025	NA	<0 010	<0 023
BSL-2	16-Jun-09	<0 010	0 024	0 170	<0 0010	<0 0050	<0 010	<0 010	<0 015	1 40	<0 0090	0 980	<0 00020	<0 040	<0 015	<0 010	<0 015	NA	<0 010	<0 020
BSL-2	16-Jun-09( )	<0 010	0 037	0 170	<0 0010	<0 0050	<0 010	<0 010	<0 015	1 40	<0 0090	0 980	<0 00020	<0 040	<0 015	<0 010	<0 015	NA	<0 010	<0 020
BSL 2	24-Sep-09	<0 0050	0 0099	0 081	<0 0016	<0 0040	<0 010	<0 010	<0 011	1 4	<0 0050	0 44	<0 00020	0 0067	<0 014	<0 010	<0 0010	NA	<0 0050	<0 040
BSL-2	24-Sep-09( )	<0 0050	0 013	0 083	<0 0016	<0 0040	<0 010	<0 010	<0 011	1 5	<0 0050	0 45	<0 00020	<0 0060	<0 014	<0 010	<0 0010	NA	<0 0050	<0 040
BSL-2	21 Dec-09	<0 0050	0 027	0 18	<0 0010	<0 0040	<0 010	<0 010	0 028	1 5	<0 0050	1 2	<0 00020	0 0087	0 020	<0 010	<0 0010	NA	<0 0050	<0 0050
BSL 2	21 Dec 09( )	<0 0050	0 026	0 17	<0 0010	<0 0040	<0 010	<0 010	0 066	1 4	<0 0050	1 1	<0 00020	0 0090	0 029	<0 010	<0 0010	NA	0 0054	<0 0050
BSL-2	19-Mar 10	<0 0050	0 027	0 17	<0 0010	<0 0040	<0 010	<0 010	<0 0056	0 052	<0 0050	1 4	<0 00020	0 0084	<0 0070	<0 010	<0 0010	NA	<0 0050	<0 020
BSI 2	19-Mar 10( )	<0 0050	0 025	0 17	<0 0010	<0 0040	<0 010	<0 010	<0 0056	<0 044	<0 0050	1 3	<0 00020	0 0077	<0 0070	<0 010	<0 0010	NA	<0 0050	<0 020

TABI F 3

CHRONOLOGICAL SUMMARY OF METALS ( ) ANALYSIS
BOUNTIFUL SANITARY LANDFILL
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Well Number	Date Sampled	Antimony (mg/l)	Arsenic (mg/l)	Barium (mg/l)	Beryllium (mg/l)	Cadmium (mg/l)	Chromium (mg/l)	Cobalt (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Mercury (mg/l)	Nickel (mg/l)	Selenium (mg/l)	Silver (mg/l)	Thallium (mg/l)	Tin (mg/l)	Vanadium (mg/l)	Zinc (mg/l)
	Regulatory Standards	0 006	0 01	2	0 004	0 005	0 1	2	1.3		0 01S		0 002	0 1	0 05	0 1	0 002		0.3	5
BSL-3	23 Sep-96	<0 005	0 049	0 18	<0 001	0 00S	<0 01	<0 01	<0 004	5 3	<0 005	0 66	<0 0002	<0 005	<0 005	<0 01	<0 001	NA	0 029	<0 005
BSL-3	10-Dec 96	<0 005	0 044	0 12	<0 001	<0 004	<0 01	<0 01	<0 004	2 0	<0 005	0 60	<0 0002	<0 005	<0 005	<0 01	<0 001	NA	0 013	<0 005
BSL 3	17 Mar 97	<0 005	0 043	0 12	<0 005	<0 004	0 06	<0 01	0 015	3 3	<0 005	0 45	<0 0001	<0 005	<0 005	<0 01	<0 001	NA	<0 005	<0 005
BSL-3	20-Jun 97	<0 005	0 040	0 14	<0 001	<0 004	<0 01	0 01	0 009	0 34	<0 005	0 50	<0 0001	0 051	<0 005	<0 01	<0 001	NA	0 023	<0 005
BSL-3	15 Sep-97	<0 005	0 0S3	0 16	<0 005	<0 004	<0 01	0 01	<0 004	6 90	<0 005	0 63	<0 0001	0 11	<0 005	<0 01	<0 001	NA	0 030	<0 005
BSL 3	11 Dec 97	<0 005	0 056	0 18	<0 001	0 024	<0 01	0 032	0 007	1 8	<0 005	0 72	<0 001	0 093	<0 005	0 04	<0 001	NA	0 039	<0 005
BSL-3	13 Mar 98	0 008	0 02	0 26	<0 001	<0 004	<0 01	<0 01	<0 004	0 98	<0 005	0 53	<0 001	<0 005	<0 005	<0 01	<0 001	NA	<0 005	<0 005
BSL-3	16-Jun 98	<0 005	0 059	0 2	<0 001	0 014	<0 01	<0 01	<0 004	2 2	<0 005	0 5	<0 001	<0 005	<0 005	<0 01	<0 001	NA	<0 005	<0 005
BSL-3	17 Sep-98	<0 005	0 022	0 23	<0 001	<0 004	<0 01	<0 01	<0 004	0 75	<0 005	0 68	<0 001	0 021	<0 005	<0 01	<0 001	NA	0 012	<0 005
BSL-3	17 Dec 98	<0 005	0 042	0 17	<0 001	<0 004	<0 01	<0 01	<0 004	0 27	<0 005	0 53	<0 001	<0 005	<0 003	<0 01	<0 001	NA	<0 005	<0 005
BSL 3	26-Mar 99	<0 005	0 036	NA	<0 001	<0 004	<0 01	<0 01	<0 004	2 0	<0 005	NA	<0 001	<0 005	<0 005	<0 01	<0 001	<0 05	<0 05	<0 05
BSL 3	26-Mar 99 ( )	<0 005	0 040	NA	<0 001	<0 004	<0 01	<0 01	<0 004	1 6	<0 005	NA	<0 001	<0 005	<0 005	<0 01	<0 001	<0 05	<0 05	<0 05
BSL-3	25 Jun 99	<0 005	0 056	0 12	<0 001	<0 004	0 040	<0 01	<0 004	1 1	<0 005	0 41	<0 001	<0 005	<0 005	<0 01	<0 001	NA	0 014	<0 005
BSL 3	23 Sep-99	<0 005	0 050	0 18	<0 001	<0 004	<0 01	<0 01	<0 004	2 6	<0 005	0 58	<0 001	<0 005	<0 005	<0 01	<0 001	NA	<0 005	<0 005
BSL-3	17 Dec 99	<0 005	0 042	0 17	<0 001	<0 004	<0 01	<0 01	<0 004	2 6	0 045	0 55	<0 001	<0 005	<0 005	<0 01	<0 001	<0 05	<0 005	<0 005
BSL-3	28 Mar 00	<0 005	0 050	0 11	<0 001	<0 004	<0 01	<0 01	0 034	2 0	<0 005	0 27	<0 001	<0 005	<0 005	<0 01	<0 001	NA	<0 005	0 042
BSL-3	22 Jun-00	<0 005	0 041	0 12	<0 001	<0 004	<0 01	<0 01	0 12	3 4	<0 005	0 44	<0 001	0 007	<0 005	<0 01	<0 001	NA	0 014	0 084
BSL-3	15 Sep-00	<0 005	0 060	0 32	<0 001	<0 004	<0 050	<0 01	0 015	3 6	<0 005	0 81	<0 001	<0 005	<0 005	<0 01	<0 001	NA	0 009	<0 0050
BSL-3	14-Dec-00	<0 005	0 047	0 28	<0 001	<0 004	0 039	<0 01	0 072	6 5	0 019	0 71	<0 001	0 009	<0 005	<0 01	<0 001	NA	0 018	0 026
BSL-3	22 Mar-01	<0 005	0 050	0 25	<0 001	<0 004	<0 01	<0 01	0 060	4 1	0 064	0 61	<0 002	0 006	<0 005	<0 01	<0 001	NA	0 013	<0 0050
BSL-3	28 Jun 01	<0 005	0 046	0 14	<0 001	<0 004	<0 01	<0 01	0 020	4 1	0 02S	0 52	<0 002	0 010	<0 005	<0 01	<0 001	NA	0 018	<0 0050
BSL-1	28 Jun-01 (b)	<0 005	0 0S0	0 24	<0 001	<0 004	<0 01	<0 01	0 014	4 3	0 022	0 64	<0 002	0 0096	<0 005	<0 01	<0 001	NA	0 012	<0 0050
BSL-1	14 Sep 01	<0 005	0 061	0 28	<0 001	<0 004	0 014	<0 01	0 021	7 1	0 011	0 77	<0 001	0 016	<0 005	<0 01	<0 001	NA	0 015	<0 0050
BSL 3	5-Dec-01	<0 005	0 064	0 35	<0 001	<0 004	0 012	<0 01	0 016	6 8	0 0052	0 75	<0 001	0 012	<0 005	<0 01	<0 001	NA	0 014	<0 0050
BSL 3	5 Dec-01 ( )	<0 005	0 061	0 27	<0 001	<0 004	0 012	<0 01	0 018	6 90	<0 0050	0 69	<0 001	0 013	<0 005	<0 01	<0 001	NA	0 018	<0 0050
BSL 3	21 Mar 02	<0 005	0 040	0 1	0 011	<0 004	0 140	<0 01	0 038	1 20	<0 0050	0 50	<0 001	<0 005	<0 005	<0 01	<0 001	NA	<0 005	<0 0050
BSL-3	21 Mar 02 ( )	<0 005	0 035	0 18	0 0012	<0 004	0 079	<0 01	<0 004	0 086	<0 0050	0 57	<0 001	<0 005	<0 005	<0 01	<0 001	NA	<0 0050	<0 0050
BSL 3	21 Mar-02 (d)	<0 005	0 040	0 17	0 007	<0 004	0 170	<0 01	0 064	1 40	<0 0050	0 60	<0 001	<0 005	<0 005	<0 01	<0 001	NA	<0 0050	<0 0050
BSL-3	21 Mar-02 (d)( )	<0 005	0 036	0 16	<0 001	<0 004	0 077	<0 01	<0 004	0 12	<0 0050	0 56	<0 001	<0 005	<0 005	<0 01	<0 001	NA	<0 0050	<0 0050
BSL-3	20-Jun-02	<0 0050	0 042	0 091	<0 0010	<0 0040	<0 010	<0 010	0 10	0 065	<0 0050	0 48	<0 00020	0 0063	<0 0050	<0 010	<0 0010	NA	0 010	0 12
BSL 3	20-Jun-02 ( )	<0 0050	0 038	0 079	<0 0010	<0 0040	<0 010	<0 010	0 034	0 013	<0 0050	0 45	<0 00020	<0 0050	<0 0050	<0 010	<0 0010	NA	0 0096	0 072
BSL-3	26-Sep 02	<0 0050	0 053	0 22	<0 0010	<0 0040	<0 010	<0 010	0 0068	0 10	<0 0050	0 63	<0 00020	<0 0050	<0 0050	<0 010	<0 0020	NA	<0 0050	0 029
BSL-3	26-Sep-02 ( )	<0 0050	0 057	0 16	<0 0010	<0 0040	<0 010	<0 010	0 0055	0 092	<0 0050	0 63	<0 00020	<0 0050	<0 0050	<0 010	<0 0020	NA	<0 0050	0 016
BSL 3	4 Dec-02	<0 0050	0 046	0 088	<0 0010	<0 0040	0 020	<0 010	0 010	0 11	<0 0050	0 54	<0 00020	<0 0050	<0 0050	<0 010	<0 0020	NA	0 016	0 022
BSL-3	27 Mar-03	<0 0050	0 040	0 091	<0 0010	<0 0040	<0 010	<0 010	0 0048	<0 010	<0 0050	0 54	<0 0010	<0 0050	<0 0050	<0 010	<0 0010	NA	0 0083	0 034
BSL-3	27 Mar-03 ( )	<0 0050	0 039	0 11	<0 0010	<0 0040	<0 010	<0 010	0 0041	0 071	<0 0050	0 34	<0 0010	0 0083	<0 0050	<0 010	<0 0010	NA	0 0098	0 027
BSL 3	18 Jun-01	<0 0050	0 048	0 082	<0 0010	<0 0040	<0 010	<0 010	0 0056	0 54	<0 0050	0 50	<0 00020	<0 0050	<0 0050	<0 010	<0 0020	NA	<0 0050	0 041
BSL 3	18 June-03	<0 0050	0 049	0 091	<0 0010	<0 0040	<0 010	<0 010	0 0070	0 61	<0 0050	0 50	<0 00020	<0 0050	<0 0050	<0 010	<0 0020	NA	<0 0050	0 035

TABLE 3

CHRONOLOGICAL SUMMARY OF METALS( ) ANALYSIS
BOUNTIFUL SANITARY LANDFILL
(Page 7 of 8)

Well Number	Date Sampled	Antimony (mg/l)	Arsenic (mg/l)	Barium (mg/l)	Beryllium (mg/l)	Cadmium (mg/l)	Chromium (mg/l)	Cobalt (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Mercury (mg/l)	Nickel (mg/l)	Selenium (mg/l)	Silver (mg/l)	Thallium (mg/l)	Tin (mg/l)	Vanadium (mg/l)	Zinc (mg/l)
	Regulatory Standards	0 006	0 01	2	0 004	0 005	0 1	2	1.3		0 01S		0 002	0 1	0 05	0 1	0 002		0.3	5
BSL-3	24 Sep-03	<0 0050	0 051	0 12	<0 0010	<0 0040	<0 010	<0 010	<0 0040	0 78	<0 0050	0 34	<0 00020	<0 0050	<0 0050	<0 010	<0 0020	NA	0 0082	0 038
BSL-3	17 Dec-03	<0 0050	0 053	0 10	<0 0010	<0 0040	<0 010	<0 010	0 0075	0 65	<0 0050	0 53	<0 00020	0 0060	<0 0050	<0 010	<0 0020	NA	<0 0050	0 044
BSL 3	17 Dec-03( )	<0 0050	0 051	0 11	<0 0010	<0 0040	<0 010	<0 010	<0 0040	0 72	<0 0050	0 52	<0 00020	<0 0050	<0 0050	<0 010	<0 0020	NA	<0 0050	0 038
BSL-3	12 Mar-04	<0 0050	0 045	0 16	<0 0010	<0 0040	<0 010	<0 010	<0 0040	0 76	<0 0050	0 49	<0 00020	<0 0050	<0 0050	<0 0050	<0 0010	NA	0 0071	0 040
BSL 3	12 Mar-04( )	<0 0050	0 044	0 16	<0 0010	<0 0040	<0 010	<0 010	0 010	0 64	<0 0050	0 49	<0 00020	<0 0050	<0 0050	<0 0050	<0 0010	NA	0 0071	0 041
BSL-3	18 Jun-04	<0 0050	0 051	0 13	<0 0010	<0 0040	<0 010	<0 010	0 0058	0 73	<0 0050	0 56	<0 00020	<0 0050	<0 0050	<0 010	<0 0010	NA	<0 0050	0 056
BSL-3	30-Sep-04	<0 0050	0 071	0 14	<0 0010	<0 0040	<0 010	<0 010	0 0060	0 70	<0 0050	0 62	<0 00020	0 025	<0 0050	<0 0050	0 0050	NA	<0 0050	0 094
BSL-3	30-Sep-04( )	<0 0050	0 072	0 15	<0 0010	<0 0040	<0 010	<0 010	0 0070	0 78	<0 0050	0 65	<0 00020	0 026	<0 0050	<0 0050	<0 0020	NA	<0 0050	0 096
BSL 3	10-Dec-04	<0 0050	0 064	0 22	<0 0010	<0 0040	<0 010	<0 010	0 016	0 13	<0 0050	0 56	<0 00020	0 026	<0 0050	<0 010	<0 0010	NA	<0 0050	0 077
BSL-3	18 Mar-05	0 018	0 056	0 13	<0 020	<0 0040	<0 010	<0 020	<0 080	0 12	<0 0050	0 58	<0 00020	<0 10	<0 0050	<0 010	0 0022	NA	0 012	<0 10
BSL-3	18 Mar-05( )	<0 0050	0 050	0 12	<0 010	<0 0040	<0 010	<0 010	<0 040	0 13	<0 0050	0 51	<0 00020	0 023	<0 0050	<0 010	0 0020	NA	0 013	<0 10
BSL-3	24-Jun 05	<0 10	<0 10	0 32	<0 050	<0 080	<0 010	<0 20	<0 080	0 062	<0 0050	0 51	<0 00020	<0 10	<0 10	<0 20	<0 010	NA	<0 0050	0 71
BSL-3	19 Sep-05	<0 0050	0 076	0 18	0 0026	<0 0040	0 022	<0 010	0 0073	0 83	<0 0050	0 56	<0 00020	<0 0050	<0 0050	<0 010	<0 0010	NA	0 0055	0 014
BSL-3	19 Sep-05( )	<0 0050	0 082	0 16	0 0015	<0 0040	0 020	<0 010	0 0079	0 85	<0 0050	0 55	<0 00020	<0 0050	<0 0050	<0 010	<0 0010	NA	<0 0050	0 012
BSL-3	6-Dec-05	<0 0050	0 067	0 13	<0 0030	<0 0040	0 011	<0 010	<0 040	0 89	<0 0050	0 55	<0 00020	0 043	<0 0050	<0 0050	<0 0010	NA	<0 0050	<0 0050
BSL-3	17 Mar-06	<0 0050	0 058	0 096	<0 0010	<0 0040	0 022	<0 010	0 013	0 38	<0 0050	0 47	<0 00020	0 0054	<0 0050	<0 10	<0 0010	NA	0 0098	0 018
BSL-3	23 Jun-06	<0 0050	0 046	0 12	<0 0020	<0 0040	<0 010	<0 010	<0 0040	0 065	<0 0050	0 43	<0 00020	0 037	<0 0050	<0 010	<0 0010	NA	<0 0050	0 31
BSL-3	14 Sep-06	<0 0050	0 059	0 15	<0 0010	<0 0040	<0 010	<0 010	0 011	0 76	<0 0050	0 51	<0 00020	0 046	<0 0050	<0 010	<0 0010	NA	0 0072	<0 0050
BSL 3	5 Dec-06	<0 0050	0 056	0 14	<0 0010	<0 0040	<0 010	<0 010	0 0060	0 12	<0 0050	0 44	<0 00020	0 190	<0 0050	<0 010	<0 0010	NA	0 0091	0 0069
BSL-3	22 Mar-07	<0 0050	0 053	0 012	0 0023	<0 0040	<0 010	<0 010	0 0081	0 17	<0 0050	0 58	<0 00020	0 028	<0 0050	<0 10	<0 0010	NA	<0 0050	<0 0050
BSL-3	15 Jun-07	<0 0050	0 047	0 071	<0 0010	<0 0040	<0 010	<0 010	0 012	0 28	<0 0050	0 37	<0 00020	0 034	<0 0050	<0 010	<0 0010	NA	0 0079	0 023
BSL 3	27 Sep-07	<0 0050	0 073	0 13	<0 0010	<0 0040	0 018	<0 010	0 0078	0 10	<0 0050	0 58	<0 00020	0 018	0 0054	<0 010	<0 0010	NA	<0 0050	0 011
BSL-3	20-Dec-07	<0 0010	0 037	0 21	<0 0006	<0 00018	0 016	0 0028	0 019	0 45	<0 00010	0 43	<0 00020	0 055	<0 0008	<0 0004	<0 0004	NA	<0 0050	0 017
BSL 3	27 Mar-08	<0 050	<0 07S	0 098	<0 005	<0 025	<0 050	<0 050	<0 075	<0 5	<0 045	0 39	<0 00020	<0 20	<0 075	<0 050	<0 075	NA	<0 050	<0 10
BSL-3	27 Jun-08	<0 050	<0 075	0 110J	<0 005	<0 025	<0 050	<0 050	<0 075	0 820	<0 045	0 46J	<0 00020	<0 20	<0 075	<0 050	<0 075	NA	<0 050	<0 10
BSL-3	23 Sep-08	<0 050	0 083	0 15	<0 005	<0 025	<0 050	<0 050	<0 075	0 840	<0 045	0 52	<0 00020	<0 20	<0 075	<0 050	<0 075	NA	<0 050	<0 10
BSL-3	22 Dec-08	<0 016	0 027	0 150 J	<0 0024	0 0076	<0 010	<0 010	<0 015	0 650	<0 013	0 480 J	<0 00020	<0 040	<0 024	<0 010	0 027	NA	0 012	<0 023
BSL-3	12 Mar-09	<0 016	0 079	0 110	<0 0024	0 0055	<0 010	<0 010	<0 015	0 370	<0 013	0 430	<0 00020	<0 040	<0 024	<0 010	<0 025	NA	<0 010	0 028
BSL-3	16-Jun-09	<0 010	0 050	0 099	<0 0010	<0 0050	<0 010	<0 010	<0 015	0 420	<0 0090	0 420	<0 00020	<0 040	<0 015	<0 010	<0 015	NA	<0 010	<0 020
BSL 3	24-Sep-09	<0 0030	0.065	0 12	<0 0032	<0 0040	<0 010	<0 010	<0 022	0 87	<0 0072	0 60	<0 00020	<0 012	<0 028	<0 010	<0 0010	NA	<0 011	<0 080
BSL-3	21 Dec-09	<0 0050	0 056	0 13	<0 0010	<0 0040	<0 010	<0 010	0 0045	0 52	<0 0050	0 55	<0 00020	<0 0050	0 0089	<0 010	<0 0010	NA	0 018	<0 010
BSL-3	19-Mar 10	<0 0050	0 044	0 15	<0 0010	<0 0040	<0 010	<0 010	<0 0056	<0 10	<0 0050	0 52	<0 00020	<0 0050	<0 0070	<0 010	<0 0010	NA	0 011	<0 020

TABLE 4

CHRONOLOGICAL SUMMARY OF WATER QUALITY DATA
BOUNTIFUL SANITARY LANDFILL
(1 of 8)

Well Number	Date Sampled	Calcium (mg/l)	Magnesium (mg/l)	Potassium (mg/l)	Sodium (mg/l)	Bicarbonate (as CaCO3; mg/l)	Carbonate (as CaCO3; mg/l)	Chloride (mg/l)	Nitrate (as N; mg/l)	Sulfate (mg/l)	Sulfide (mg/l)	Ammonia (as N; mg/l)	Cyanide (mg/l)	COD (mg/l)	TDS (mg/l)	TOC (mg/l)	Laboratory Conductivity (umhos/cm)	Laboratory pH (pH units)	Field pH (pH units)	Field Conductivity (umhos/cm)	Field Temperature (oF)
Regulatory Standards																					
BSL-1	24-Sep-96	54	1	13	410	770	<10	210	0.01	76	NA[b]	<0.05	NA[b]	NA	1,200	4.7	NM	7.8	7.35	1,930	65.30
BSL-1	11-Dec-96	57	76	13	420	890	<10	210	0.01	90	NA[b]	<0.05	NA[b]	NA	1,300	3.9	NM	7.8	8.03	2,070	57.40
BSL-1	18-Mar-97	130	82	10	360	930	<10	220	<0.01	80	NA[b]	0.08	NA[b]	NA	1,400	4.0	NM	7.8	7.33	2,260	51.10
BSL-1	19-Jun-97	56	72	11	380	910	<10	220	0.02	65	NA[b]	0.05	NA[b]	NA	1,400	5.3	NM	7.8	7.42	2,370	57.60
BSL-1	15-Sep-97	52	61	11	360	870	<10	210	<0.01	60	NA[b]	0.13	NA[b]	NA	1,400	3.9	NM	7.5	7.70	2,080	64.90
BSL-1	11-Dec-97	58	67	12	380	890	<10	180	0.04	63	NA[b]	<0.05	NA[b]	NA	1,300	1.4	NM	8.0	7.38	21,200	57.60
BSL-1	13-Mar-98	220	150	19	440	930	<10	160	0.02	75	NA[b]	0.07	NA[b]	NA	1,300	1.5	NM	7.8	7.47	21,300	50.70
BSL-1	16-Jun-98	160	1,200	19	410	900	<10	170	0.6	75	NA[b]	<0.05	NA[b]	NA	1,300	2.6	NM	7.7	7.61	69,200	54.30
BSL-1	17-Sep-98	120	86	19	420	940	<10	150	<0.01	54	NA[b]	<0.05	NA[b]	NA	1,200	2.6	NM	7.6	7.33	20,700	64.00
BSL-1	17-Dec-98	73	64	9.8	400	850	<10	130	0.02	30	NA[b]	<0.05	NA[b]	NA	1,100	<1.0	NM	7.7	7.38	1,950	64.20
BSL-1	26-Mar-99	140	90	16	370	880	<10	140	<0.01	31	NA[b]	<0.05	NA[b]	18	1,100	4.8	NM	7.3	7.28	1,970	50.90
BSL-1	25-Jun-99	100	75	14	390	900	<10	140	0.01	20	NA[b]	<0.05	NA[b]	NA	1,200	4.0	NM	7.4	7.97	1,930	56.50
BSL-1	23-Sep-99	110	77	16	380	820	<10	160	0.04	<5	NA[b]	0.17	NA[b]	NA	1,200	4.0	NM	7.2	7.80	1,970	64.90
BSL-1	17-Dec-99	37	50	9.7	390	800	<10	170	0.04	12	NA[b]	<0.10	NA[b]	8.0	1,100	4.0	NM	7.30	7.15	2,110	59.00
BSL-1	17-Dec-99[c]	42	48	9.4	390	840	<10	180	0.020	28	NA[b]	<0.10	NA[b]	8.0	1,200	3.0	NM	7.30	7.15	2,110	59.00
BSL-1	28-Mar-00	140	93	25	380	810	<10	210	0.023	22	NA[b]	0.087	NA[b]	NA	1,200	3.9	NM	7.60	7.55	1,940	52.30
BSL-1	28-Mar-00[c]	110	80	20	360	820	<10	200	0.016	27	NA[b]	0.054	NA[b]	NA	1,200	10	NM	7.50	7.55	1,940	52.30
BSL-1	22-Jun-00	90	72	14	380	940	<10	210	<0.010	<5.0	NA[b]	0.15	NA[b]	NA	1,100	2.0	NM	7.40	7.41	2,100	59.20
BSL-1	22-Jun-00[c]	120	86	19	420	950	<10	210	<0.010	<5.0	NA[b]	0.16	NA[b]	NA	1,000	2.4	NM	7.40	7.41	2,100	59.20
BSL-1	15-Sep-00	150	82	16	340	900	<10	160	<0.010	<5.0	NA[b]	0.11	NA[b]	NA	1,200	<1.0	NM	7.40	7.97	1,930	56.50
BSL-1	15-Sep-00[c]	160	82	17	340	850	<10	160	<0.010	<5.0	NA[b]	0.11	NA[b]	NA	1,100	<1.0	NM	7.30	7.97	1,930	56.50
BSL-1	14-Dec-00	120	77	17	340	940	<10	180	<0.010	<5.0	NA[b]	0.067	NA[b]	57	1,200	3.2	NM	7.30	7.38	2,030	58.08
BSL-1	14-Dec-00[c]	96	69	16	340	970	<10	180	<0.010	<5.0	NA[b]	0.05	NA[b]	34	1,200	11	NM	7.30	7.38	2,030	58.08
BSL-1	22-Mar-01	79	66	15	340	980	<10	230	0.030	<5.0	NA[b]	0.16	NA[b]	38	1,400	3.3	NM	7.59	7.15	2,190	51.62
BSL-1	22-Mar-01[c]	87	70	15	340	830	<10	220	0.030	<5.0	NA[b]	0.13	NA[b]	32	1,300	<1.0	NM	7.57	7.15	2,190	51.62
BSL-1	14-Sep-01	90	72	14	380	860	<10	340	0.240	<5.0	NA[b]	0.096	NA[b]	27	1,400	<1.0	NM	7.54	7.21	1,650	65.30
BSL-1	14-Sep-01[c]	120	84	17	410	860	<10	340	0.350	<5.0	NA[b]	0.12	NA[b]	30	1,500	<1.0	NM	7.55	7.21	1,650	65.30
BSL-1	21-Mar-02	54	57	12	500	800	<10	260	0.028	<5.0	NA[b]	0.21	NA[b]	10	1,300	1.9	NM	7.32	7.31	2,132	51.30
BSL-1	26-Sep-02	57	63	11	370	540	<10	210	<0.010	<5.0	NA[b]	0.20	NA[b]	<10	680	1.7	NM	7.53	7.27	2,269	66.70
BSL-1	27-Mar-03	50	62	12	370	840	<10	260	<0.010	<5.0	NA[b]	0.26	NA[b]	<10	1,300	2.4	NM	7.43	7.62	1,899	51.62
BSL-1	24-Sep-03	50	61	12	350	750	<10	270	<0.010	<5.0	NA[b]	0.30	NA[b]	<10	1,600	2.5	NM	7.30	7.46	1,832	66.70
BSL-1	12-Mar-04	69	86	15	450	960	<10	330	1.7	33	NA[b]	0.23	NA[b]	14	1,400	1.9	NM	7.39	7.31	1,820	51.40
BSL-1	30-Sep-04	59	69	12	370	930	<10	300	<0.010	<5.0	NA[b]	0.24	NA[b]	26	1,300	1.8	NM	7.39	7.45	1,820	62.60
BSL-1	18-Mar-05	56	69	11	410	910	<10	360	0.014	<5.0	NA[b]	0.12	NA[b]	<10	1,400	5.9	NM	7.65	7.51	1,860	52.00
BSL-1	19-Sep-05	66	79	18	390	860	<10	380	<0.010	30	NA[b]	0.19	NA[b]	<10	1,400	7.9	NM	7.39	7.53	1,916	63.90
BSL-1	17-Mar-06	74	90	24	410	850	<10	370	0.14	37	NA[b]	0.33	NA[b]	11	1,400	4.4	NM	7.32	7.31	2,314	52.70

CHRONOLOGICAL SUMMARY OF WATER QUALITY DATA
BOUNTIFUL SANITARY LANDFILL

Well Number	Date Sampled	Calcium (mg/l)	Magnesium (mg/l)	Potassium (mg/l)	Sodium (mg/l)	Bicarbonate (as CaCO3; mg/l)	Carbonate (as CaCO3; mg/l)	Chloride (mg/l)	Nitrate (as N; mg/l)	Sulfate (mg/l)	Sulfide (mg/l)	Ammonia (as N; mg/l)	Cyanide (mg/l)	COD (mg/l)	TDS (mg/l)	TOC (mg/l)	Laboratory Conductivity (umhos/cm)	Laboratory pH (pH units)	Field pH (pH units)	Field Conductivity (umhos/cm)	Field Temperature (oF)
Regulatory Standards																					
BSL-1	14-Sep-06	57	71	14	330	730	<10	270	<0.010	30	NA(b)	0.13	NA(b)	24	740	5.1	NM	7.42	7.21	1,938	65.40
BSL-1	22-Mar-07	76	89	13	380	740	<10	380	<0.010	33	NA(b)	0.14	NA(b)	16	1,400	4.6	NM	7.66	7.17	2,615	51.40
BSL-1	27-Sep-07	74	92	13	390	800	<10	420	<0.010	37	NA(b)	0.17	NA(b)	16	1,500	5.1	NM	7.61	7.50	1,824	63.30
BSL-1	27-Mar-08	54	82	13	400	660	<5.0	310Q	<5.0	180Q	NA(b)	0.13	NA(b)	<20	1,300Q	4.3	NM	7.50	7.32	3,227	47.57
BSL-1	23-Sep-08	53	67	14	340	680	<5.0	230Q	<0.50	140Q	NA(b)	0.16	NA(b)	<20	1,300	4.3	NM	7.40	7.51	3,222	67.10
BSL-1	12-Mar-09	67	85	12	380	710	<5.0	290Q	0.86	210Q	NA(b)	0.16	NA(b)	<20	1,400	4.4	NM	7.50	7.20	3,321	47.78
BSL-1	24-Sep-09	79	93	17	<1,000	880	<5.0	670Q	<0.50	340Q	NA(b)	0.19	NA(b)	34	2,400Q	6.5	NM	7.40	7.13	4,237	68.79
BSL-1	19-Mar-10	85	120	15	<1,000	750	<10	<500	0.51	550	NA(b)	<0.50	NA(b)	22	2,200	5.6	NM	7.37	7.29	4,806	49.91

TABLE 4

CHRONOLOGICAL SUMMARY OF WATER QUALITY DATA
BOUNTIFUL SANITARY LANDFILL

Well Number	Date Sampled	Calcium (mg/l)	Magnesium (mg/l)	Potassium (mg/l)	Sodium (mg/l)	Bicarbonate (as $CaCO_3$; mg/l)	Carbonate (as $CaCO_3$; mg/l)	Chloride (mg/l)	Nitrate (as N; mg/l)	Sulfate (mg/l)	Sulfide (mg/l)	Ammonia (as N; mg/l)	Cyanide (mg/l)	COD (mg/l)	TDS (mg/l)	TOC (mg/l)	Laboratory Conductivity (umhos/cm)	Laboratory pH (pH units)	Field pH (pH units)	Field Conductivity (umhos/cm)	Field Temperature (oF)
Regulatory Standards																					
BSL-2	23-Sep-96	370	570	130	4,500	890	<10	9,000	<0.01	1,300	NA[b]	8.3	NA[b]	NA	15,000	22	NM	7.50	7.34	24,500	60.60
BSL-2	10-Dec-96	590	840	170	5,700	730	<10	10,000	0.74	1,700	NA[b]	7.1	NA[b]	NA	19,000	11	NM	7.50	7.95	31,600	51.80
BSL-2	17-Mar-97	880	1,300	190	7,600	740	<10	13,000	0.11	1,700	NA[b]	9.7	NA[b]	NA	26,000	20	NM	7.30	7.24	48,500	48.00
BSL-2	20-Jun-97	780	1,200	190	7,400	690	<10	15,000	0.03	1,700	NA[b]	10	NA[b]	NA	26,000	6.2	NM	7.70	7.37	51,600	53.60
BSL-2	20-Jun-97[a]	750	1,200	190	7,500	690	<10	15,000	0.03	1,700	NA[b]	10	NA[b]	NA	27,000	6.4	NM	7.70	7.37	51,600	53.60
BSL-2	15-Sep-97	590	880	160	5,600	790	<10	13,000	<0.01	1,400	NA[b]	12	NA[b]	NA	24,000	19	NM	7.40	7.30	31,900	60.60
BSL-2	11-Dec-97	520	770	140	5,200	840	<10	9,900	0.02	1,300	NA[b]	10	NA[b]	NA	19,000	8.6	NM	7.70	7.19	57,800	52.30
BSL-2	13-Mar-98	900	130	200	7,700	790	<10	14,000	0.17	1,700	NA[b]	6.4	NA[b]	NA	25,000	13	NM	7.60	7.19	47,100	47.30
BSL-2	16-Jun-98	810	1,200	180	8,300	760	<10	17,000	0.04	2,600	NA[b]	11	NA[b]	NA	27,000	11	NM	7.30	7.25	45,700	51.40
BSL-2	17-Sep-98	730	1,100	170	9,900	850	<10	14,000	<0.01	1,700	NA[b]	7.9	NA[b]	NA	24,000	15	NM	7.20	7.26	41,500	59.50
BSL-2	17-Dec-98	710	1,100	150	6,800	840	<10	13,000	<0.01	1,600	NA[b]	11.0	NA[b]	NA	23,000	11	NM	7.30	7.16	35,600	60.20
BSL-2	26-Mar-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5.0	NA	<0.005	NA	NA	NA	NM	NA	7.23	81,600	47.50
BSL-2	25-Jun-99	710	1,100	170	7,200	820	<10	13,000	<0.01	2,100	NA[b]	5.6	NA[b]	NA	26,000	19	NM	7.10	7.62	34,300	53.60
BSL-2	25-Jun-99[c]	660	1,100	190	7,600	820	<10	13,000	<0.01	2,000	NA[b]	5.7	NA[b]	NA	26,000	18	NM	7.10	7.62	34,300	53.60
BSL-2	23-Sep-99	520	820	170	5,700	890	<10	10,000	<0.01	1,500	NA[b]	9.9	NA[b]	NA	19,000	21	NM	7.20	7.69	36,300	63.70
BSL-2	23-Sep-99[c]	510	800	160	5,700	890	<10	8,800	0.02	1,700	NA[b]	9.7	NA[b]	NA	19,000	18	NM	7.30	7.69	36,300	63.70
BSL-2	17-Dec-99	300	520	130	4,600	900	<10	8,600	0.14	1,000	NA[b]	7.8	NA[b]	160	15,000	15	NM	7.30	7.06	29,800	54.50
BSL-2	28-Mar-00	690	1,100	230	5,400	750	<10	14,000	0.077	1,900	NA[b]	8.1	NA[b]	NA	25,000	17	NM	7.30	7.66	34,500	48.00
BSL-2	22-Jun-00	640	1,100	230	7,600	860	<10	14,000	0.020	1,700	NA[b]	7.7	NA[b]	NA	22,000	12	NM	7.20	7.51	36,800	55.20
BSL-2	15-Sep-00	360	480	120	4,100	1,000	<10	6,700	<0.010	1,200	NA[b]	7.7	NA[b]	NA	12,000	<1.0	NM	7.30	7.62	34,300	53.60
BSL-2	14-Dec-00	670	1,000	260	6,000	960	<10	13,000	0.020	1,500	NA[b]	7.0	NA[b]	1,100	24,000	14	NM	7.00	7.34	30,900	51.10
BSL-2	22-Mar-01	650	1,100	180	6,600	910	<10	14,000	0.040	2,000	NA[b]	8.4	NA[b]	540	30,000	18	NM	7.28	6.99	37,600	46.94
BSL-2	28-Jun-01	680	1,100	180	7,100	890	<10	16,000	0.120	1,600	NA[b]	5.5	NA[b]	1,400	27,000	11	NM	7.31	7.13	46,000	53.60
BSL-2	14-Sep-01	340	550	130	4,500	1,000	<10	11,000	0.140	1,400	NA[b]	7.1	NA[b]	680	16,000	9	NM	7.49	6.92	44,900	63.03
BSL-2	5-Dec-01	260	380	130	3,600	880	<10	8,100	0.710	900	NA[b]	2.8	NA[b]	330	9,900	10	NM	7.55	7.27	19,500	55.00
BSL-2	21-Mar-02	600	1,000	170	6,800	850	<10	13,000	0.23	2,000	NA[b]	8.2	NA[b]	1,400	25,000	13	NM	7.24	7.32	>3,999	46.60
BSL-2	20-Jun-02	710	1,300	260	8,700	880	<10	12,000	0.012	1,800	NA[b]	7.0	NA[b]	1,400	25,000	8.7	NM	7.21	7.45	>3,999	59.10
BSL-2	26-Sep-02	190	320	99	3,400	400	<10	4,300	<0.010	650	NA[b]	4.9	NA[b]	230	9,600	12	NM	7.44	7.36	>3,999	63.10
BSL-2	4-Dec-02	170	320	87	3,900	990	<10	8,100	0.020	780	NA[b]	4.1	NA[b]	260	11,000	13	NM	7.50	7.44	>3,999	54.80
BSL-2	4-Dec-02[c]	150	300	92	3,600	990	<10	7,400	0.020	780	NA[b]	4.5	NA[b]	230	11,000	25	NM	7.46	7.44	>3,999	54.80
BSL-2	27-Mar-03	470	830	210	5,900	940	<10	12,000	0.060	1,600	NA[b]	7.7	NA[b]	320	21,000	15	NM	7.31	7.63	>3,999	47.48
BSL-2	18-Jun-03	520	900	180	5,800	930	<10	11,000	<0.010	1,900	NA[b]	4.5	NA[b]	1,400	23,000	12	NM	7.18	7.43	>3,999	55.94
BSL-2	24-Sep-03	160	360	120	3,300	960	<10	6,100	<0.010	1,000	NA[b]	5.3	NA[b]	300	15,000	14	NM	7.38	7.46	>3,999	63.50
BSL-2	24-Sep-03[c]	170	370	120	3,400	980	<10	5,800	<0.010	1,000	NA[b]	5.0	NA[b]	290	12,000	25	NM	7.41	7.46	>3,999	63.50
BSL-2	17-Dec-03	210	360	97	3,200	1,000	<10	6,100	0.060	730	NA[b]	4.4	NA[b]	520	13,000	9.6	NM	7.46	7.34	>3,999	52.50
BSL-2	12-Mar-04	360	640	180	6,500	950	<10	10,000	2.600	900	NA[b]	5.6	NA[b]	1,100	21,000	17	NM	7.49	7.30	>3,999	46.50
BSL-2	18-Jun-04	560	970	180	6,700	990	<10	12,000	0.036	1,100	NA[b]	6.8	NA[b]	1,300	22,000	19	NM	7.33	7.40	>3,999	56.80
BSL-2	18-Jun-04[c]	510	940	200	7,000	930	<10	13,000	0.037	1,300	NA[b]	7.0	NA[b]	1,300	24,000	16	NM	7.37	7.40	>3,999	56.80
BSL-2	30-Sep-04	90	150	67	2,000	1,000	<10	4,600	<0.010	440	NA[b]	3.5	NA[b]	110	41,000	17	NM	7.72	7.44	>3,999	61.80

TABLE 4

CHRONOLOGICAL SUMMARY OF WATER QUALITY DATA
BOUNTIFUL SANITARY LANDFILL
(4 of 8)

Well Number	Date Sampled	Calcium (mg/l)	Magnesium (mg/l)	Potassium (mg/l)	Sodium (mg/l)	Bicarbonate (as CaCO3; mg/l)	Carbonate (as CaCO3; mg/l)	Chloride (mg/l)	Nitrate (as N; mg/l)	Sulfate (mg/l)	Sulfide (mg/l)	Ammonia (as N; mg/l)	Cyanide (mg/l)	COD (mg/l)	TDS (mg/l)	TOC (mg/l)	Laboratory Conductivity (umhos/cm)	Laboratory pH (pH units)	Field pH (pH units)	Field Conductivity (umhos/cm)	Field Temperature (oF)
Regulatory Standards																					
BSL-2	10-Dec-04	350	500	110	4,000	1,000	<10	7,300	0.64	910	NA(b)	3.0	NA(b)	610	14,000	18	NM	7.02	7.40	>3,999	51.90
BSL-2	10-Dec-04(c)	350	530	120	4,300	1,000	<10	7,700	0.71	860	NA(b)	2.6	NA(b)	620	15,000	21	NM	7.02	7.40	>3,999	51.90
BSL-2	18-Mar-05	550	960	160	6,900	940	<10	11,000	0.019	1300	NA(b)	6.0	NA(b)	1,100	20,000	25	NM	7.36	7.52	>3,999	47.80
BSL-2	24-Jun-05	480	940	210	7,100	810	<10	12,000	0.010	1300	NA(b)	7.2	NA(b)	790	23,000	41	NM	7.32	7.40	>3,999	57.00
BSL-2	24-Jun-05(c)	560	1,000	180	7,200	1,000	<10	13,000	<0.010	1300	NA(b)	8.1	NA(b)	1,500	23,000	41	NM	7.23	7.40	>3,999	57.00
BSL-2	19-Sep-05	340	600	150	4,500	990	<10	8,000	<0.010	1,000	NA(b)	8.6	NA(b)	700	16,000	30	NM	7.34	7.53	>3,999	61.50
BSL-2	6-Dec-05	240	450	130	4,800	880	<10	5,700	<0.010	910	NA(b)	5.3	NA(b)	410	13,000	22	NM	7.51	7.76	>3,999	30.20
BSL-2	6-Dec-05(c)	220	420	120	4,700	1,000	<10	6,000	<0.010	960	NA(b)	4.7	NA(b)	440	13,000	22	NM	7.51	7.76	>3,999	30.20
BSL-2	17-Mar-06	540	970	350	7,100	970	<10	13,000	0.041	1,400	NA(b)	7.0	NA(b)	1,000	22,000	24	NM	7.29	7.17	>3,999	52.70
BSL-2	17-Mar-06(c)	540	970	410	7,100	930	<10	13,000	0.016	1,500	NA(b)	6.8	NA(b)	920	22,000	21	NM	7.27	7.31	>3,999	52.70
BSL-2	23-Jun-06	550	960	200	6,200	970	<10	12,000	0.031	1,500	NA(b)	8.3	NA(b)	1,400	24,000	34	NM	7.28	7.35	>3,999	62.70
BSL-2	23-Jun-06(c)	530	930	180	6,200	960	<10	12,000	0.038	1,500	NA(b)	8.2	NA(b)	1,400	23,000	35	NM	7.30	7.35	>3,999	62.70
BSL-2	14-Sep-06	330	620	170	5,100	990	<10	8,700	<0.010	1,100	NA(b)	6.4	NA(b)	850	17,000	19	NM	7.33	7.38	>3,999	62.80
BSL-2	14-Sep-06(c)	340	620	200	5,200	980	<10	9,000	<0.010	1,100	NA(b)	6.5	NA(b)	870	17,000	19	NM	7.31	7.38	>3,999	62.80
BSL-2	5-Dec-06	430	810	200	5,600	990	<10	12,000	<0.010	1,300	NA(b)	7.7	NA(b)	1,100	20,000	22	NM	7.50	7.43	>3,999	53.70
BSL-2	5-Dec-06(c)	450	850	190	5,700	990	<10	11,000	0.015	1,100	NA(b)	9.0	NA(b)	1,100	21,000	26	NM	7.45	7.43	>3,999	53.70
BSL-2	22-Mar-07	510	900	230	6,100	960	<10	14,000	0.019	1,500	NA(b)	6.4	NA(b)	890	25,000	24	NM	7.37	7.22	>3,999	47.40
BSL-2	22-Mar-07(c)	560	940	240	6,700	960	<10	14,000	0.100	1,600	NA(b)	6.5	NA(b)	1,400	25,000	24	NM	7.40	7.22	>3,999	47.40
BSL-2	15-Jun-07	490	900	170	7,700	950	<10	14,000	0.130	1,600	NA(b)	7.9	NA(b)	690	24,000	28	NM	7.35	7.60	>3,999	56.34
BSL-2	15-Jun-07(c)	490	920	190	7,600	950	<10	14,000	0.055	1,600	NA(b)	7.8	NA(b)	610	24,000	34	NM	7.43	7.60	>3,999	56.34
BSL-2	27-Sep-07	280	540	150	4,800	1,000	<10	9,300	0.035	890	NA(b)	6.8	NA(b)	830	16,000	19	NM	7.52	7.52	>3,999	60.90
BSL-2	27-Sep-07(c)	280	530	150	4,700	990	<10	7,200	0.28	750	NA(b)	6.9	NA(b)	800	16,000	18	NM	7.52	7.52	>3,999	60.90
BSL-2	20-Dec-07	350	760	180	5,600	960	<10	9,800	0.021	1,500	NA(b)	9.6	NA(b)	1,100	19,000	25	NM	7.26	7.14	>3,999	52.20
BSL-2	20-Dec-07(c)	370	750	200	6,000	960	<10	11,000	0.027	1,400	NA(b)	7.7	NA(b)	1,100	20,000	20	NM	7.27	7.14	>3,999	52.20
BSL-2	27-Mar-08	400	1,000	270	8,800	920	<5.0	15,000Q	<10	1,700Q	NA(b)	6.3	NA(b)	<200	25,000Q	28	NM	7.30	7.48	>3,999	47.93
BSL-2	27-Mar-08(c)	410	1,000	250	8,500	900	<5.0	14,000Q	<10	1,600Q	NA(b)	6.2	NA(b)	<200	24,000Q	27	NM	7.30	7.48	>3,999	47.93
BSL-2	27-Jun-08	500	1,100	200L	8,000	990	<5.0	17,000Q	<10	1,800Q	NA(b)	8.1Q	NA(b)	260Q	27,000Q	30	NM	7.30	7.31	>3,999	53.79
BSL-2	27-Jun-08(c)	510	1,100	210L	8,200	990	<5.0	16,000Q	<10	1,800Q	NA(b)	8.1Q	NA(b)	250Q	27,000Q	30	NM	7.30	7.31	>3,999	53.79
BSL-2	27-Sep-08	330	710	180	6,100	940	<5.0	11,000Q	<10	1,300Q	NA(b)	7.6Q	NA(b)	220Q	20,000Q	24	NM	7.30	7.00	2,825	60.98
BSL-2	27-Sep-08(c)	330	720	190	6,300	960	<5.0	11,000Q	<10	1,200Q	NA(b)	7.7Q	NA(b)	120B,G	20,000Q	25	NM	7.30	7.00	2,825	60.98
BSL-2	22-Dec-08	330	840J	200	6,700J	980	<5.0	11,000Q	<0.85	1,300Q	NA(b)	7.8J,Q	NA(b)	210Q	19,000Q	26J	NM	7.20	7.43	>3,999	50.81
BSL-2	22-Dec-08(c)	340J	840J	210	6,900J	960	<5.0	9,400Q	<0.85	1,500Q	NA(b)	7.7J,Q	NA(b)	180Q	18,000Q	26J	NM	7.20	7.43	>3,999	50.81
BSL-2	12-Mar-09	440	1,000	220	7,800	950	<5.0	15,000Q	1.2	1,600Q	NA(b)	7.6	NA(b)	160Q	25,000Q	28	NM	7.30	7.23	>3,999	45.86
BSL-2	12-Mar-09(c)	450	1,000	220	7,800	930	<5.0	15,000Q	1.3	1,600Q	NA(b)	7.6	NA(b)	170Q	22,000Q	29	NM	7.30	7.23	>3,999	45.86
BSL-2	16-Jun-09	430	960	250	9,000	NA	NA	NA	NA	NA	NA(b)	NA	NA(b)	NA	NA	NA	NM	NM	6.99	>3,999	NM
BSL-2	16-Jun-09(c)	420	960	260	9,100	NA	NA	NA	NA	NA	NA(b)	NA	NA(b)	NA	NA	NA	NM	NM	6.99	>3,999	NM

TABLE 4

CHRONOLOGICAL SUMMARY OF WATER QUALITY DATA
BOUNTIFUL SANITARY LANDFILL
(5 of 8)

Well Number	Date Sampled	Calcium (mg/l)	Magnesium (mg/l)	Potassium (mg/l)	Sodium (mg/l)	Bicarbonate (as $CaCO_3$; mg/l)	Carbonate (as $CaCO_3$; mg/l)	Chloride (mg/l)	Nitrate (as N; mg/l)	Sulfate (mg/l)	Sulfide (mg/l)	Ammonia (as N; mg/l)	Cyanide (mg/l)	COD (mg/l)	TDS (mg/l)	TOC (mg/l)	Laboratory Conductivity (umhos/cm)	Laboratory pH (pH units)	Field pH (pH units)	Field Conductivity (umhos/cm)	Field Temperature (oF)
Regulatory Standards																					
BSL-2	24-Sep-09	350	790	220	7,400	1,000	<5.0	12,000Q	<0.85	1,200Q	NA[b]	7.1	NA[b]	280G	22,000Q	26	NM	7.30	7.14	>3,999	60.45
BSL-2	24-Sep-09[c]	360	830	230	7,500	1,000	<5.0	13,000Q	<0.85	1,300Q	NA[b]	7.4	NA[b]	320G	21,000Q	26	NM	7.30	7.14	>3,999	60.45
BSL-2	21-Dec-09	380	880	250	7,600J	NA	NA	NA	NA	NA	NA[b]	NA	NA[b]	NA	NA	NA	NM	NM	7.18	>3,999	50.00
BSL-2	21-Dec-09[c]	370	860	250	7,500J	NA	NA	NA	NA	NA	NA[b]	NA	NA[b]	NA	NA	NA	NM	NM	7.18	>3,999	50.00
BSL-2	19-Mar-10	420	1,000	200	8,300	1,100	<5.0	18,000	<0.85	1,400	NA[b]	8.2	NA[b]	300	21,000	33	NM	7.26	7.20	52,710	46.09
BSL-2	19-Mar-10[c]	420	1,000	200	8,200	1,100	<5.0	17,000	<0.85	1,400	NA[b]	6.3	NA[b]	150	23,000	34	NM	7.27	7.20	52,710	46.09

TABLE 4

CHRONOLOGICAL SUMMARY OF WATER QUALITY DATA
BOUNTIFUL SANITARY LANDFILL

Well Number	Date Sampled	Calcium (mg/l)	Magnesium (mg/l)	Potassium (mg/l)	Sodium (mg/l)	Bicarbonate (as CaCO3; mg/l)	Carbonate (as CaCO3; mg/l)	Chloride (mg/l)	Nitrate (as N; mg/l)	Sulfate (mg/l)	Sulfide (mg/l)	Ammonia (as N; mg/l)	Cyanide (mg/l)	COD (mg/l)	TDS (mg/l)	TOC (mg/l)	Laboratory Conductivity (umhos/cm)	Laboratory pH (pH units)	Field pH (pH units)	Field Conductivity (umhos/cm)	Field Temperature (oF)
Regulatory Standards																					
BSL-3	23-Sep-96	210	1,100	540	16,000	1,500	<10	23,000	0.02	1,900	NA[b]	10	NA[b]	NA	39,000	44	NM	7.5	7.25	70,000	66.90
BSL-3	10-Dec-96	210	1,100	580	12,000	1,500	<10	21,000	0.63	1,600	NA[b]	10	NA[b]	NA	37,000	9.8	NM	7.4	8.07	58,000	57.00
BSL-3	17-Mar-97	210	1,100	460	12,000	1,200	<10	21,000	0.25	1,700	NA[b]	8.9	NA[b]	NA	37,000	14.0	NM	7.4	7.24	66,300	51.10
BSL-3	20-Jun-97	170	1,100	430	11,000	1,400	<10	22,000	0.11	1,800	NA[b]	8.9	NA[b]	NA	34,000	3.3	NM	7.6	7.56	79,900	56.50
BSL-3	15-Sep-97	170	990	500	12,000	1,200	<10	23,000	<0.01	1,700	NA[b]	9.9	NA[b]	NA	41,000	18	NM	7.1	7.43	52,000	64.60
BSL-3	11-Dec-97	200	1,100	500	12,000	1,400	<10	22,000	<0.01	1,600	NA[b]	4.6	NA[b]	NA	37,000	11	NM	7.8	7.17	<10000	55.60
BSL-3	13-Mar-98	210	1,300	550	13,000	1,300	<10	21,000	0.21	1,700	NA[b]	4.7	NA[b]	NA	36,000	12	NM	7.5	7.46	7,290	51.10
BSL-3	16-Jun-98	190	1,100	460	13,000	1,400	<10	21,000	0.03	2,400	NA[b]	9.8	NA[b]	NA	36,000	12	NM	7.5	7.47	2,210	54.10
BSL-3	17-Sep-98	200	1,000	470	12,000	1,400	<10	19,000	0.12	1,800	NA[b]	6.4	NA[b]	NA	36,000	25	NM	7.4	7.42	67,200	63.00
BSL-3	17-Dec-98	210	1,200	480	12,000	1,400	<10	21,000	<0.01	1,800	NA[b]	10.0	NA[b]	NA	36,000	13	NM	7.5	7.35	58,900	63.10
BSL-3	26-Mar-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50	NA	<0.005	NA	NA	NA	NM	NA	7.27	10,000	50.00
BSL-3	26-Mar-99[c]	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5.0	NA	<0.005	NA	NA	NA	NM	NA	7.27	10,000	50.00
BSL-3	25-Jun-99	150	1,100	420	11,000	1,300	<10	21,000	0.02	2,200	NA[b]	4.7	NA[b]	NA	37,000	17	NM	7.3	7.88	54,100	55.60
BSL-3	23-Sep-99	200	1,200	540	13,000	1,200	<10	21,000	0.11	2,200	NA[b]	9.6	NA[b]	NA	38,000	18	NM	7.4	7.85	63,100	64.00
BSL-3	17-Dec-99	200	1,200	530	13,000	1,300	<10	24,000	0.13	1,600	NA[b]	7.8	NA[b]	3,700	38,000	15	NM	7.30	7.03	66,600	59.50
BSL-3	28-Mar-00	200	1,200	610	11,000	1,300	<10	23,000	0.04	2,300	NA[b]	7.5	NA[b]	NA	39,000	15	NM	7.50	7.82	55,300	51.10
BSL-3	22-Jun-00	210	1,400	720	16,000	1,400	<10	24,000	0.03	1,900	NA[b]	9.5	NA[b]	NA	37,000	13	NM	7.30	7.62	59,700	59.50
BSL-3	15-Sep-00	220	1,100	470	11,000	1,700	<10	19,000	0.18	1,700	NA[b]	11	NA[b]	NA	38,000	<1.0	NM	7.20	7.88	54,100	55.60
BSL-3	14-Dec-00	200	1,200	730	13,000	1,400	<10	22,000	0.02	1,900	NA[b]	8.4	NA[b]	990	32,000	11	NM	7.20	7.59	44,400	54.68
BSL-3	22-Mar-01	190	1,100	460	10,000	1,400	<10	21,000	0.05	2,100	NA[b]	9.6	NA[b]	1,000	37,000	15	NM	7.53	7.17	59,000	50.00
BSL-3	28-Jun-01	210	1,400	700	16,000	1,400	<10	24,000	0.14	1,800	NA[b]	4.7	NA[b]	1,100	38,000	15	NM	7.53	7.24	78,000	57.74
BSL-3	28-Jun-01[C]	210	1,200	510	12,000	1,400	<10	25,000	0.12	1,800	NA[b]	8.9	NA[b]	1,100	39,000	10	NM	7.56	7.24	78,000	57.74
BSL-3	14-Sep-01	220	1,300	550	12,000	1,500	<10	29,000	0.28	1,800	NA[b]	11	NA[b]	1,200	42,000	15	NM	7.51	6.87	75,000	68.60
BSL-3	5-Dec-01	220	1,200	670	11,000	990	<10	28,000	0.043	2,600	NA[b]	13	NA[b]	920	48,000	13	NM	7.39	7.06	63,000	59.39
BSL-3	5-Dec-01[C]	210	1,300	770	13,000	1,300	<10	24,000	0.059	2,200	NA[b]	12	NA[b]	980	40,000	10	NM	7.44	7.06	63,000	59.39
BSL-3	21-Mar-02	170	1,100	370	9,900	1,400	<10	21,000	0.05	2,100	NA[b]	11	NA[b]	1,100	38,000	8.3	NM	7.53	7.42	>3,999	48.56
BSL-3	21-Mar-02[d]	200	1,200	440	11,000	1,400	<10	23,000	<0.01	2,100	NA[b]	11	NA[b]	1,200	38,000	7.9	NM	7.57	7.42	>3,999	48.56
BSL-3	20-Jun-02	240	1,400	540	15,000	1,500	<10	20,000	<0.010	1,500	NA[b]	8.6	NA[b]	1,100	41,000	6.8	NM	7.48	7.50	>3,999	54.50
BSL-3	20-Jun-02[c]	230	1,600	710	17,000	1,400	<10	21,000	<0.010	1,700	NA[b]	8.5	NA[b]	1,400	39,000	5.5	NM	7.37	7.50	>3,999	54.50
BSL-3	26-Sep-02	200	1,200	540	11,000	680	<10	16,000	<0.010	1,800	NA[b]	12	NA[b]	950	44,000	20	NM	7.31	7.12	>3,999	69.90
BSL-3	26-Sep-02[C]	190	1,200	570	12,000	730	<10	16,000	<0.010	1,800	NA[b]	12	NA[b]	1,200	41,000	24	NM	7.32	7.12	>3,999	69.90
BSL-3	4-Dec-02	160	1,100	550	13,000	1,300	<10	22,000	0.020	1,900	NA[b]	9.4	NA[b]	1,200	45,000	26	NM	7.36	7.34	>3,999	58.20
BSL-3	27-Mar-03	190	1,200	500	11,000	1,500	<10	21,000	<0.010	2,000	NA[b]	9.7	NA[b]	1,200	46,000	19	NM	7.46	7.62	>3,999	49.10
BSL-3	27-Mar-03[c]	190	1,200	530	11,000	1,500	<10	21,000	0.080	2,000	NA[b]	10	NA[b]	920	39,000	24	NM	7.46	7.62	>3,999	49.10
BSL-3	18-Jun-03	200	1,300	560	13,000	1,400	<10	21,000	<0.010	2,500	NA[b]	5.4	NA[b]	1,200	41,000	6.7	NM	7.30	7.43	>3,999	54.90
BSL-3	18-Jun-03[c]	190	1,200	570	12,000	1,400	<10	20,000	<0.010	2,000	NA[b]	5.4	NA[b]	1,100	42,000	7.2	NM	7.40	7.43	>3,999	54.90
BSL-3	24-Sep-03	160	1,200	520	12,000	1,300	<10	20,000	<0.030	2,300	NA[b]	10	NA[b]	1,100	50,000	7.9	NM	7.32	7.46	>3,999	68.05

TABLE 4

CHRONOLOGICAL SUMMARY OF WATER QUALITY DATA
BOUNTIFUL SANITARY LANDFILL

Well Number	Date Sampled	Calcium (mg/l)	Magnesium (mg/l)	Potassium (mg/l)	Sodium (mg/l)	Bicarbonate (as $CaCO_3$; mg/l)	Carbonate (as $CaCO_3$; mg/l)	Chloride (mg/l)	Nitrate (as N; mg/l)	Sulfate (mg/l)	Sulfide (mg/l)	Ammonia (as N; mg/l)	Cyanide (mg/l)	COD (mg/l)	TDS (mg/l)	TOC (mg/l)	Laboratory Conductivity (umhos/cm)	Laboratory pH (pH units)	Field pH (pH units)	Field Conductivity (umhos/cm)	Field Temperature (oF)
Regulatory Standards																					
BSL-3	17-Dec-03	170	1,100	540	12,000	1,500	<10	17,000	<0.010	1,900	NA[b]	11	NA[b]	1,200	40,000	14	NM	7.44	7.34	>3,999	55.90
BSL-3	17-Dec-03[c]	170	1,100	520	11,000	1,500	<10	16,000	>0.010	1,900	NA[b]	10	NA[b]	1,100	40,000	18	NM	7.56	7.34	>3,999	55.90
BSL-3	12-Mar-04	140	1,100	410	10,000	1,400	<10	13,000	0.38	1,000	NA[b]	9.3	NA[b]	760	31,000	16	NM	7.66	7.52	>3,999	46.50
BSL-3	12-Mar-04[c]	170	1,000	420	10,000	1,400	<10	15,000	0.24	950	NA[b]	9.0	NA[b]	950	32,000	24	NM	7.67	7.52	>3,999	46.50
BSL-3	18-Jun-04	180	1,100	450	12,000	1,600	<10	16,000	0.022	1,000	NA[b]	12	NA[b]	880	28,000	13	NM	7.50	7.32	>3,999	61.50
BSL-3	30-Sep-04	190	1,200	550	12,000	1,600	<10	11,000	<0.010	1,500	NA[b]	12	NA[b]	1,500	40,000	13	NM	7.38	7.45	>3,999	62.60
BSL-3	30-Sep-04[c]	200	1,300	550	12,000	1,700	<10	11,000	<0.010	1,700	NA[b]	12.0	NA[b]	1,800	39,000	17	NM	7.36	7.43	>3,999	66.20
BSL-3	10-Dec-04	180	1,200	480	11,000	1,600	<10	16,000	0.046	2,300	NA[b]	4.6	NA[b]	1,400	38,000	17	NM	7.27	7.31	>3,999	54.80
BSL-3	18-Mar-05	190	1,300	440	12,000	1,500	<10	21,000	<0.010	1,700	NA[b]	12.0	NA[b]	1,200	34,000	18	NM	7.53	7.50	>3,999	50.00
BSL-3	18-Mar-05[c]	190	1,300	440	12,000	1,400	<10	23,000	<0.010	1,700	NA[b]	12	NA[b]	1,100	34,000	17	NM	7.53	7.50	>3,999	50.00
BSL-3	24-Jun-05	160	1,200	510	13,000	1,200	<10	24,000	0.013	2,000	NA[b]	10	NA[b]	1,400	52,000	25	NM	7.42	7.50	>3,999	61.00
BSL-3	19-Sep-05	180	1,200	490	11,000	1,600	<10	19,000	0.027	1,700	NA[b]	12	NA[b]	1,300	40,000	27	NM	7.35	7.54	>3,999	67.60
BSL-3	19-Sep-05[c]	190	1,200	510	12,000	1,600	<10	19,000	0.059	1,600	NA[b]	12	NA[b]	1,100	40,000	27	NM	7.31	7.54	>3,999	67.60
BSL-3	6-Dec-05	190	1,400	490	14,000	1,300	<10	9,100	<0.010	1,900	NA[b]	11	NA[b]	1,000	38,000	23	NM	7.56	7.55	>3,999	30.20
BSL-3	17-Mar-06	190	1,400	910	14,000	1,400	<10	27,000	0.140	2,400	NA[b]	8.7	NA[b]	1,500	42,000	7.7	NM	7.43	7.21	>3,999	49.10
BSL-3	23-Jun-06	170	1,200	580	12,000	1,400	<10	22,000	0.024	2,300	NA[b]	10	NA[b]	1,600	43,000	22	NM	7.41	7.35	>3,999	64.50
BSL-3	14-Sep-06	170	1,300	770	14,000	1,300	<10	24,000	<0.010	2,500	NA[b]	8.6	NA[b]	1,400	44,000	16	NM	7.47	7.67	>3,999	64.90
BSL-3	5-Dec-06	170	1,200	640	13,000	1,200	<10	22,000	<0.010	1,700	NA[b]	0.053	NA[b]	1,100	42,000	15	NM	7.60	7.49	>3,999	58.10
BSL-3	22-Mar-07	160	1,100	560	11,000	1,600	<10	21,000	0.041	1,900	NA[b]	9.7	NA[b]	920	38,000	16	NM	7.64	7.41	>3,999	47.70
BSL-3	15-Jun-07	170	1,300	700	17,000	1,400	<10	22,000	0.039	2,200	NA[b]	9.3	NA[b]	1,300	46,000	13	NM	7.60	7.56	>3,999	58.70
BSL-3	27-Sep-07	170	1,200	630	11,000	1,500	<10	19,000	0.059	1,600	NA[b]	12	NA[b]	1,100	42,000	11	NM	7.90	7.60	>3,999	67.20
BSL-3	20-Dec-07	120	800	310	7,300	1,700	<10	15,000	0.017	1,500	NA[b]	12	NA[b]	1,100	31,000	11	NM	7.41	7.03	>3,999	53.94
BSL-3	27-Mar-08	150	1,300	650	15,000	840	<5.0	28,000Q	<10	3,600Q	NA[b]	7.3	NA[b]	<400	50,000	12	NM	7.50	7.45	>3,999	49.83
BSL-3	27-Jun-08	170J	1,300	580L	14,000	1,200	<5.0	24,000Q	<25	2,600Q	NA[b]	9.2Q	NA[b]	460Q	45,000Q	14	NM	7.50	7.13	>3,999	57.56
BSL-3	23-Sep-08	180	1,300	610	14,000	1,100	<5.0	25,000Q	<25	2,800Q	NA[b]	8.6Q	NA[b]	<400	47,000Q	16	NM	7.40	6.95	>3,999	65.60
BSL-3	22-Dec-08	160J	1,300J	610	14,000J	1,200	<5.0	24,000Q	<2.1	2,500Q	NA[b]	11J,Q	NA[b]	360Q	42,000Q	18J,G	NM	7.40	7.37	>3,999	51.15
BSL-3	12-Mar-09	160	1,300	600	14,000	1,200	<5.0	27,000Q	<2.1	2,900Q	NA[b]	10Q	NA[b]	<400	41,000Q	14	NM	7.50	7.29	>3,999	48.83
BSL-3	16-Jun-09	160	1,200	650	15,000	NA	NA	NA	NA	NA	NA[b]	NA	NA[b]	NA	NA	NA	NM	NM	7.15	>3,999	NM
BSL-3	24-Sep-09	170	1,200	550	13,000	1,600	<5.0	22,000Q	<0.85	1,900Q	NA[b]	15Q	NA[b]	34	40,000Q	18	NM	7.40	7.30	>3,999	67.20
BSL-3	21-Dec-09	170	1,300	740	15,000J	NA	NA	NA	NA	NA	NA[b]	NA	NA[b]	NA	NA	NA	NM	NM	7.34	>3,900	54.32
BSL-3	19-Mar-10	170	1,300	450	14,000	1,400	<10	24,000	<0.85	2,200	NA[b]	13	NA[b]	240	34,000	15	NM	7.49	7.39	80,690	49.10

Q = Elevated reporting limit The reporting limit is elevated due to high analyte levels
G = Elevated reporting limit The reporting limit is elevated due to matrix interference
L = Serial dilution of a digestate in the analytical batch indicates that physical and chemical interferences are present
J = Method blank contamination The associated method blank contains the target analyte at a reportable level

µmohs/cm	Micro mhos per centimeter
$CaCO_3$	Calcium carbonate
COD	Chemical oxygen demand
mg/l	Milligrams per liter
N	Nitrogen
NA	Not analyzed
NM	Not measured
°F	Degrees Fahrenheit
TDS	Total dissolved solids
TOC	Total organic carbon
(a)	Duplicate sample originally designated as BSL-4
(b)	Cyanide and sulfate not required in the Utah R317 308-4 (Detection Monitoring) analyte list but are required in the Appendix A, 40 CFR Part 258 (assessment monitoring) analyte list
(c)	Duplicate sample originally designated JMM 9
(d)	Duplicate sample originally designated IJMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Protection Standards or Federal Primary or Secondary Drinking Water Standards
Shaded analytes are specified in Utah R315 308 and or Appendix I of 40 CFR Part 258

Appendix K

Wells and Water Rights Search

Well Search w/in 2000' of Landfill

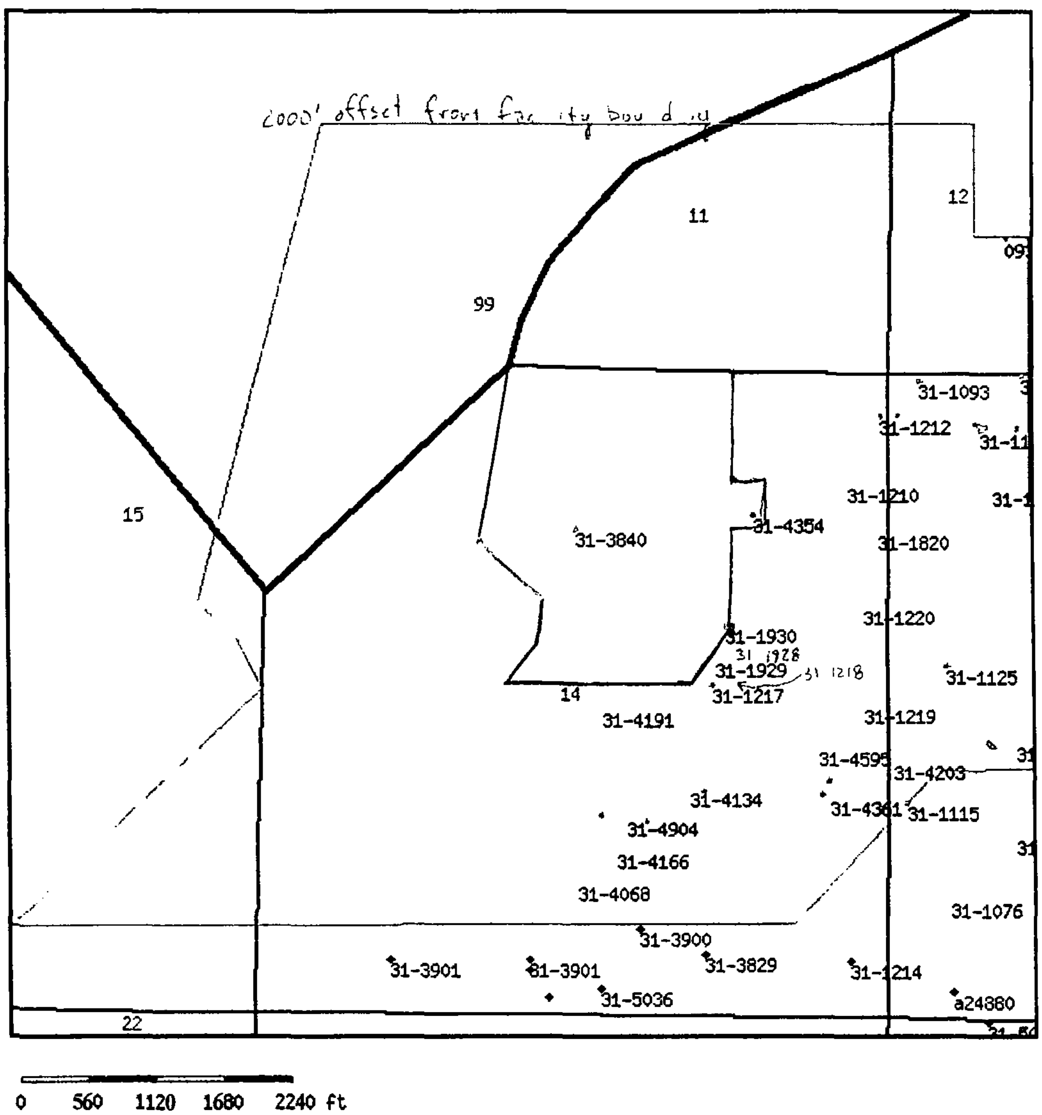
Search all of Utah gov »

Utah Division of Water Rights

Output Listing

Version 2009 05 06 00 Rundate 10/19/2010 05 46 PM

Traverse search of a parcel tied to the W4 corner, section 14, Township 2N, Range 1W, SL b&m
Criteria wrtypes=all podtypes=U,A status=A,P usetypes=all



Status
A - Approved
P= Perfected

Uses
I = Irrigation
S= Stock Water
D= Domestic
M Municipal
P P...
O = Other

Water Rights

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name

0931008M00	Underground		A	20090507	0 000 0 000	POPULUS - TERMINAL TRANSMISSIONER PARTNERS
	N1140 W1670 S4 12 2N 1W SL					2850 S 1900 W
0931008M00	Underground	well info	A	20090507	0 000 0 000	POPULUS TERMINAL TRANSMISSIONER PARTNERS
	N1140 W1665 S4 12 2N 1W SL					2850 S 1900 W
31-1061	Underground		P	19150000 S	0 022 0 000	THOMAS O & ELLA B WILLIAMS
	N2105 E702 W4 13 2N 1W SL					428 SOUTH MAIN
31-1075	Underground		P	19130000	0 123 0 000	LANE AND JOY BEATTIE
	N860 E1115 SW 13 2N 1W SL					1313 N 1100 W
31-1076	Underground		P	19050000	0 111 0 000	LANE AND JOY BEATTIE
	N980 E525 SW 13 2N 1W SL					1313 N 1100 W
31-1093	Underground		P	18930000 IS	0 225 0 000	LORIN C WOOLLEY
	S60 E250 NW 13 2N 1W SL					C/O GORDON R AND TIM WOOLLEY
31-1111	Underground		P	18950000 DI	0 078 0 000	ROBERT A & CHARLOTTE RUECKERT
	S390 E1060 W4 13 2N 1W SL					957 WEST 1600 NORTH
31-1113	Underground		P	19190000 IS	0 089 0 000	ROBERT A & CHARLOTTE RUECKERT
	S1160 E1060 W4 13 2N 1W SL					957 WEST 1600 NORTH
31-1115	Underground		P	19140000 IS	0 390 0 000	ROBERT A & CHARLOTTE RUECKERT
	S890 E150 W4 13 2N 1W SL					957 WEST 1600 NORTH
31-1118	Underground		P	18950000 IS	0 193 0 000	ROBERT A & CHARLOTTE RUECKERT
	S415 E860 W4 13 2N 1W SL					957 WEST 1600 NORTH
31-1125	Underground		P	18960000 IS	0 004 0 000	RUBY ANNETTA MILLER OLSEN FAMILY LIMITED PARTNERSHIP
	N240 E480 W4 13 2N 1W SL					C/O HALVOR M OLSEN GENERAL PARTNER
31-1136	Underground		P	19250000 DI	0 111 0 000	ORVILLE J & CAROLYN F RYVER
	S415 E710 NW 13 2N 1W SL					BOUNTIFUL UT 84010
31-1143	Underground	well info	P	19501011 DI	0 080 0 000	THOMAS RAY BROADBENT
	S435 E760 NW 13 2N 1W SL					508 EAST SOUTH TEMPLE
31-1154	Underground		P	19020000 IS	0 056 0 000	JAMES DELL BRUHN AND SHELLEY OLSEN BRUHN LIVING TRUST
	S210 E320 W4 13 2N 1W SL					JAMES DELL BRUHN AND SHELLEY OLSEN BRUHN TRUSTEES

31-1155	Underground S440 E800 NW 13 2N 1W SL		P	19280000 DI	0 056 0 000	ORVILLE J & CAROLYN F RYVER BOUNTIFUL UT 84010
31 1160	Underground S1170 E1160 NW 13 2N 1W SL		P	19250000 S	0 013 0 000	THOMAS Q AND ELLA B WILLIAMS 428 SOUTH MAIN STREET
31-1161	Underground S940 E850 NW 13 2N 1W SL		P	19250000 S	0 013 0 000	THOMAS Q AND ELLA B WILLIAMS 428 SOUTH MAIN STREET
31 1163	Underground S355 E1040 NW 13 2N 1W SL	well info	P	19180000 I	0 150 0 000	THOMAS G LUND 962 WEST PORTER LANE
31-1167	Underground S450 E1050 NW 13 2N 1W SL		P	19200000 DIS	0 033 0 000	DONALD L AND LINDA L DROESBEKE 972 WEST PORTER LANE
31-1169	Underground S460 E760 NW 13 2N 1W SL		P	18900000 DI	0 056 0 000	ORVILLE J & CAROLYN F RYVER BOUNTIFUL UT 84010
31-1186	Underground S390 E830 W4 13 2N 1W SL		P	19550615 DIS	0 015 0 000	SHELDON RUECKERT 997 WEST 1600 NORTH
31-1192	Underground S335 E60 NW 13 2N 1W SL	well info	P	19600121 S	0 009 0 000	WENDALL A LAW 536 EAST 250 NORTH
31-1210	Underground S910 W345 NE 14 2N 1W SL		P	19440330 S	0 004 0 000	UTAH DEPARTMENT OF TRANSPORTATION RIGHT OF WAY DIVISION
31-1212	Underground S350 W75 NE 14 2N 1W SL		P	19310700 S	0 020 0 000	UTAH DEPARTMENT OF TRANSPORTATION P O BOX 14820
31 1213	Underground S790 W1525 E4 14 2N 1W SL		P	19300000	0 013 0 000	LELAND R & OLIVE M SMITH 1165 NORTH 800 WEST
31-1216	Underground N270 W1340 E4 14 2N 1W SL		P	19250000 IMS	0 022 0 000	BOUNTIFUL CITY CORPORATION 790 SOUTH 100 EAST
31-1217	Underground N90 W1450 E4 14 2N 1W SL		P	19260000 IMS	0 022 0 000	BOUNTIFUL CITY CORPORATION 790 SOUTH 100 EAST
31-1218	Underground N269 W1340 E4 14 2N 1W SL		P	19260000 IMS	0 018 0 000	BOUNTIFUL CITY CORPORATION 790 SOUTH 100 EAST
31-1219	Underground S80 W190 E4 14 2N 1W SL		P	18490000 S	2 000 0 000	RUBY ANNETTA MILLER OLSEN FAMILY LIMITED PARTNERSHIP C/O HALVOR M OLSEN GENERAL PARTNER

31-1220	Underground N730 W190 E4 14 2N IW SL		P	19300000 S	0 011 0 000	GLADYS R SEEQUIST 1800 NORTH 800 WEST
31 1221	Underground S820 W545 E4 14 2N IW SL		P	19000000 I	0 073 0 000	LELAND R & OLIVE M SMITH 1165 NORTH 800 WEST
31 1639	Underground S388 E1060 W4 13 2N IW SL		P	18650000 I	0 078 0 000	ROBERT A & CHARLOTTE RUECKERT 957 WEST 1600 NORTH
31-1820	Underground S1310 W90 NE 14 2N IW SL	well info	P	19610808 IS	0 100 0 000	UTAH DEPARTMENT OF TRANSPORTATION RIGHT OF WAY DIVISION
31 1928	Underground N160 W1330 E4 14 2N IW SL		P	19260000 IMS	0 015 0 000	BOUNTIFUL CITY CORPORATION 790 SOUTH 100 EAST
31-1929	Underground N300 W1425 E4 14 2N IW SL		P	19260000 IMS	0 015 0 000	BOUNTIFUL CITY CORPORATION 790 SOUTH 100 EAST
31-1930	Underground N580 W1330 E4 14 2N IW SL		P	19260000 IMS	0 015 0 000	BOUNTIFUL CITY CORPORATION 790 SOUTH 100 EAST
31 3840	Underground S1320 0 N4 14 2N IW SL		P	19500510 M	2 000 0 000	BOUNTIFUL CITY CORPORATION 790 SOUTH 100 EAST
31-4068	Underground N1085 E60 S4 14 2N IW SL		P	19730623 DIS	0 015 0 000	OSCAR A & GRACE GOLDBERG 282 WEST 2900 SOUTH
31-4134	Underground S775 W1625 E4 14 2N IW SL	well info	P	19730308 S	0 015 0 000	PACIFICORP DBA UTAH POWER & LIGHT COMPANY ATTN CLAUDIA CONDER
31-4136	Underground S1135 W1605 E4 14 2N IW SL	well info	P	19730312 IS	0 015 0 000	FRANK B & BETTY M TINGEY 1482 SOUTH 875 WEST
31-4166	Underground N1355 E390 S4 14 2N IW SL	well info	P	19730917 IS	0 015 0 000	ORLINA JOHNSON 1335 NORTH 400 EAST
31-4171	Underground S1120 W2030 E4 14 2N IW SL		P	19731010 S	0 000 0 000	LOUISE F BROWN 406 WEST 3300 SOUTH
31-4191	Underground S110 W2347 E4 14 2N IW SL		P	19740326 S	0 015 0 000	FRED M SIMONS 933 EAST CONCORD WAY
31-4203	Underground S540 E45 W4 13 2N IW SL		P	19770909 S	0 015 0 000	DENNIS AND MELANIE W VEST 1544 NORTH 1100 WEST
31-4217	Underground		P	19740903 IS	0 015 0 000	GARY R BIEHN

	S700 W487 E4 14 2N 1W SL					1515 NORTH 1100 WEST
31-4348	Underground	well info	P	19760824 IS	0 015 0 000	SCOTT A & LISA JAN DUGGAR
	S860 W65 E4 14 2N 1W SL					1454 NORTH 1100 WEST
31-4354	Underground	well info	P	19761005 S	0 015 0 000	TOM DUGGAR
	S1170 W1110 NE 14 2N 1W SL					531 NORTH 1100 WEST
31-4361	Underground	well info	P	19761108 IS	0 022 0 000	JOSEPH INGLES
	S835 W475 E4 14 2N 1W SL					1485 SOUTH 1100 WEST
31-4423	Underground		P	19770422 IS	0 015 0 000	GEORG PFEIFFER
	S985 W2365 E4 14 2N 1W SL					543 WEST 550 NORTH
31-4595	Underground	well info	P	19790801 IS	0 015 0 000	ALVA M GADD
	S440 W580 E4 14 2N 1W SL					1585 NORTH 1100 WEST
31-4721	Underground	well info	P	19820204 DS	0 015 0 000	THOMAS G LUND
	S15 E1100 NW 13 2N 1W SL					962 WEST PORTER LANE
31-4899	Underground	well info	P	19870917 IS	0 000 7 592	DAVID AND KARA MCKEAN
	S1044 W1999 E4 14 2N 1W SL					1485 NORTH 175 WEST
31-4904	Underground		P	19871015 IS	0 015 0 000	DAVID K BROOKS
	S1010 W2160 E4 14 2N 1W SL					610 WEST 800 NORTH

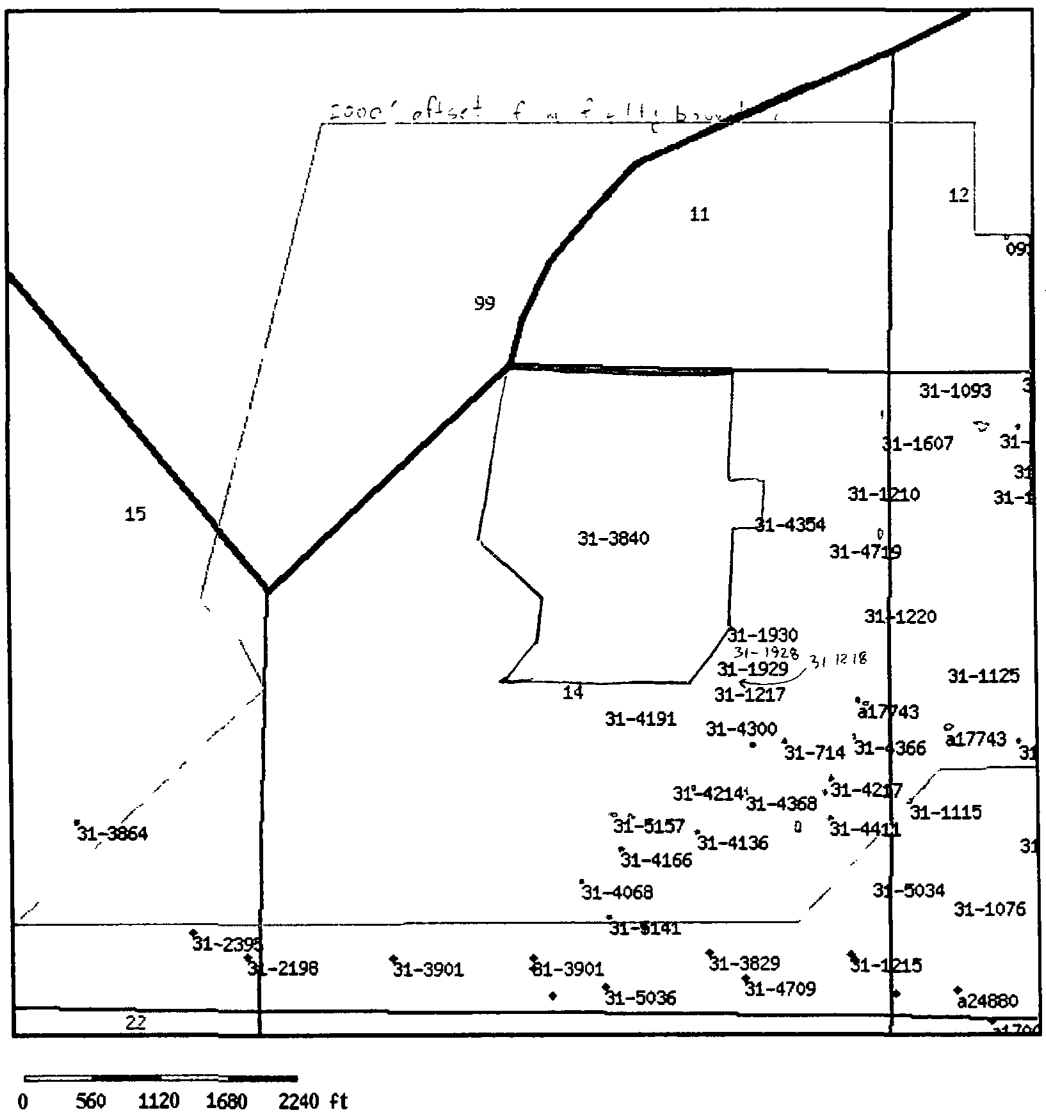
Water Rights Search w/in 2000' of Landfill

Utah Division of Water Rights

Output Listing

Version 2009 05 06 00 Rundate 10/19/2010 05 17 PM

Traverse search of a parcel tied to the W4 corner, section 14, Township 2N, Range 1W, SL b&m
Criteria wrtypes=all podtypes=all status=all usetypes=all



Status
U Unapproved
A Approved
P= Perfected
T= Terminated

USES
I Irrigation
S Stock water
D - Domestic
M Municipal
P- Power
O = Other

Water Rights

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name

0931008M00	Underground		A	20090507	0 000	0 000	POPULUS - TERMINAL TRANSMISSIONER PARTNERS
	N1140 W1670 S4 12 2N 1W SL						2850 S 1900 W
0931008M00	Underground	well info	A	20090507	0 000	0 000	POPULUS - TERMINAL TRANSMISSIONER PARTNERS
	N1140 W1665 S4 12 2N 1W SL						2850 S 1900 W
31-1061	Underground		P	19150000 S	0 022	0 000	THOMAS O & ELLA B WILLIAMS
	N2105 E702 W4 13 2N 1W SL						428 SOUTH MAIN
31-1075	Underground		P	19130000	0 123	0 000	LANE AND JOY BEATTIE
	N860 E1115 SW 13 2N 1W SL						1313 N 1100 W
31 1076	Underground		P	19050000	0 111	0 000	LANE AND JOY BEATTIE
	N980 E525 SW 13 2N 1W SL						1313 N 1100 W
31-1093	Underground		P	18930000 IS	0 225	0 000	LORIN C WOOLLEY
	S60 E250 NW 13 2N 1W SL						C/O GORDON R AND TIM WOOLLEY
31-1111	Underground		P	18950000 DI	0 078	0 000	ROBERT A & CHARLOTTE RUECKERT
	S390 E1060 W4 13 2N 1W SL						957 WEST 1600 NORTH
31-1113	Underground		P	19190000 IS	0 089	0 000	ROBERT A & CHARLOTTE RUECKERT
	S1160 E1060 W4 13 2N 1W SL						957 WEST 1600 NORTH
31-1115	Underground		P	19140000 IS	0 390	0 000	ROBERT A & CHARLOTTE RUECKERT
	S890 E150 W4 13 2N 1W SL						957 WEST 1600 NORTH
31-1118	Underground		P	18950000 IS	0 193	0 000	ROBERT A & CHARLOTTE RUECKERT
	S415 E860 W4 13 2N 1W SL						957 WEST 1600 NORTH
31-1125	Underground		P	18960000 IS	0 004	0 000	RUBY ANNETTA MILLER OLSEN FAMILY LIMITED PARTNERSHIP
	N240 E480 W4 13 2N 1W SL						C/O HALVOR M OLSEN, GENERAL PARTNER
31-1136	Underground		P	19250000 DI	0 111	0 000	ORVILLE J & CAROLYN F RYVER
	S415 E710 NW 13 2N 1W SL						BOUNTIFUL UT 84010
31-1143	Underground	well info	P	19501011 DI	0 080	0 000	THOMAS RAY BROADBENT
	S435 E760 NW 13 2N 1W SL						508 EAST SOUTH TEMPLE
31-1154	Underground		P	19020000 IS	0 056	0 000	JAMES DELL BRUHN AND SHELLEY OLSEN BRUHN LIVING TRUST
	S210 E320 W4 13 2N 1W SL						JAMES DELL BRUHN AND SHELLEY OLSEN BRUHN, TRUSTEES

31-1155	Underground S440 E800 NW 13 2N I W SL		P	19280000 DI	0 056	0 000	ORVILLE J & CAROLYN F RYVER BOUNTIFUL UT 84010
31-1160	Underground S1170 E1160 NW 13 2N I W SL		P	19250000 S	0 013	0 000	THOMAS Q AND ELLA B WILLIAMS 428 SOUTH MAIN STREET
31-1161	Underground S940 E850 NW 13 2N I W SL		P	19250000 S	0 013	0 000	THOMAS Q AND ELLA B WILLIAMS 428 SOUTH MAIN STREET
31-1162	Underground S735 E1030 NW 13 2N I W SL		T	19200000	0 000	0 000	THOMAS Q AND ELLA B WILLIAMS 428 SOUTH MAIN STREET
31-1163	Underground S355 E1040 NW 13 2N I W SL	well info	P	19180000 1	0 150	0 000	THOMAS G LUND 962 WEST PORTER LANE
31-1167	Underground S450 E1050 NW 13 2N I W SL		P	19200000 DIS	0 033	0 000	DONALD L AND LINDA L DROESBEKE 972 WEST PORTER LANE
31-1169	Underground S460 E760 NW 13 2N I W SL		P	18900000 DI	0 056	0 000	ORVILLE J & CAROLYN F RYVER BOUNTIFUL UT 84010
31-1170	Underground S440 E800 NW 13 2N I W SL		T	19010000	0 278	0 000	R LYNN PUTMAN 979 DEBONAIR DRIVE
31-1186	Underground S390 E830 W4 13 2N I W SL		P	19550615 DIS	0 015	0 000	SHELDON RUECKERT 997 WEST 1600 NORTH
31-1192	Underground S335 E60 NW 13 2N I W SL	well info	P	19600121 S	0 009	0 000	WENDALL A LAW 536 EAST 250 NORTH
31-1208	Surface S500 E415 NW 13 2N I W SL		U	188404 IS	3 000	0 000	LORIN C & T M WOOLLEY 2998 SOUTH 2150 EAST
31-1210	Underground S910 W345 NE 14 2N I W SL		P	19440330 S	0 004	0 000	UTAH DEPARTMENT OF TRANSPORTATION RIGHT OF WAY DIVISION
31-1212	Underground S350 W75 NE 14 2N I W SL		P	19310700 S	0 020	0 000	UTAH DEPARTMENT OF TRANSPORTATION P O BOX 14820
31-1213	Underground S790 W1525 E4 14 2N I W SL		P	19300000	0 013	0 000	LELAND R & OLIVE M SMITH 1165 NORTH 800 WEST
31-1216	Underground		P	19250000 IMS	0 022	0 000	BOUNTIFUL CITY CORPORATION

	N270 W1340 E4 14 2N IW SL						790 SOUTH 100 EAST
31-1217	Underground		P	19260000 IMS	0 022	0 000	BOUNTIFUL CITY CORPORATION
	N90 W1450 E4 14 2N IW SL						790 SOUTH 100 EAST
31-1218	Underground		P	19260000 IMS	0 018	0 000	BOUNTIFUL CITY CORPORATION
	N269 W1340 E4 14 2N IW SL						790 SOUTH 100 EAST
31-1219	Underground		P	18490000 S	2 000	0 000	RUBY ANNETTA MILLER OLSEN FAMILY LIMITED PARTNERSHIP
	S80 W190 E4 14 2N IW SL						C/O HALVOR M OLSEN, GENERAL PARTNER
31-1220	Underground		P	19300000 S	0 011	0 000	GLADYS R SEEQUIST
	N730 W190 E4 14 2N IW SL						1800 NORTH 800 WEST
31-1221	Underground		P	19000000 I	0 073	0 000	LELAND R & OLIVE M SMITH
	S820 W545 E4 14 2N IW SL						1165 NORTH 800 WEST
31-1553	Underground		U	188404 IS	1 000	0 000	UTAH DEPARTMENT OF TRANSPORTATION
	S500 W60 NE 14 2N IW SL						P O BOX 14820
31-1607	Surface		U	188404 IS	1 000	0 000	CLIFFORD L AND MELVA ELLIOTT
	S500 W60 NE 14 2N IW SL						940 NORTH 200 WEST
31-1639	Underground		P	18650000 I	0 078	0 000	ROBERT A & CHARLOTTE RUECKERT
	S388 E1060 W4 13 2N IW SL						957 WEST 1600 NORTH
31-1820	Underground	well info	P	19610808 IS	0 100	0 000	UTAH DEPARTMENT OF TRANSPORTATION
	S1310 W90 NE 14 2N IW SL						RIGHT OF WAY DIVISION
31-1928	Underground		P	19260000 IMS	0 015	0 000	BOUNTIFUL CITY CORPORATION
	N160 W1330 E4 14 2N IW SL						790 SOUTH 100 EAST
31-1929	Underground		P	19260000 IMS	0 015	0 000	BOUNTIFUL CITY CORPORATION
	N300 W1425 E4 14 2N IW SL						790 SOUTH 100 EAST
31-1930	Underground		P	19260000 IMS	0 015	0 000	BOUNTIFUL CITY CORPORATION
	N580 W1330 E4 14 2N 1W SL						790 SOUTH 100 EAST
31-2787	Underground		T	19650120	0 500	0 000	FRANK D AND EDNA EGGETT
	N1300 W75 E4 14 2N IW SL						925 NORTH 660 WEST
31-3840	Underground		P	19500510 M	2 000	0 000	BOUNTIFUL CITY CORPORATION
	S1320 0 N4 14 2N IW SL						790 SOUTH 100 EAST
31-3864	Surface		P	19670406 O	10 000	0 000	STATE OF UTAH DIVISION OF WILDLIFE RESOURCES

	N1551 W1498 SE 15 2N 1W SL						1594 WEST NORTH TEMPLE STE 2110
31-4066	Surface		T	19720607 IS	1 000	0 000	N KENNETH OLSEN
	S270 E490 W4 13 2N 1W SL						705 SOUTH MAIN STREET
31-4068	Underground		P	19730623 DIS	0 015	0 000	OSCAR A & GRACE GOLDBERG
	N1085 E60 S4 14 2N 1W SL						282 WEST 2900 SOUTH
31-4134	Underground	well info	P	19730308 S	0 015	0 000	PACIFICORP DBA UTAH POWER & LIGHT COMPANY
	S775 W1625 E4 14 2N 1W SL						ATTN CLAUDIA CONDER
31-4136	Underground	well info	P	19730312 IS	0 015	0 000	FRANK B & BETTY M TINGEY
	S1135 W1605 E4 14 2N 1W SL						1482 SOUTH 875 WEST
31-4160	Underground		T	19730814	0 015	0 000	JAMES C KAISERMAN
	S1100 W780 E4 14 2N 1W SL						779 NORTH 100 EAST
31-4161	Surface		T	19730814	0 100	0 000	JAMES C KAISERMAN
	S1122 W775 E4 14 2N 1W SL						601 EAST MUTTON HOLLOW ROAD
31-4166	Underground	well info	P	19730917 IS	0 015	0 000	ORLINA JOHNSON
	N1355 E390 S4 14 2N 1W SL						1335 NORTH 400 EAST
31-4167	Underground		T	19730917 IS	0 100	0 000	LYNNE CONFER
	N1600 W750 SE 14 2N 1W SL						1741 SOUTH 75 EAST
31-4171	Underground		P	19731010 S	0 000	0 000	LOUISE F BROWN
	S1120 W2030 E4 14 2N 1W SL						406 WEST 3300 SOUTH
31-4191	Underground		P	19740326 S	0 015	0 000	FRED M SIMONS
	S110 W2347 E4 14 2N 1W SL						933 EAST CONCORD WAY
31-4198	Underground		T	19740426	0 015	0 000	JOSEPH A LINDSAY
	S420 W1135 E4 14 2N 1W SL						3422 SOUTH 300 WEST
31-4203	Underground		P	19770909 S	0 015	0 000	DENNIS AND MELANIE W VEST
	S540 E45 W4 13 2N 1W SL						1544 NORTH 1100 WEST
31-4214	Underground	well info	T	19740828	0 100	0 000	BETTY J HERBERT
	S723 W1800 E4 14 2N 1W SL						1512 NORTH 800 WEST
31-4217	Underground		P	19740903 IS	0 015	0 000	GARY R BIEHN
	S700 W487 E4 14 2N 1W SL						1515 NORTH 1100 WEST
31-4231	Underground		T	19750218	0 015	0 000	J V LEGER
	N1550 0 SW 13 2N 1W SL						1394 NORTH 1100 WEST

31-4261	Underground N1500 W1890 SE 14 2N 1W SL		T	19750715	0 015	0 000	S D BIRDSONG 1210 EAST 300 SOUTH
31-4268	Underground S1040 W930 E4 14 2N 1W SL		T	19750820	0 015	0 000	KEN CHRISTENSEN VALLEY HIGH MOTEL & CAFE
31-4299	Underground N80 W600 E4 14 2N 1W SL		T	19760304	0 015	0 000	KIM & KARI BYINGTON 1056 WEST 700 NORTH
31-4300	Underground S200 W1525 E4 14 2N 1W SL		T	19760304	0 015	0 000	ALVIN J NOKER 73 WEST 900 NORTH
31-4348	Underground S860 W65 E4 14 2N 1W SL	well info	P	19760824 IS	0 015	0 000	SCOTT A & LISA JAN DUGGAR 1454 NORTH 1100 WEST
31-4354	Underground S1170 W1110 NE 14 2N 1W SL	well info	P	19761005 S	0 015	0 000	TOM DUGGAR 531 NORTH 1100 WEST
31-4361	Underground S835 W475 E4 14 2N 1W SL	well info	P	19761108 IS	0 022	0 000	JOSEPH INGLES 1485 SOUTH 1100 WEST
31-4366	Underground S350 W300 E4 14 2N 1W SL		T	19761129	0 050	0 000	CLAIR W COX 2855 WESTERLING WAY
31-4368	Underground S820 W1200 E4 14 2N 1W SL		T	19761208	0 015	0 000	JEROLD BURT 99 NORTH MAIN
31-4411	Underground S1020 W500 E4 14 2N 1W SL		T	19770322	0 015	0 000	DWAYNE R HUGHES 1425 NORTH 1100 WEST
31-4423	Underground S985 W2365 E4 14 2N 1W SL		P	19770422 IS	0 015	0 000	GEORG PFEIFFER 543 WEST 550 NORTH
31-4595	Underground S440 W580 E4 14 2N 1W SL	well info	P	19790801 IS	0 015	0 000	ALVA M GADD 1585 NORTH 1100 WEST
31-4719	Underground S1400 W500 NE 14 2N 1W SL		T	19820106	0 015	0 000	MERRILL G PHELPS 290 SOUTH 750 EAST
31-4721	Underground S15 E1100 NW 13 2N 1W SL	well info	P	19820204 DS	0 015	0 000	THOMAS G LUND 962 WEST PORTER LANE
31-4777	Surface S540 E1090 NW 13 2N 1W SL		T	198304271	0 100	0 000	THOMAS LUND 962 WEST PORTER LANE

31-4820	Underground		T	19840621 DIS	0 167	0 000	DONALD L & LINDA L DROESBEKE
	S475 E907 NW 13 2N 1W SL						972 WEST PORTER LANE
31-4899	Underground	well mfo	P	19870917 IS	0 000	7 592	DAVID AND KARA MCKEAN
	S1044 W1999 E4 14 2N 1W SL						1485 NORTH 175 WEST
31-4904	Underground		P	19871015 IS	0 015	0 000	DAVID K BROOKS
	S1010 W2160 E4 14 2N 1W SL						610 WEST 800 NORTH
31-5034	Underground		T	19900904 M	2 000	0 000	WEST BOUNTIFUL CITY
	N1140 W130 SE 14 2N 1W SL						500 NORTH 800 WEST
31-5057	Underground		T	19910920 DIS	0 015	0 000	DON JAY PRATT
	N800 E290 S4 14 2N 1W SL						4211 BENNION ROAD
31-5141	Surface		T	19940920 IS	0 000	9 140	CHRIS WILKINS
	N800 E290 S4 14 2N 1W SL						2055 NORTH 800 WEST
31-5157	Surface		T	19960517 IO	0 000	28 000	GORDON JONES
	S1000 W2300 E4 14 2N 1W SL						235 WEST 1400 NORTH
31-714	Surface		U	1849 IS	2 000	0 000	RUBY ANNETTA MILLER OLSEN FAMILY LIMITED PARTNERSHIP
	S390 W870 E4 14 2N 1W SL						936 WEST PAGES LANE
a17743	Surface		T	19931229 IS	2 000	0 000	JAMES DELL BRUHN AND SHELLEY OLSEN BRUHN LIVING TRUST
	S50 W260 E4 14 2N 1W SL						JAMES DELL AND SHELLEY OLSEN BRUHN, TRUSTEES
a17743	Surface		T	19931229 IS	2 000	0 000	JAMES DELL BRUHN AND SHELLEY OLSEN BRUHN LIVING TRUST
	S280 E450 W4 13 2N 1W SL						JAMES DELL AND SHELLEY OLSEN BRUHN, TRUSTEES

–7

Form F-2—11-45 6M

CHANGE APPLICATION NO a-2456

Application for Permanent Change of Point of Diversion, Place and Nature of Use of Water

STATE OF UTAH

31 – 3840

Do not fill out this blank until you have read carefully and thoroughly understand the "Rules and Regulations" on the back hereof and all the notes in the body of it.

For the purpose of obtaining permission to permanently change the point of diversion place or nature of use of (Strike out written matter not needed)

water right acquired by Diligence, Applications & claims owned by applicant
(Give No. of Application, certificate of appropriation, title and date of Decree or other identification of right)

to than hereinafter described application is hereby made to the State Engineer based upon the following showing of facts, submitted in accordance with the requirements of the Laws of Utah

1 The name of the applicant is Bountiful Municipal Corporation of State of Utah

2 The post office address of the applicant is Bountiful, Utah

3 †The flow of water which has been or was to have been used in second feet is 2.0

4 †The quantity of water which has been or was to have been used in acre feet is

5 †The water has been or was to have been used each year from Jan 1 to Dec. 31 incl
(Month) (Day) (Month) Day)

6 †The water has been or was to have been stored each year from to incl
(Month) (Day) (Month) Day)

7 The drainage area to which source of supply belongs is G.S.L.
(Leave blank)

8 The direct source of supply is Surface, Underground Drains & Springs in Davis County

9 †The point of diversion as described in the original Application or the point at which the water has been diverted is situated as a point. At various points of diversion of various points of ~~diversion~~ rights

10 †The water involved has been or was to have been used for the following purposes
Domestic, Culinary, stock watering, sanitation and other miscellaneous Municipal purposes

Total Acres

NOTE—If for irrigation, give legal subdivision of land and total acreage which has been or was to have been irrigated. If for other purposes, give nature, place and extent of use or proposed use

11 †The point at which water has been or was to have been returned to the stream channel is situated as follows.

NOTE—The above space is to be filled in only when all or part of the water is returned to the natural stream or channel.

The Following Changes Are Proposed

12 The flow of water to be changed in cubic feet per second is 2.0

13 The quantity of water to be changed in acre feet is

14 The water will be used each year from Mar. 1 to Nov. 30 incl
(Month) (Day) (Month) (Day)

15 The water will be stored each year from to incl
(Month) (Day) (Month) (Day)

16 The point at which it is now proposed to divert the water is situated (See note) Commencing at a point 1320 ft west of NE corner of SW quarter of Section 14, Township 2 North, Range 1 West S L B M

NOTE—The "point of diversion," or "point of return," must be located by course and distance or by rectangular distances with reference to some regularly established United States land corner or United States mineral monument if within a distance of six miles of either or if a greater distance to some prominent and permanent natural object

17 The proposed diverting and conveying works will consist of Open Ditches

18 The cross section of the diverting channel will be U _/ ~~XXXX~~
(Strike out ones not needed)

19 The nature of the diverting channel will be earth ~~XXXXXXXX~~ concrete
(Strike out the ones not needed)

†Strike out written matter not needed

20 The length of the diverting channel exclusive of laterals will be 100 feet
(If an existing channel is used give only the length of that part used under this Application)

21 The top width of the diverting channel will be (if a ditch) 4 feet

22 The bottom width of the diverting channel will be (if a ditch) 2 feet

23 The depth of water in the diverting channel will be (if a ditch) 2 feet

24 The width of diverting channel will be (if a flume) feet

25 The depth of water in the diverting channel will be (if a flume) feet

26 The diameter of the diverting channel will be (if a pipe) inches

27 The grade of the diverting channel will be 4 feet per thousand

28 The point at which it is proposed to return the water is situated (See note under 16)

29 The water is to be used To irrigate 149.5 acres of land described as follows. Lots 1, 2 and 3 and the west half of the NE 1/4 of Sec 14, Township 2 North Range 1 West Salt Lake Meridian.

Total 149.5 acres

NOTE—If for irrigation give legal subdivisions of land to be irrigated. If for other purposes, give place and extent of proposed use. If for power give number size and make of wheels, head under which they will operate total H. P to be developed and place where power will be used.

30 The character of the soil to be irrigated is Heavy loam subsoil clay

NOTE—Number 30 is to be filled in only when proposed change is for irrigation.

EXPLANATORY

NOTE—Paragraph 13 on page 1 must not be used except when storage is contemplated in such case Paragraph 14 should indicate the time in each year during which the water will be released and used. The lands to be inundated by the reservoir must be described in the space below this note as nearly as may be and by government subdivisions if upon surveyed land, and the area of the reservoir when at full stage should be given in acres the height of the impounding dam must also be specified.

The following additional facts are set forth in order to define more clearly the full purpose of the proposed change

The water used is that discharged from the applicants Sewerage disposal plant and will be used upon applicants property for the purposes described in Sec. 29, and any other use which may be beneficial for the conservation of water for the City of Bountiful.

The water to be changed has heretofore been used through the town's water system for Domestic and all other Municipal Purposes. All the water has been consumed. It is now proposed to use the water heretofore Lost in cesspool Septic tanks etc. and now conveyed through the sewer system be recovered and used on City lands for irrigation.

Bountiful, A Municipal Corporation of State of Utah
/s/ Wilfred H. Williams
Signature of Applicant

Form 97 2M 10-70

Application No 47088

APPLICATION TO APPROPRIATE WATER
STATE OF UTAH Area Code 31-4354

NOTE —The information given in the following blanks should be free from explanatory matter but when necessary a complete supplementary statement should be made on the following page under the heading "Explanatory"

For the purpose of acquiring the right to use a portion of the unappropriated water of the State of Utah, for uses indicated by (X) in the proper box or boxes application is hereby made to the State Engineer, based upon the following showing of facts submitted in accordance with the requirements of the Laws of Utah

1 Irrigation [X] Domestic [X] Stockwatering [X] Municipal [ ] Power [ ] Mining [ ] Other Uses [ ]

2 The name of the applicant is TOM DUGGAR 531 North 1150 West W Bountiful UT 84087 *

3 The Post Office address of the applicant is ~~1193 GARNETTE STREET SALT LAKE CITY, UTAH 84116~~

4 The quantity of water to be appropriated 0.015 second feet and/or ______ acre feet

5 The water is to be used for Domestic/Stockwatering from January 1 to December 31
(Major Purpose) (Month) (Day) (Month) (Day)

other use period Irrigation from April 1 to October 31
(Minor Purpose) (Month) (Day) (Month) (Day)

and stored each year (if stored) from ______ to ______
(Month) (Day) (Month) (Day)

6 The drainage area to which the direct source of supply belongs is ______
(Leave Blank)

7 The direct source of supply is* Underground Water (Well)
(Name of stream or other source)

which is tributary to ______ tributary to ______

*Note —Where water is to be diverted from a well, a tunnel, or drain, the source should be designated as "Underground Water" in the first space and the remaining spaces should be left blank. If the source is a stream, a spring, a spring area, or a drain, so indicate in the first space giving its name if named, and in the remaining spaces, designate the streams or channels to which it is tributary even though the water may sink, evaporate, or be diverted before reaching said channels. If water from a spring flows in a natural surface channel before being diverted the direct source should be designated as a stream and not a spring.

8 The point of diversion from the source is in Davis County situated at a point*
South 1050 feet and West 1100 feet from the NE Cor. Sec. 14, T2N, R1W, SLB&M
(¼ mile East of Bountiful Dump)

*Note —The point of diversion must be located definitely by course and distance or by giving the distances north or south, and east or west with reference to a United States land survey corner or United States mineral monument, if within a distance at six miles of either or if at a greater distance to some prominent and permanent natural object. No application will be received for filing in which the point of diversion is not defined definitely

9 The diverting and carrying works will consist of 4" well, 100 to 300 feet deep

10 If water is to be stored give capacity of reservoir in acre feet ______ height of dam ______
area inundated in acres ______ legal subdivision of area inundated ______

11 If application is for irrigation purposes the legal subdivisions of the area irrigated are as follows
¼ Acre within the NE¼NE¼, Sec 14, T2N, R1W, SLB&M

Total ¼ Acres

12 Is the land owned by the applicant? Yes ______ No purchase under Contract If "No" explain on page 2

13 Is this water to be used supplementally with other water rights? Yes ______ No X
If yes identify other water rights on page 2

14 If application is for power purposes describe type of plant size and rated capacity ______

15 If application is for mining the water will be used in ______ Mining District at
the ______ mine where the following ores are mined ______

16 If application is for stockwatering purposes number and kind of stock watered 6 cattle, 200 chickens, 3 pigs

17 If application is for domestic purposes number of persons ______ or families One

18 If application is for municipal purposes name of municipality ______

19 If application is for other uses include general description of proposed uses ______

20 Give place of use by legal subdivision of the United States Land Survey for all uses described in paragraphs 14 to 19 incl Same as paragraph # 11 above

21 The use of water as set forth in this application will consume 0 015 second feet and/or acre feet of water and ______ second feet and/ or acre feet will be returned to the natural stream or source at a point described as follows ______

* as per applicants request 1/8/96 JL

EXPLANATORY

The following additional facts are set forth in order to define more clearly the full purpose of the proposed application

(Use page 4 if additional explanatory is needed)

The quantity of water sought to be appropriated is limited to that which can be beneficially used for the purpose herein described

Tom Duggar
Signature of Applicant*

*If applicant is a corporation or other organization signature must be the name of such corporation or organization by its proper officer or in the name of the partnership by one of the partners and the names of the other partners shall be listed If a corporation or partnership the affidavit below need not be filled in If there is more than one applicant a power of attorney authorizing one to act for all should accompany the Application

DECLARATION OF CITIZENSHIP

STATE OF UTAH, County of Salt Lake } ss

On the 5th day of October, 1976 personally appeared before me a notary public for the State of Utah the above applicant who on oath declared that he is a citizen of the United States or has declared his intention to become such a citizen

My commission expires

JERRY L. BRONICEL NOTARY PUBLIC STATE OF UTAH Commission Expires April 2, 1979

Notary Public

Includes 31-1216 to 31-1218
AND 31-1928 to 31-1930

RECEIVED
MAR 25 1997
WATER RIGHTS
SALT LAKE

APPLICATION FOR PERMANENT CHANGE OF WATER

STATE OF UTAH

Rec by [illegible]
Fee Paid $ 500.00
Receipt # 97-00689

For the purpose of obtaining permission to make a permanent change of water in the State of Utah, application is hereby made to the State Engineer based upon the following showing of facts, submitted in accordance with the requirements of Section 73-3-3 Utah Code Annotated 1953 as amended

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*WATER RIGHT NO 31 - 998 et al *APPLICATION NO a 20935
*(31 1024 1216 -1217 -1218 1281 1677 1680 -1682 1723 1928 1929 -1930 -2231 -2266 -2269
31-2276 2299 -2478 -3884 -4022 -4178 -4635)

Changes are proposed in (check those applicable)
X point of diversion ____ place of use X nature of use X period of use

1 OWNER INFORMATION

Name Bountiful City *Interest ____ %
Address 790 South 100 East, P O Box 369
City Bountiful State Utah Zip Code 84011

2 *PRIORITY OF CHANGE 3-25-97 *FILING DATE 3-25-97
*Is this change amendatory? (Yes/No) ____

3 RIGHT EVIDENCED BY
Water User Claims and Applications to Appropriate

Prior Approved Change Applications for this right ____

HERETOFORE

4 QUANTITY OF WATER 34 647 cfs and/or 17,434 3 ac ft
5 SOURCE Underground Water Wells
6 COUNTY Davis
7 POINT(S) OF DIVERSION See Attachment A

Description of Diverting Works Municipal Wells

8 POINT(S) OF REDIVERSION
The water has been rediverted from ____ at a point ____

Description of Diverting Works ____

9 POINT(S) OF RETURN
The amount of water consumed is ____ cfs or ____ ac ft
The amount of water returned is ____ cfs or ____ ac-ft
The water has been returned to the natural stream/source at a point(s) ____

*These items are to be completed by the Division of Water Rights

10 **NATURE AND PERIOD OF USE**

Irrigation	From	Apr. 1	to	Oct 31
Stockwatering	From	Jan 1	to	Dec 31
Domestic	From	Jan 1	to	Dec 31
Municipal	From	Jan 1	to	Dec. 31
Mining	From		to	
Power	From		to	
Other	From		to	

11 **PURPOSE AND EXTENT OF USE**

Irrigation See Attachment B acres Sole supply of ________ acres

Stockwatering (number and kind) 77 cattle

Domestic 148 Families and/or ______ Persons

Municipal (name) Bountiful City Service Area

Mining ______________ Mining District in the ______________________ Mine

Ores mined ____________

Power Plant name ______________ Type ______ Capacity ____________

Other (describe) ____________

12 **PLACE OF USE** (Which includes all or part of the following legal subdivisions)

Legal description of place of use by 40-acre tract(s) ____________

See Attachment B for irrigation use on specific tracts,

and municipal use within the service area of Bountiful City

13 **STORAGE**

Reservoir Name ______________ Storage Period from ______________ to ______________

Capacity __________ ac-ft Inundated Area __________ acres

Height of dam __________ feet

Legal description of inundated area by 40 tract(s) ____________

************************* **THE FOLLOWING CHANGES ARE PROPOSED** *************************

14 **QUANTITY OF WATER** 34.647 cfs and/or 17,434 3 ac ft.(See Attachment C)

15 **SOURCE** Underground Water Wells

Balance of the water will be abandoned ______ or will be used as heretofore ____________

16 **COUNTY** Davis

17 **POINT(S) OF DIVERSION** Any, each, or all existing or proposed Bountiful City Wells

See Attachment D

Description of Diverting Works ____________

COMMON DESCRIPTION ____________

18 **POINT(S) OF REDIVERSION**

The water will be rediverted from ______________ at a point ____________

Description of Diverting Works ____________

19 **POINT(S) OF RETURN**

The amount of water to be consumed is __________ cfs or ________ ac ft.

The amount of water to be returned as __________ cfs or ________ ac ft.

The water will be returned to the natural stream/source at a point(s) ____________

20 **NATURE AND PERIOD OF USE**

Imgation	From ________	to ____________
Stockwatenng	From ________	to ____________
Dcanestic	Fiom ________	to ____________
Mumcipal	From Jan. 1	to Dec 31
Mmmg	From ________	to ____________
Power	From ________	to ____________
Other	From ________	to ____________

21 **PURPOSE AND EXTENT OF USE**

bngation ____________________ acres Sole supply of ______________ acres
Stockwatenng (number and kind) ______________________________
Domestic ______ Families and/or ________ Persons
Municipal (name) Bountiful City
Mmmg ____________ Mmmg Distnct at the ______________________________ Mme
Ores mmed ______________________________
Power Plant name ______________ Type _____ Capacity ____________________
Other (descnbe) ______________________________

22 **PLACE OF USE**

Legal descnptum of place of use by 40-acre tract(s) ______________________________
Within the mumcipal service area of Bountiful City

23 **STORAGE**

Reservoir Name __________________ Storage Penod. from ____________ to ______________
Capacity __________ ac-ft. Inundated Area ______ acres
Height of dam __________ feet.
Legal descnption of mundated area by 40 acre tract(s) ______________________________

EXPLANATORY

The followmg is set forth to define more clearly the full purpose of this applicaticn Include any supplemental water nghts used for the same purpose (Use additional pages of same size if necessary) ____________________

The purpose of this change application is to consohdate Bountiful City s underground water nghts to allow mumcipal use from any, each, or all of the City's existmg or proposed wells.

****

The undersigned hereby acknowledges that even though he/she/they may have been assisted in the preparation of the above-numbered application through the courtesy of the employees of the Division of Water Rights all responsibdity for the accuracy of the mfoimation contamed herem, at the tune of filmg rests with the apphcant(s)

[signature]
Signature of Applicant(s)

Attachment A
Heretofore Points of Diversion

No.	Point of Diversion	Listed on	Retained by Change Application
(1)	S 2629 ft. W 898 ft. from N4 cor sec 20 T 2N, R 1E SLBM	31 998	
(2)	N 25 ft. E 2200 ft. from W4 cor Sec 20 T 2N R1E SLBM	31 1024	
(3)	N 270 ft. W 1340 ft. from E4 cor Sec 14 T2N R1W SLBM	31 1216	
(4)	N 90 ft. W 1450 ft. from E4 cor Sec 14 T 2N, R 1W SLBM	31 1217	
(5)	N 265 W 1340 ft. from E4 cor Sec 14 T 2N R1W SLBM	31 1218	
(6)	N 1100 ft. W 400 ft. from S4 cor Sec 18 T 2N R 1E, SLBM	31 1281 2231	*
(7)	S 950 ft. W 200 ft. from NE cor Sec 1B T 2N R 1E, SLBM	31 1677 1680	
(8)	N 1905 ft. W 2085 ft. from SE cor Sec IB T 2N R 1E, SLBM	31 1682	
(B)	N 20 ft. E 50 ft. from SW cor Sec 17 T2N R1E SLBM	31 1723 2478	
(10)	N 160 ft. W 1330 ft. from E4 cor Sec14 T 2N R 1W SLBM	31 1928	
(11)	N 300 ft. W 1425 ft. from E4 cor Sec 14 T 2N R 1W SLSM	31 1929	
(12)	N 580 ft. W 1330 ft. from E4 cor Sec 14 T 2N R 1W SLBM	31 1930	
(13)	S 2471 ft. W 1491 ft. from NE cor Sec 30 T 2N, R 1E, SLBM	31 2266 2276	*
(14)	S 1940 ft. W 4240 ft. from NE cor sec 30 T 2N R 1E, SLBM	31 2269	*
(15)	N 1512 ft. E 391 ft. from W4 cor Sec 32, T 2N R 1E, SLBM	31 2290	*
(16)	N 1577 ft. E 350 ft. from W4 cor Soc 32, T 2N R1E, SLBM2	31 2299	*
(17)	N 1040 ft. W 1220 ft. from SE cor Sec 20 T 2N R 1E SLBM	31-3884	*
(18)	N 958 ft. E 650 ft. from W4 cor Sec 28 T 2N R 1E SLBM	31-4022	*
(19)	N 476 ft. E 3019 ft. from SW cor Sec 34 T 2N R1E, SLBM	31-4178 4469	*
(20)	N 1640 ft. E 1430 ft. from SW cor Sec 34 T 2N R 1E SLBM	31-4635	
(21)	N 1438 ft. E 1430 ft. from SW cor Sec 34 T 2N R 1E, SLBM	31-4635	*

Attachment B

Haretofore Places of Irrigation Use

Water Users Claim	Section	Township and Range	—NORTH EAST QUARTER—				—NORTH WEST QUARTER—				—SOUTH WEST QUARTER—				—SOUTH EAST QUARTER—				TOTALS
			NW	NE	SW	SE	NW	NE	SW	SE	NW	NE	SW	SE	NW	NE	SW	SE	
91-999	SEC 20	T2N R1E, SLBM				2 00													2 00
31 1024	SEC 20	T2N R1E, SLBM				4 00													4 00
31 1216 1217 1218 1928 1829 1930	SEC 14	T2N R1W SLBM		21 60		2 51	40 00		24 28										88 39
31 2299	SEC 31	T2N R1E SLBM				1 S3			11 48	12 00					2 12	11 48			38 59
																		TOTAL	132.98

0 RNDWTR2.XLS

EWP Engineering

Attachment C
Current Status and Calculation of Awards

Water Users State Number	Common Name	Priority	Type/Status	Flow	PUrpose	Period of Use		Days	acres	stock	families	Limitation shown on on rigM (AF/year)	Award Calculation: calculated on flow (AF/year) (1)	Award Calculation: calculated use (AF/year) (2)	Minimum Award on Flow or Use (AF/year)	
31 995		1919	UGWC/WUCS	0 134	Impgation	4/1	10/31	214	2 0				56 9	8 0	8 0	
31 1024		1915	UGWC/WUCS	0 111	Inigation	4/1	10 31	214	4 0				47 1	18 0	18 0	
31 1218		1925	UGWC/WUCS	0 045	Impgation	4/1	10/31	214	88 38				19 1	355 2	355 2	(3)
31 1217		1925	UGWC/WUCS	0 022	Inigation	4/1	10/31	214	88 39				9 3			(3,4)
31 1218		1926	UGWC/WUCS	0 018	Inigation	4/1	10/31	214	88 39				7 6			(3)
31 1281	Viesmeni Well	10/10/44	APPL/APPR	3 0	Municipal	1/1	12/31	365					2 171 8		2,171 9	
31 1877	Motorock Well	[illegible]1	APP/CERT	0 914	Municipal	11/2	3/31	150					271 9		271 9	
31 1940	Hofbrook Well	1912	UGWC/WUCS	0 78	Municipal	4/1	11/1	215					332 6		332 8	
31 1682	City Hal Well	7/10/34	UGWC/WUCS	1 11	Municipal	1/1	12/31	365					803 6		803 6	
31 1723	Zeeiger Well	8/1/20	UGWC/WUCS	1 003	Municipal	3/15	10/30	230					457 6		467 8	
31 1828		1926	UGWC/WUCS	0 015	Irrigation	4/1	10/31	214	*88 39	20			8 4	*356 2		(3)
31 1929		1926	USWC/WUCS	0 015	Inigation	4/1	10/31	214	88 38	20			6 4	355 2		(3)
31 1830		1926	UGWC/WUCS	0 015	Irrigation	4/1	1/3 31	214	88 39				8 4	365 2		(3)
31 2231	Viesmeni Well	2/28/65	APP/APPR	0 5	Municipal	8/15	9/30	108					107 1		107 1	
31 2266	First East Wel	12/2/48	APPL/WUCS	2 0054	Municipal	1/1	12/31	365					1,451 8		1,451 8	
31 2268	Strap Well	2/18/34	APPL/CERT	2 0	Municipal	1/1	12/31	365					1,448 0		1,448 0	
31 2278	Bouser Well	5/28/61	APPL WUCS	0 5	Municipal	1/1	12/31	365				367	362 0		367 0	(3)
31 2289	Calder Wells #1 and #2	[illegible]/47	APPL/CERT	2 0	Irrigation	4/1	10/31	214	22 86	17	148		848 9	157 7	157 7	(6)
31 2478	Zeeiger Well	12/17/82	APPL/WUCS	1 5	Municipal	1/1	12/31	365				448 8	1,086 0		446 8	(7)
31-3864	Bten Sub Well	7/7/87	APPL/WUCS	10 0	Municipal	1/1	12/31	365				2550	7,239 8		2 590 0	(8)
31-4022	Barton Creek Well	7/23/71	APPL/WUCS	3 5	Municipal	1/1	12/31	365				2534	2,533 9		2 534 0	
31 4178	Upper Mueller Park Well	1/8/74	APPL/CERT	2 79	Municipal	1/1	12/31	365					2,019 9		2 010 9	
31-4835	Lower Mueller Park Well	8/21/80	APPL/WUOS	2 67	Municipal	1/1	12/31	365				1933	1,933 0		1,833 0	
			TOTALS	34 947 c.f.s											17 494.8 AF/year	

NOTES

(1) Calculated on 1 9835 AF/cfs-day

(2) Calculated on 4 0 acre-feet/acre-year allowed irrigation duty from the Utah Division of Water Rights (Memorandum DecWon June 8, 1993 (supersedes 3 3 af/acre duty stated in proposed determination) plus other awards).

(3) These six claims cover the same acreage Calculated limitation based on 88 39 acres @ 4 0 AF/acre plus 80 cattle @ 028AF/year-head.

(4) Asterisk indicates quantity is included in the quantity of another claim

(5) Fixed limitation shown on right

(6) Calculated limitation based on 38 59 acres plus 17 cattle @ 028AF/year-head plus 148 families @ 46 AF/year-family

(7) Statements of water users claim prepared by court show 0 29 cfs from 3/15-10/30 and 1 23 cfs from 10/31-3/1 equates to 448 9 AF/year

(8) Award based on limitation in statement of water user's claim prepared by State Engineer June 1988

ABBREVIATIONS

APPL	Application to appropriate
WUCS	Water users claim signed
CERT	Certificate of Proof
UNAP	Unapproved right, not valid for diversions
APPR	Approved application to appropriate

ORNDWTR2.XLS
3/17/97

EVP Engineering

Attachment D
Hereinafter Points of Diversion for Any, Each or All Claims

No	Point of Diversion	Common Name
(1)	N 1100 ft W 400 ft from S4 cor Sec 18 T 2N R 1 E SLBM	Viewmont Well
(2)	N 1905 ft W 2085 ft. from SE cor Sec 19 T 2N R 1E SLBM	City Hall Welt
(3)	S 2471 ft W 1491 ft from NE cor Sec 30 T 2N R 1E SLBM	First East Well
(4)	S 1940 ft W 4240 ft from NE cor Sec 30 T 2N R 1E SLBM	Shop Well
(5)	S 1512 ft E 391 ft from W4 cor Sec 32, T 2N R 1E SLBM	Calder Well #1
(6)	S 1577 ft E 352 ft from SW cor Sec 32 T 2N R 1E SLBM	Calder Well #2
(7)	N 20 ft E S0 ft from SW cor Sec 17 T 2N R 1E SLBM	Zesiger Well
(8)	N 1040 ft W 1220 ft from SE cor Sec 20 T 2N R 1E, SLBM	Bntfl Sub Well
(9)	N 998 ft E 650 ft from W4 cor Sec 28, T 2N R 1E SLBM	Barton Creek Well
(10)	N 476 ft. E 3019 ft from SW cor Sec 34 T 2N R 1E SLBM	Upper Mueller Park Well
(11)	N 1438 ft E 1430 ft. ftom SW cor Sec 34 T 2N R 1E SLBM	Lower Mueller Park Well
(12)	N 1212 ft W 1307 ft. from SE cor Sec 31 T 2N, R1E SLBM	Proposed Well
(13)	N 120 ft W 140 ft from SE cor Sec 31 T 2N R1E SLBM	Proposed Well

Change app Approval

Includes 31-1216 to 31-1218
AND 31-1928 to 31-1930

BEFORE THE STATE ENGINEER OF THE STATE OF UTAH

IN THE MATTER OF CHANGE APPLICATION)
) MEMORANDUM DECISION
NUMBER 31 998 (a20935))

Change Application Number 31-998 (a20935) in the name of Bountiful City was filed on March 25 1997 to change the point of diversion place of use and use of 34 647 cfs or 17434 3 acre-feet of water The rights which are sought to be changed are 31 998 31-1024 31 1216 31 1217 31 1218 31 1281 31 1677 31 1680 31 1682 31-1723 31-1928 31 1929 31 1930 31-2231 31 2266 31 2269 31 2276 31-2299 31-2478 31-3884 31-4022 31 4178 and 31 4635 (see the table below) Heretofore the water has been diverted from wells located (1) North 20 feet and East 50 feet from the SW Corner of Section 17 (2) North 1100 feet and West 400 feet from the S¼ Corner of Section 18 (3) South 950 feet and West 200 feet from the NE Corner of Section 19 (4) North 1905 feet and West 2085 feet from the SE Corner of Section 19 (5) South 2629 feet and West 898 feet from the N¼ Corner of Section 20 (6) North 25 feet and East 2200 feet from the W¼ Corner of Section 20 (7) North 1040 feet and West 1220 feet from the SE Corner of Section 20 (8) North 998 feet and East 650 feet from the W¼ Corner of Section 28 (9) South 2471 feet and West 1491 feet from the NE Corner of Section 30 (10) South 1940 feet and West 4240 feet from the NE Corner of Section 30 (11) North 1512 feet and East 391 feet from the W¼ Corner of Section 32 (12) North 1577 feet and East 350 feet from the W¼ Corner of Section 32 (13) North 476 feet and East 3019 feet from the SW Corner of Section 34 (14) North 1640 feet and East 1430 feet from the SW Corner of Section 34 (15) North 1438 feet and East 1430 feet from the SW Corner of Section 34 all of T2N RIE SLB&M (16) North 270 feet and West 1340 feet from the E¼ Corner of Section 14 (17) North 90 feet and West 1450 feet from the E¼ Corner of Section 14 (18) North 269 feet and West 1340 feet from the E¼ Corner of Section 14 (19) North 160 feet and West 1330 feet from the E¼ Corner of Section 14 (20) North 300 feet and West 1425 feet from the E¼ Corner of Section 14 (21) North 580 feet and West 1330 feet from the E¼ Corner of Section 14 all of T2N RIW SLB&M The water has been used for the irrigation of 132 98 acres from Apr 1 to Oct 31 stockwatering of 77 head of livestock the domestic purposes of 148 families and municipal uses by Bountiful City

Hereafter it is proposed to divert 34 647 cfs or 17434 3 acre feet of water from wells located (1) North 20 feet and East 50 feet from the SW Corner of Section 17 (2) North 1100 feet and West 400 feet from the S¼ Corner of Section 18 (3) North 1905 feet and West 2085 feet from the SE Corner of Section 19 (4) North 1040 feet and West 1220 feet from the SE Corner of Section 20 (5) North 998 feet and East 650 feet from the W¼ Corner of Section 28 (6) South 2471 feet and West 1491 feet (7) South 1940 feet and West 4240 feet both from the NE Corner of Section 30 (8) North 1212 feet and West 1307 feet (9) North 120 feet and West 140 feet both from the SE Corner of Section 31 (10) South 1512 feet and East 391 feet from the W¼ Corner (11) South 1577 feet and East 352 feet from the SW Corner of both of Section 32 (12) North 476 feet and East 3019 feet (13) North 1438 feet and East 1430 feet both from the SW Corner of Section 34 all of T2N RIE SLB&M The water is to be used for municipal purposes by Bountiful City The application was advertised in the Davis County Clipper on April 8 and 15 1998 and was not protested

In reviewing the individual rights upon which this change is based the State Engineer believes that a slightly different quantification of the rights than that presented by the applicant is in order Fundamentally the measure and limit of a water right is the beneficial use of the right In the case of underground water claims which were established by using water prior to 1935 that limit would be the uses made as of 1935 Appropriations for municipal use are evaluated based on the flow rate of the right The table below is intended to better illustrate the quantification used in this decision Acre foot numbers are rounded to the nearest full acre-foot

Wr #	period of use	use	flow (cfs)	volume (ac ft)
31 998*	04/01 - 10/31	2 0 ac	0 134	8
31-1024*	04/01 10/31	4 0 ac	0 111	16
31-1216*	04/01 - 10/31	1 0 ac	0 022	4
31-1217*	04/01 10/31	1 0 ac	0 022	4
31 1218*	04/01 - 10/31	1 0 ac	0 018	4
31-1281	01/01 12/31	municipal	3 0	2171
31 1677	11/02 - 03/31	municipal	0 914	272
31-1680*	04/01 11/01	25 54 ac	0 78	102
31-1682	01/01 12/31	municipal	1 11	803
31 1723*	03/15 10/30	21 0 ac	1 003	84
31 1928*	04/01 10/31	1 0 ac	0 015	4
31-1929*	04/01 10/31	1 0 ac	0 015	4
31-1930*	04/01 10/31	1 0 ac	0 015	4
31 2231	06/15 09/30	municipal	0 5	107
31 2266	01/01 12/31	municipal	2 0054	1452
31-2269	01/01 - 12/31	municipal	2 0	1448
31 2276*	01/01 12/31	dom 20 fam	0 5	30
31 2299	04/01 10/31	38 59 ac	2 0	154
	01/01 12/31	148 families		67
31-2478	03/15 10/30	municipal	0 25	114
	10/31 03/14	municipal	1 25	335
31 3884	01/01 10/31	municipal	10 0	2550

31 4022	01/01 - 12/31	municipal	3 5	2534
31-4178	01/01 12/31	municipal	2 79	2019
31-4635	01/01 - 12/31	municipal	2 67	1933
TOTALS	irrigation season		33 37 cfs	9363 acre feet
	non irrigation season		31 74 cfs	6860 acre feet

* These rights were not originally filed for municipal uses and the acre foot quantification is based on the uses being made by 1935 or those which were applied for in the application to appropriate

Three of the above numbered filings (31 1216 through 31-1218) for 12 acre-feet are still in the name of Joseph Woodard and cannot be included in the change Three other files are based on claims to the court in an adjudication procedure The action has not as yet been submitted to court so these claims do not represent water rights on which a change can be made They are files 31 1928 through 31 1930 for 12 acre feet These six files cannot be included so the change will be reduced in evaluation by 0 107 cfs or 24 acre feet to 9339 acre feet during the irrigation season with a flow rate of 33 263 cfs

It is the opinion of the State Engineer that this application can be approved if total diversions do not exceed the amounts shown above and if any new wells drilled by the applicant do not affect other wells by more than 15 feet

In evaluating the various elements of the underlying rights it is not the intention of the State Engineer to adjudicate the extent of these rights but rather to provide sufficient definition of the rights to assure that other vested rights are not impaired by the change and/or no enlargement occurs If in a subsequent action the court adjudicates that this right is entitled to either more or less water the State Engineer will adjust the figures accordingly

It is therefore ORDERED and Application Number 31-998 (a20935) is hereby APPROVED subject to prior rights and the following conditions

1) The total annual diversion of water under all applications covered by this change is not to exceed 16 199 acre feet in the amounts of 9339 acre feet in the irrigation season and 6860 acre feet in the non irrigation season

2) Any new wells must comply with the provisions of the ground water management plan for the Bountiful sub area of the East Shore of the Great Salt Lake implemented by the State Engineer on January 4 1995

This Decision is subject to the provisions of Rule R655 6 17 of the Division of Water Rights and to Sections 63 46b-13 and 73-3 14 of the Utah Code Annotated 1953 which provide for filing either a Request for Reconsideration with the State Engineer or an appeal with the appropriate District Court A Request for Reconsideration must be filed with the State Engineer within 20 days of the date of this Decision However a Request for Reconsideration is not a prerequisite to filing a court appeal A court appeal must be filed within 30 days after the date of this Decision or if a Request for Reconsideration has been filed within 30 days after the date the Request for Reconsideration is denied A Request for Reconsideration is considered denied when no action is taken 20 days after the Request is filed

Dated this 11th day of December 1998

Robert L Morgan P E State Engineer

RLM JRM ja

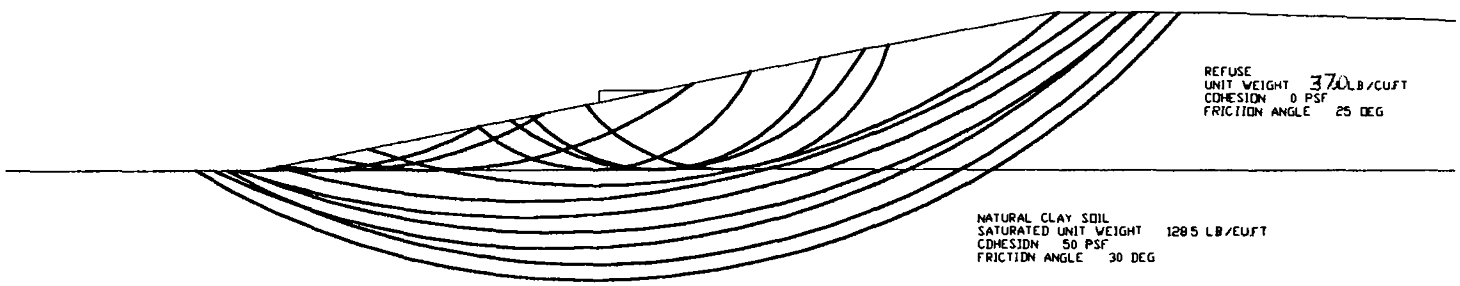
Mailed a copy of the foregoing Memorandum Decision this 11th day of December 1998 to

Bountiful City
790 South 100 East
Bountiful UT 84011

BY Judy Ausick
Judy Ausick

Appendix L

Slope Stability Drawings and Calculations

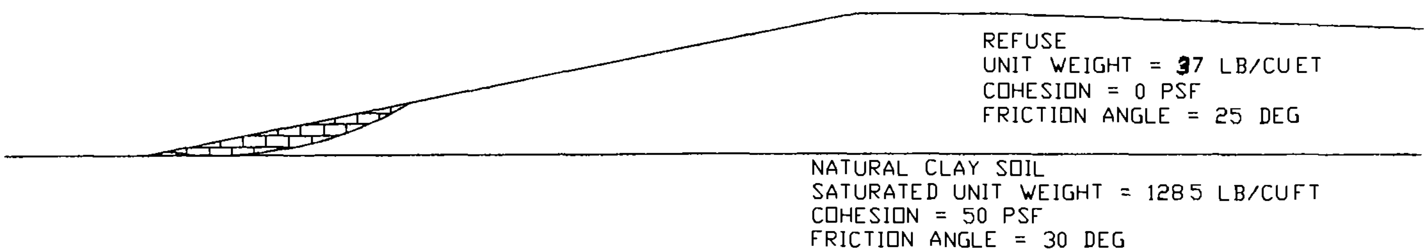


BOUNTIFUL CITY ENGINEERING DEPARTMENT
BOUNTIFUL UTAH

CRITICAL FAILURE SURFACES TESTED
BY BISHOP MODIFIED METHOD
AND ORDINARY METHOD OF SLICES

DESIGN MWF	BOOK	DATE 9/19/94
DRAW MWF	FILE C:\ADACWIN\BABDSLOP	SHEET I of 2
CHECK		

MINIMUM FACTOR OF SAFETY = 2 25



BOUNTIFUL CITY ENGINEERING DEPARTMENT
BOUNTIFUL UTAH

Critical Failure Surface
Bishop Mod Method

DESIGN MWF	BOOK	DATE 9/19/94
DRAW MWF	FILE	SHEET 2 of 2
CHECK		

SLOPE STABILITY ANALYSIS

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

CONTROL DATA

NUMBER OF SPECIFIED CENTERS	0
NUMBER OF DEPTH LIMITING TANGENTS	8
NUMBER OF VERTICAL SECTIONS	4
NUMBER OF SOIL LAYER BOUNDARIES	3
NUMBER OF PORE PRESSURE LINES	1
NUMBER OF POINTS DEFINING COHESION PROFILE	0

SEISMIC COEFFICIENT S1,S2 = 0 00 0 00 No Seismic Force

UNIT WEIGHT OF WATER = 62 40

SEARCH IS BASED ON BISHOP MODIFIED METHOD

SEARCH STARTS AT CENTER (650 0, 1 0),WITH FINAL GRID OF 20 0

ALL CIRCLES TANGENT TO DEPTH, 110 0, 120 0, 130 0, 140 0, 150 0, 160 0, 170 0, 180 0

GEOMETRY

SECTIONS	300 0	400 0	900 0	1500 0
T CRACKS	10 0	10 0	110 0	110 0
W IN CRACK	10 0	10 0	110 0	110 0
BOUNDARY 1	10 0	10 0	110 0	110 0
BOUNDARY 2	110 0	110 0	110 0	110 0
BOUNDARY 3	280 0	280 0	280 0	280 0

SOIL PROPERTIES

LAYER	COHESION	FRICTION ANGLE	DENSITY	PORE PRESSURE FACTOR
1	0 0	25 0	37 0	0 0
2	50 0	30 0	110 0	0 0

PORE PRESSURE DATA

COORDINATES OF EQUI-PRESSURE LINES

SECTIONS	300 0	400 0	900 0	1500 0
LINE 1	95 0	96 0	110 0	110 0

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	110 0	109 0	650 0	1 0	3 298	2 669
2	110 0	109 0	610 0	1 0	3 563	2 791
3	110 0	149 0	650 0	-39 0	2 920	2 497

4	110 0	109 0	690 0	1 0	3 064	2 562
5	110 0	69 0	650 0	41 0	4 446	3 202
6	110 0	149 0	610 0	-39 0	3 075	2 567
7	110 0	189 0	650 0	-79 0	2 732	2 412
8	110 0	149 0	690 0	-39 0	2 775	2 432
9	110 0	189 0	610 0	-79 0	2 841	2 461
10	110 0	229 0	650 0	-119 0	2 622	2 364
11	110 0	189 0	690 0	-79 0	2 631	2 368
12	110 0	229 0	630 0	-119 0	2 662	2 381
13	110 0	249 0	650 0	-139 0	2 583	2 347
14	110 0	229 0	670 0	-119 0	2 583	2 347
15	110 0	209 0	650 0	-99 0	2 670	2 385
16	110 0	249 0	630 0	-139 0	2 618	2 362
17	110 0	269 0	650 0	-159 0	2 550	2 333
18	110 0	249 0	670 0	-139 0	2 548	2 332
19	110 0	269 0	670 0	-159 0	2 518	2 320
20	110 0	249 0	690 0	-139 0	2 513	2 317
21	110 0	229 0	670 0	-119 0	2 583	2 347
22	110 0	269 0	690 0	-159 0	2 488	2 307
23	110 0	249 0	710 0	-139 0	2 481	2 304
24	110 0	229 0	690 0	-119 0	2 545	2 331
25	110 0	269 0	710 0	-159 0	2 459	2 295
26	110 0	249 0	730 0	-139 0	2 450	2 292
27	110 0	229 0	710 0	-119 0	2 508	2 315
28	110 0	269 0	730 0	-159 0	2 431	2 285
29	110 0	249 0	750 0	-139 0	2 421	2 281
30	110 0	229 0	730 0	-119 0	2 472	2 301
31	110 0	269 0	750 0	-159 0	2 404	2 274
32	110 0	249 0	770 0	-139 0	2 391	2 269
33	110 0	229 0	750 0	-119 0	2 439	2 288
34	110 0	269 0	770 0	-159 0	2 377	2 264
35	110 0	249 0	790 0	-139 0	2 364	2 260
36	110 0	229 0	770 0	-119 0	2 407	2 275
37	110 0	269 0	790 0	-159 0	2 355	2 258
38	110 0	249 0	810 0	-139 0	2 340	2 253
39	110 0	229 0	790 0	-119 0	2 376	2 264
40	110 0	269 0	810 0	-159 0	2 333	2 251
41	110 0	249 0	830 0	-139 0	2 321	2 251
42	110 0	229 0	810 0	-119 0	2 350	2 256
43	110 0	269 0	830 0	-159 0	2 317	2 250
44	110 0	249 0	850 0	-139 0	2 309	2 254
45	110 0	229 0	830 0	-119 0	2 326	2 251
46	110 0	269 0	850 0	-159 0	2 307	2 255
47	110 0	249 0	870 0	-139 0	2 306	2 266
48	110 0	229 0	850 0	-119 0	2 310	2 252
49	110 0	269 0	870 0	-159 0	2 307	2 270
50	110 0	249 0	890 0	-139 0	2 330	2 304
51	110 0	229 0	870 0	-119 0	2 305	2 264

SEARCH IS ABANDONED AFTER 51 CIRCLES

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	120 0	259 0	870 0	-139 0	3 541	3 381
2	120 0	239 0	830 0	-119 0	3 073	2 904
3	120 0	279 0	870 0	-159 0	3 504	3 354

4	120 0	239 0	910 0	-119 0	6 004	5 744
5	120 0	199 0	870 0	-79 0	3 661	3 461
6	120 0	239 0	790 0	-119 0	2 967	2 771
7	120 0	279 0	830 0	-159 0	3 012	2 866
8	120 0	199 0	830 0	-79 0	3 148	2 946
9	120 0	239 0	770 0	-119 0	2 946	2 734
10	120 0	259 0	790 0	-139 0	2 934	2 752
11	120 0	239 0	810 0	-119 0	3 006	2 824
12	120 0	219 0	790 0	-99 0	3 005	2 791
13	120 0	259 0	770 0	-139 0	2 911	2 715
14	120 0	279 0	790 0	-159 0	2 905	2 735
15	120 0	259 0	810 0	-139 0	2 973	2 805
16	120 0	279 0	770 0	-159 0	2 882	2 699
17	120 0	299 0	790 0	-179 0	2 881	2 722
18	120 0	279 0	810 0	-159 0	2 942	2 785
19	120 0	299 0	770 0	-179 0	2 857	2 686
20	120 0	319 0	790 0	-199 0	2 860	2 710
21	120 0	299 0	810 0	-179 0	2 919	2 771
22	120 0	299 0	750 0	-179 0	2 843	2 659
23	120 0	319 0	770 0	-199 0	2 835	2 674
24	120 0	279 0	770 0	-159 0	2 882	2 699
25	120 0	319 0	750 0	-199 0	2 820	2 647
26	120 0	339 0	770 0	-219 0	2 816	2 664
27	120 0	319 0	790 0	-199 0	2 860	2 710
28	120 0	339 0	750 0	-219 0	2 800	2 637
29	120 0	359 0	770 0	-239 0	2 797	2 652
30	120 0	339 0	790 0	-219 0	2 841	2 699
31	120 0	359 0	750 0	-239 0	2 781	2 626
32	120 0	379 0	770 0	-259 0	2 780	2 642
33	120 0	359 0	790 0	-239 0	2 822	2 688
34	120 0	379 0	750 0	-259 0	2 763	2 616
35	120 0	399 0	770 0	-279 0	2 764	2 633
36	120 0	379 0	790 0	-259 0	2 805	2 677
37	120 0	379 0	730 0	-259 0	2 753	2 596
38	120 0	399 0	750 0	-279 0	2 748	2 608
39	120 0	359 0	750 0	-239 0	2 781	2 626
40	120 0	399 0	730 0	-279 0	2 737	2 587
41	120 0	419 0	750 0	-299 0	2 734	2 600
42	120 0	399 0	770 0	-279 0	2 764	2 633
43	120 0	419 0	730 0	-299 0	2 723	2 579
44	120 0	439 0	750 0	-319 0	2 722	2 593
45	120 0	419 0	770 0	-299 0	2 751	2 625
46	120 0	439 0	730 0	-319 0	2 710	2 572
47	120 0	459 0	750 0	-339 0	2 710	2 586
48	120 0	439 0	770 0	-319 0	2 739	2 618
49	120 0	439 0	710 0	-319 0	2 703	2 557
50	120 0	459 0	730 0	-339 0	2 698	2 566
51	120 0	419 0	730 0	-299 0	2 723	2 579

SEARCH IS ABANDONED AFTER 51 CIRCLES

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	130 0	449 0	730 0	-319 0	2 934	2 748
2	130 0	429 0	690 0	-299 0	2 931	2 719
3	130 0	469 0	730 0	-339 0	2 918	2 740

4	130 0	429 0	770 0	-299 0	3 003	2 823
5	130 0	389 0	730 0	-259 0	2 992	2 777
6	130 0	469 0	710 0	-339 0	2 901	2 715
7	130 0	489 0	730 0	-359 0	2 903	2 732
8	130 0	469 0	750 0	-339 0	2 941	2 769
9	130 0	449 0	730 0	-319 0	2 934	2 748
10	130 0	469 0	690 0	-339 0	2 914	2 721
11	130 0	489 0	710 0	-359 0	2 892	2 713
12	130 0	449 0	710 0	-319 0	2 919	2 724
13	130 0	489 0	690 0	-359 0	2 913	2 727
14	130 0	509 0	710 0	-379 0	2 885	2 713
15	130 0	489 0	730 0	-359 0	2 903	2 732
16	130 0	509 0	690 0	-379 0	2 918	2 739
17	130 0	529 0	710 0	-399 0	2 885	2 720
18	130 0	509 0	730 0	-379 0	2 888	2 723
19	130 0	529 0	690 0	-399 0	2 922	2 751
20	130 0	529 0	730 0	-399 0	2 876	2 717
21	130 0	489 0	730 0	-359 0	2 903	2 732
22	130 0	489 0	690 0	-359 0	2 913	2 727
23	130 0	549 0	730 0	-419 0	2 862	2 709
24	130 0	529 0	750 0	-399 0	2 899	2 745
25	130 0	549 0	710 0	-419 0	2 886	2 727
26	130 0	569 0	730 0	-439 0	2 859	2 711
27	130 0	549 0	750 0	-419 0	2 886	2 737
28	130 0	569 0	710 0	-439 0	2 891	2 738
29	130 0	589 0	730 0	-459 0	2 866	2 722
30	130 0	569 0	750 0	-439 0	2 874	2 730
31	130 0	589 0	710 0	-459 0	2 899	2 750
32	130 0	589 0	750 0	-459 0	2 867	2 728
33	130 0	549 0	750 0	-419 0	2 886	2 737
34	130 0	549 0	710 0	-419 0	2 886	2 727

F S MINIMUM= 2 859 FOR THE CIRCLE OF CENTER (730 0,-439 0)

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	140 0	579 0	730 0	-439 0	3 077	2 884
2	140 0	559 0	670 0	-419 0	3 227	3 010
3	140 0	599 0	710 0	-459 0	3 117	2 926
4	140 0	559 0	750 0	-419 0	3 093	2 896
5	140 0	519 0	710 0	-379 0	3 093	2 873
6	140 0	559 0	690 0	-419 0	3 154	2 944
7	140 0	539 0	710 0	-399 0	3 095	2 884
8	140 0	579 0	690 0	-439 0	3 155	2 954
9	140 0	579 0	730 0	-439 0	3 077	2 884
10	140 0	539 0	730 0	-399 0	3 076	2 869
11	140 0	539 0	690 0	-399 0	3 142	2 924
12	140 0	539 0	750 0	-399 0	3 101	2 897
13	140 0	519 0	730 0	-379 0	3 081	2 866
14	140 0	559 0	710 0	-419 0	3 100	2 896
15	140 0	559 0	750 0	-419 0	3 093	2 896
16	140 0	519 0	750 0	-379 0	3 114	2 903
17	140 0	519 0	710 0	-379 0	3 093	2 873

F S MINIMUM= 3 076 FOR THE CIRCLE OF CENTER (730 0,-399 0)
1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	150 0	549 0	730 0	-399 0	3 289	3 028
2	150 0	529 0	670 0	-379 0	3 413	3 126
3	150 0	569 0	710 0	-419 0	3 309	3 054
4	150 0	529 0	750 0	-379 0	3 328	3 056
5	150 0	489 0	710 0	-339 0	3 293	2 997
6	150 0	529 0	690 0	-379 0	3 343	3 064
7	150 0	509 0	710 0	-359 0	3 291	3 007
8	150 0	549 0	690 0	-399 0	3 351	3 082
9	150 0	549 0	730 0	-399 0	3 289	3 028
10	150 0	509 0	730 0	-359 0	3 290	3 009
11	150 0	509 0	690 0	-359 0	3 334	3 043
12	150 0	569 0	730 0	-419 0	3 294	3 041
13	150 0	549 0	750 0	-399 0	3 320	3 056
14	150 0	569 0	710 0	-419 0	3 309	3 054
15	150 0	569 0	750 0	-419 0	3 321	3 067
16	150 0	529 0	750 0	-379 0	3 328	3 056
17	150 0	529 0	710 0	-379 0	3 294	3 020

F S MINIMUM= 3 289 FOR THE CIRCLE OF CENTER (730 0,-399 0)
1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	160 0	559 0	730 0	-399 0	3 513	3 188
2	160 0	539 0	670 0	-379 0	3 618	3 272
3	160 0	579 0	710 0	-419 0	3 533	3 219
4	160 0	539 0	750 0	-379 0	3 550	3 210
5	160 0	499 0	710 0	-339 0	3 492	3 131
6	160 0	499 0	690 0	-339 0	3 526	3 161
7	160 0	519 0	710 0	-359 0	3 499	3 152
8	160 0	499 0	730 0	-339 0	3 504	3 143
9	160 0	479 0	710 0	-319 0	3 495	3 119
10	160 0	519 0	690 0	-359 0	3 534	3 183
11	160 0	519 0	730 0	-359 0	3 502	3 154
12	160 0	479 0	730 0	-319 0	3 509	3 133
13	160 0	479 0	690 0	-319 0	3 522	3 142

F S MINIMUM= 3 492 FOR THE CIRCLE OF CENTER (710 0,-339 0)
1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)

1	170 0	509 0	710 0	-339 0	3 706	3 273
2	170 0	489 0	650 0	-319 0	3 879	3 409
3	170 0	529 0	690 0	-359 0	3 740	3 322
4	170 0	489 0	730 0	-319 0	3 721	3 268
5	170 0	449 0	690 0	-279 0	3 719	3 228
6	170 0	489 0	670 0	-319 0	3 785	3 326
7	170 0	469 0	690 0	-299 0	3 718	3 247
8	170 0	509 0	670 0	-339 0	3 792	3 352
9	170 0	509 0	710 0	-339 0	3 706	3 273
10	170 0	469 0	710 0	-299 0	3 701	3 233
11	170 0	469 0	670 0	-299 0	3 779	3 300
12	170 0	469 0	730 0	-299 0	3 726	3 254
13	170 0	449 0	710 0	-279 0	3 703	3 214
14	170 0	489 0	690 0	-319 0	3 721	3 270
15	170 0	489 0	730 0	-319 0	3 721	3 268
16	170 0	449 0	730 0	-279 0	3 740	3 247
17	170 0	449 0	690 0	-279 0	3 719	3 228

F S MINIMUM= 3 701 FOR THE CIRCLE OF CENTER (710 0,-299 0)

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	180 0	479 0	710 0	-299 0	3 908	3 358
2	180 0	459 0	650 0	-279 0	4 063	3 470
3	180 0	499 0	690 0	-319 0	3 930	3 401
4	180 0	459 0	730 0	-279 0	3 943	3 363
5	180 0	419 0	690 0	-239 0	3 931	3 302
6	180 0	459 0	670 0	-279 0	3 970	3 390
7	180 0	439 0	690 0	-259 0	3 919	3 319
8	180 0	479 0	670 0	-299 0	3 973	3 418
9	180 0	479 0	710 0	-299 0	3 908	3 358
10	180 0	439 0	710 0	-259 0	3 914	3 315
11	180 0	439 0	670 0	-259 0	3 971	3 364
12	180 0	499 0	710 0	-319 0	3 913	3 384
13	180 0	479 0	730 0	-299 0	3 940	3 384
14	180 0	499 0	690 0	-319 0	3 930	3 401
15	180 0	499 0	730 0	-319 0	3 937	3 401
16	180 0	459 0	730 0	-279 0	3 943	3 363
17	180 0	459 0	690 0	-279 0	3 919	3 347

F S MINIMUM= 3 908 FOR THE CIRCLE OF CENTER (710 0,-299 0)

SLOPE STABILITY ANALYSIS

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

CONTROL DATA

NUMBER OF SPECIFIED CENTERS	0
NUMBER OF DEPTH LIMITING TANGENTS	8
NUMBER OF VERTICAL SECTIONS	4
NUMBER OF SOIL LAYER BOUNDARIES	3
NUMBER OF PORE PRESSURE LINES	1
NUMBER OF POINTS DEFINING COHESION PROFILE	0

SEISMIC COEFFICIENT S1,S2 = 0 20 0 00 0 2g SEISMIC FORCE APPLIED@BASE OF SLICE

UNIT WEIGHT OF WATER = 62 40

SEARCH IS BASED ON BISHOP MODIFIED METHOD

SEARCH STARTS AT CENTER (650 0, 1 0),WITH FINAL GRID OF 20 0

ALL CIRCLES TANGENT TO DEPTH, 110 0, 120 0, 130 0, 140 0, 150 0, 160 0, 170 0, 180 0

GEOMETRY

SECTIONS	300 0	400 0	900 0	1500 0
T CRACKS	10 0	10 0	110 0	110 0
W IN CRACK	10 0	10 0	110 0	110 0
BOUNDARY 1	10 0	10 0	110 0	110 0
BOUNDARY 2	110 0	110 0	110 0	110 0
BOUNDARY 3	280 0	280 0	280 0	280 0

SOIL PROPERTIES

LAYER	COHESION	FRICTION ANGLE	DENSITY	PORE PRESSURE FACTOR
1	0 0	25 0	37 0	0 0
2	50 0	30 0	110 0	0 0

PORE PRESSURE DATA

COORDINATES OF EQUI-PRESSURE LINES

SECTIONS	300 0	400 0	900 0	1500 0
LINE 1	95 0	96 0	110 0	110 0

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	110 0	109 0	650 0	1 0	1 414	1 172
2	110 0	109 0	610 0	1 0	1 490	1 192
3	110 0	149 0	650 0	-39 0	1 297	1 142

4	110 0	109 0	690 0	1 0	1 343	1 154
5	110 0	69 0	650 0	41 0	1 718	1 255
6	110 0	149 0	610 0	-39 0	1 346	1 155
7	110 0	189 0	650 0	-79 0	1 235	1 127
8	110 0	149 0	690 0	-39 0	1 250	1 130
9	110 0	189 0	610 0	-79 0	1 271	1 136
10	110 0	229 0	650 0	-119 0	1 198	1 118
11	110 0	189 0	690 0	-79 0	1 201	1 119
12	110 0	229 0	630 0	-119 0	1 212	1 121
13	110 0	249 0	650 0	-139 0	1 185	1 115
14	110 0	229 0	670 0	-119 0	1 185	1 115
15	110 0	209 0	650 0	-99 0	1 214	1 122
16	110 0	249 0	630 0	-139 0	1 197	1 118
17	110 0	269 0	650 0	-159 0	1 173	1 113
18	110 0	249 0	670 0	-139 0	1 172	1 113
19	110 0	269 0	670 0	-159 0	1 162	1 111
20	110 0	249 0	690 0	-139 0	1 160	1 110
21	110 0	229 0	670 0	-119 0	1 185	1 115
22	110 0	269 0	690 0	-159 0	1 151	1 109
23	110 0	249 0	710 0	-139 0	1 149	1 108
24	110 0	229 0	690 0	-119 0	1 171	1 113
25	110 0	269 0	710 0	-159 0	1 141	1 107
26	110 0	249 0	730 0	-139 0	1 138	1 107
27	110 0	229 0	710 0	-119 0	1 158	1 110
28	110 0	269 0	730 0	-159 0	1 132	1 106
29	110 0	249 0	750 0	-139 0	1 128	1 106
30	110 0	229 0	730 0	-119 0	1 146	1 108
31	110 0	269 0	750 0	-159 0	1 122	1 105
32	110 0	249 0	770 0	-139 0	1 118	1 104
33	110 0	229 0	750 0	-119 0	1 135	1 106
34	110 0	269 0	770 0	-159 0	1 113	1 104
35	110 0	249 0	790 0	-139 0	1 109	1 104
36	110 0	229 0	770 0	-119 0	1 123	1 105
37	110 0	269 0	790 0	-159 0	1 106	1 104
38	110 0	249 0	810 0	-139 0	1 101	1 104
39	110 0	229 0	790 0	-119 0	1 113	1 104
40	110 0	269 0	810 0	-159 0	1 098	1 105
41	110 0	249 0	830 0	-139 0	1 095	1 107
42	110 0	229 0	810 0	-119 0	1 104	1 104
43	110 0	269 0	830 0	-159 0	1 094	1 108
44	110 0	249 0	850 0	-139 0	1 093	1 113
45	110 0	229 0	830 0	-119 0	1 097	1 106
46	110 0	269 0	850 0	-159 0	1 093	1 114
47	110 0	249 0	870 0	-139 0	1 095	1 123
48	110 0	229 0	850 0	-119 0	1 093	1 111
49	110 0	269 0	830 0	-159 0	1 094	1 108
50	110 0	289 0	850 0	-179 0	1 093	1 115
51	110 0	269 0	870 0	-159 0	1 097	1 125

SEARCH IS ABANDONED AFTER 51 CIRCLES

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	120 0	279 0	850 0	-159 0	1 177	1 164
2	120 0	279 0	830 0	-159 0	1 170	1 154
3	120 0	319 0	870 0	-199 0	1 197	1 189

4	120 0	279 0	910 0	-159 0	1 326	1 301
5	120 0	239 0	870 0	-119 0	1 208	1 187
6	120 0	279 0	810 0	-159 0	1 174	1 152
7	120 0	299 0	830 0	-179 0	1 166	1 153
8	120 0	279 0	850 0	-159 0	1 177	1 164
9	120 0	259 0	830 0	-139 0	1 175	1 154
10	120 0	299 0	810 0	-179 0	1 170	1 151
11	120 0	319 0	830 0	-199 0	1 164	1 153
12	120 0	299 0	850 0	-179 0	1 175	1 165
13	120 0	319 0	810 0	-199 0	1 166	1 151
14	120 0	339 0	830 0	-219 0	1 161	1 154
15	120 0	319 0	850 0	-199 0	1 172	1 165
16	120 0	339 0	810 0	-219 0	1 163	1 151
17	120 0	359 0	830 0	-239 0	1 159	1 154
18	120 0	339 0	850 0	-219 0	1 170	1 165
19	120 0	359 0	810 0	-239 0	1 160	1 151
20	120 0	379 0	830 0	-259 0	1 157	1 154
21	120 0	359 0	850 0	-239 0	1 169	1 165
22	120 0	379 0	810 0	-259 0	1 157	1 150
23	120 0	399 0	830 0	-279 0	1 155	1 154
24	120 0	379 0	850 0	-259 0	1 167	1 166
25	120 0	399 0	810 0	-279 0	1 154	1 150
26	120 0	419 0	830 0	-299 0	1 154	1 154
27	120 0	399 0	850 0	-279 0	1 166	1 166
28	120 0	419 0	810 0	-299 0	1 152	1 150
29	120 0	439 0	830 0	-319 0	1 153	1 154
30	120 0	419 0	850 0	-299 0	1 166	1 167
31	120 0	419 0	790 0	-299 0	1 156	1 149
32	120 0	439 0	810 0	-319 0	1 150	1 150
33	120 0	399 0	810 0	-279 0	1 154	1 150
34	120 0	439 0	790 0	-319 0	1 153	1 149
35	120 0	459 0	810 0	-339 0	1 149	1 150
36	120 0	439 0	830 0	-319 0	1 153	1 154
37	120 0	459 0	790 0	-339 0	1 149	1 146
38	120 0	479 0	810 0	-359 0	1 148	1 150
39	120 0	459 0	830 0	-339 0	1 151	1 155
40	120 0	479 0	790 0	-359 0	1 147	1 146
41	120 0	499 0	810 0	-379 0	1 146	1 149
42	120 0	479 0	830 0	-359 0	1 150	1 155
43	120 0	499 0	790 0	-379 0	1 145	1 146
44	120 0	519 0	810 0	-399 0	1 144	1 149
45	120 0	499 0	830 0	-379 0	1 150	1 155
46	120 0	519 0	790 0	-399 0	1 147	1 148
47	120 0	539 0	810 0	-419 0	1 143	1 149
48	120 0	519 0	830 0	-399 0	1 149	1 156
49	120 0	539 0	790 0	-419 0	1 145	1 148
50	120 0	559 0	810 0	-439 0	1 142	1 149
51	120 0	539 0	830 0	-419 0	1 148	1 156

SEARCH IS ABANDONED AFTER 51 CIRCLES

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	130 0	549 0	810 0	-419 0	1 121	1 110
2	130 0	549 0	790 0	-419 0	1 119	1 108
3	130 0	589 0	830 0	-459 0	1 127	1 119

4	130 0	549 0	870 0	-419 0	1 156	1 142
5	130 0	509 0	830 0	-379 0	1 129	1 115
6	130 0	549 0	770 0	-419 0	1 120	1 107
7	130 0	569 0	790 0	-439 0	1 118	1 109
8	130 0	549 0	810 0	-419 0	1 121	1 110
9	130 0	529 0	790 0	-399 0	1 120	1 107
10	130 0	569 0	770 0	-439 0	1 119	1 107
11	130 0	589 0	790 0	-459 0	1 117	1 109
12	130 0	569 0	810 0	-439 0	1 120	1 112
13	130 0	589 0	770 0	-459 0	1 118	1 108
14	130 0	609 0	790 0	-479 0	1 117	1 110
15	130 0	589 0	810 0	-459 0	1 120	1 113
16	130 0	609 0	770 0	-479 0	1 117	1 108
17	130 0	629 0	790 0	-499 0	1 116	1 110
18	130 0	609 0	810 0	-479 0	1 120	1 114
19	130 0	629 0	770 0	-499 0	1 116	1 109
20	130 0	649 0	790 0	-519 0	1 115	1 111
21	130 0	629 0	810 0	-499 0	1 120	1 115
22	130 0	649 0	770 0	-519 0	1 116	1 110
23	130 0	669 0	790 0	-539 0	1 115	1 112
24	130 0	649 0	810 0	-519 0	1 119	1 115
25	130 0	669 0	770 0	-539 0	1 115	1 111
26	130 0	689 0	790 0	-559 0	1 114	1 112
27	130 0	669 0	810 0	-539 0	1 119	1 116
28	130 0	689 0	770 0	-559 0	1 116	1 113
29	130 0	709 0	790 0	-579 0	1 114	1 113
30	130 0	689 0	810 0	-559 0	1 118	1 117
31	130 0	709 0	770 0	-579 0	1 117	1 115
32	130 0	709 0	810 0	-579 0	1 118	1 117
33	130 0	669 0	810 0	-539 0	1 119	1 116
34	130 0	669 0	770 0	-539 0	1 115	1 111

F S MINIMUM= 1 114 FOR THE CIRCLE OF CENTER (790 0,-559 0)

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	140 0	699 0	790 0	-559 0	1 107	1 091
2	140 0	679 0	730 0	-539 0	1 123	1 103
3	140 0	719 0	770 0	-579 0	1 110	1 095
4	140 0	679 0	810 0	-539 0	1 111	1 093
5	140 0	639 0	770 0	-499 0	1 106	1 085
6	140 0	639 0	750 0	-499 0	1 110	1 088
7	140 0	659 0	770 0	-519 0	1 106	1 087
8	140 0	639 0	790 0	-499 0	1 107	1 086
9	140 0	619 0	770 0	-479 0	1 106	1 083
10	140 0	659 0	750 0	-519 0	1 112	1 092
11	140 0	659 0	790 0	-519 0	1 107	1 087
12	140 0	619 0	790 0	-479 0	1 108	1 085
13	140 0	619 0	750 0	-479 0	1 110	1 086

F S MINIMUM= 1 106 FOR THE CIRCLE OF CENTER (770 0,-499 0)

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	150 0	649 0	770 0	-499 0	1 106	1 069
2	150 0	629 0	710 0	-479 0	1 127	1 086
3	150 0	669 0	750 0	-519 0	1 111	1 076
4	150 0	629 0	790 0	-479 0	1 107	1 067
5	150 0	589 0	750 0	-439 0	1 108	1 063
6	150 0	629 0	730 0	-479 0	1 116	1 076
7	150 0	609 0	750 0	-459 0	1 108	1 067
8	150 0	649 0	730 0	-499 0	1 117	1 080
9	150 0	649 0	770 0	-499 0	1 106	1 069
10	150 0	609 0	770 0	-459 0	1 105	1 063
11	150 0	609 0	730 0	-459 0	1 116	1 074
12	150 0	609 0	790 0	-459 0	1 108	1 065
13	150 0	589 0	770 0	-439 0	1 106	1 062
14	150 0	629 0	750 0	-479 0	1 109	1 070
15	150 0	629 0	790 0	-479 0	1 107	1 067
16	150 0	589 0	790 0	-439 0	1 109	1 063
17	150 0	589 0	750 0	-439 0	1 108	1 063

F S MINIMUM= 1 105 FOR THE CIRCLE OF CENTER (770 0,-459 0)
1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	160 0	619 0	770 0	-459 0	1 110	1 051
2	160 0	599 0	710 0	-439 0	1 126	1 064
3	160 0	639 0	750 0	-479 0	1 113	1 058
4	160 0	599 0	790 0	-439 0	1 113	1 049
5	160 0	559 0	750 0	-399 0	1 112	1 043
6	160 0	599 0	730 0	-439 0	1 117	1 056
7	160 0	579 0	750 0	-419 0	1 112	1 047
8	160 0	619 0	730 0	-459 0	1 118	1 059
9	160 0	619 0	770 0	-459 0	1 110	1 051
10	160 0	579 0	770 0	-419 0	1 111	1 045
11	160 0	579 0	730 0	-419 0	1 117	1 052
12	160 0	639 0	770 0	-479 0	1 111	1 054
13	160 0	619 0	790 0	-459 0	1 113	1 052
14	160 0	639 0	750 0	-479 0	1 113	1 058
15	160 0	639 0	790 0	-479 0	1 112	1 054
16	160 0	599 0	790 0	-439 0	1 113	1 049
17	160 0	599 0	750 0	-439 0	1 112	1 051

F S MINIMUM= 1 110 FOR THE CIRCLE OF CENTER (770 0,-459 0)
1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)

1	170 0	629 0	770 0	-459 0	1 118	1 042
2	170 0	609 0	710 0	-439 0	1 131	1 052
3	170 0	649 0	750 0	-479 0	1 121	1 049
4	170 0	609 0	790 0	-439 0	1 120	1 038
5	170 0	569 0	750 0	-399 0	1 119	1 032
6	170 0	609 0	730 0	-439 0	1 123	1 045
7	170 0	589 0	750 0	-419 0	1 120	1 037
8	170 0	629 0	730 0	-459 0	1 124	1 050
9	170 0	629 0	770 0	-459 0	1 118	1 042
10	170 0	589 0	770 0	-419 0	1 119	1 035
11	170 0	589 0	730 0	-419 0	1 123	1 041
12	170 0	649 0	770 0	-479 0	1 119	1 046
13	170 0	629 0	790 0	-459 0	1 120	1 041
14	170 0	649 0	750 0	-479 0	1 121	1 049
15	170 0	649 0	790 0	-479 0	1 120	1 045
16	170 0	609 0	790 0	-439 0	1 120	1 038
17	170 0	609 0	750 0	-439 0	1 119	1 040

F S MINIMUM= 1 118 FOR THE CIRCLE OF CENTER (770 0,-459 0)

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	180 0	639 0	770 0	-459 0	1 128	1 034
2	180 0	619 0	710 0	-439 0	1 138	1 043
3	180 0	659 0	750 0	-479 0	1 129	1 041
4	180 0	619 0	790 0	-439 0	1 130	1 030
5	180 0	579 0	750 0	-399 0	1 130	1 024
6	180 0	619 0	730 0	-439 0	1 132	1 036
7	180 0	599 0	750 0	-419 0	1 129	1 028
8	180 0	639 0	730 0	-459 0	1 133	1 041
9	180 0	639 0	770 0	-459 0	1 128	1 034
10	180 0	599 0	770 0	-419 0	1 128	1 026
11	180 0	599 0	730 0	-419 0	1 132	1 032
12	180 0	599 0	790 0	-419 0	1 131	1 026
13	180 0	579 0	770 0	-399 0	1 129	1 022
14	180 0	619 0	750 0	-439 0	1 129	1 032
15	180 0	619 0	790 0	-439 0	1 130	1 030
16	180 0	579 0	790 0	-399 0	1 132	1 023
17	180 0	579 0	750 0	-399 0	1 130	1 024

F S MINIMUM= 1 128 FOR THE CIRCLE OF CENTER (770 0,-419 0)

SLOPE STABILITY ANALYSIS

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

CONTROL DATA

NUMBER OF SPECIFIED CENTERS	0
NUMBER OF DEPTH LIMITING TANGENTS	8
NUMBER OF VERTICAL SECTIONS	4
NUMBER OF SOIL LAYER BOUNDARIES	3
NUMBER OF PORE PRESSURE LINES	1
NUMBER OF POINTS DEFINING COHESION PROFILE	0

SEISMIC COEFFICIENT S1,S2 = 0 20 0 20 0 2g SEISMIC FORCE APPLIED @ CENTER OF SLICE

UNIT WEIGHT OF WATER = 62 40

SEARCH IS BASED ON BISHOP MODIFIED METHOD

SEARCH STARTS AT CENTER (650 0, 1 0),WITH FINAL GRID OF 20 0

ALL CIRCLES TANGENT TO DEPTH, 110 0, 120 0, 130 0, 140 0, 150 0, 160 0, 170 0, 180 0

GEOMETRY

SECTIONS	300 0	400 0	900 0	1500 0
T CRACKS	10 0	10 0	110 0	110 0
W IN CRACK	10 0	10 0	110 0	110 0
BOUNDARY 1	10 0	10 0	110 0	110 0
BOUNDARY 2	110 0	110 0	110 0	110 0
BOUNDARY 3	280 0	280 0	280 0	280 0

SOIL PROPERTIES

LAYER	COHESION	FRICTION ANGLE	DENSITY	PORE PRESSURE FACTOR
1	0 0	25 0	37 0	0 0
2	50 0	30 0	110 0	0 0

PORE PRESSURE DATA

COORDINATES OF EQUI-PRESSURE LINES

SECTIONS	300 0	400 0	900 0	1500 0
LINE 1	95 0	96 0	110 0	110 0

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	110 0	109 0	650 0	1 0	1 615	1 334
2	110 0	109 0	610 0	1 0	1 749	1 395
3	110 0	149 0	650 0	-39 0	1 423	1 248

4	110 0	109 0	690 0	1 0	1 496	1 281
5	110 0	69 0	650 0	41 0	2 192	1 600
6	110 0	149 0	610 0	-39 0	1 502	1 283
7	110 0	189 0	650 0	-79 0	1 327	1 206
8	110 0	149 0	690 0	-39 0	1 349	1 216
9	110 0	189 0	610 0	-79 0	1 382	1 230
10	110 0	229 0	650 0	-119 0	1 270	1 182
11	110 0	189 0	690 0	-79 0	1 275	1 184
12	110 0	229 0	630 0	-119 0	1 291	1 191
13	110 0	249 0	650 0	-139 0	1 250	1 174
14	110 0	229 0	670 0	-119 0	1 250	1 174
15	110 0	209 0	650 0	-99 0	1 295	1 192
16	110 0	249 0	630 0	-139 0	1 268	1 181
17	110 0	269 0	650 0	-159 0	1 233	1 167
18	110 0	249 0	670 0	-139 0	1 232	1 166
19	110 0	269 0	670 0	-159 0	1 217	1 160
20	110 0	249 0	690 0	-139 0	1 214	1 159
21	110 0	229 0	670 0	-119 0	1 250	1 174
22	110 0	269 0	690 0	-159 0	1 201	1 153
23	110 0	249 0	710 0	-139 0	1 197	1 152
24	110 0	229 0	690 0	-119 0	1 230	1 165
25	110 0	269 0	710 0	-159 0	1 186	1 147
26	110 0	249 0	730 0	-139 0	1 181	1 146
27	110 0	229 0	710 0	-119 0	1 211	1 157
28	110 0	269 0	730 0	-159 0	1 172	1 142
29	110 0	249 0	750 0	-139 0	1 166	1 140
30	110 0	229 0	730 0	-119 0	1 193	1 150
31	110 0	269 0	750 0	-159 0	1 157	1 137
32	110 0	249 0	770 0	-139 0	1 151	1 134
33	110 0	229 0	750 0	-119 0	1 176	1 144
34	110 0	269 0	770 0	-159 0	1 144	1 132
35	110 0	249 0	790 0	-139 0	1 137	1 130
36	110 0	229 0	770 0	-119 0	1 159	1 138
37	110 0	269 0	790 0	-159 0	1 132	1 129
38	110 0	249 0	810 0	-139 0	1 124	1 126
39	110 0	229 0	790 0	-119 0	1 143	1 132
40	110 0	269 0	810 0	-159 0	1 121	1 126
41	110 0	249 0	830 0	-139 0	1 114	1 125
42	110 0	229 0	810 0	-119 0	1 129	1 128
43	110 0	269 0	830 0	-159 0	1 112	1 125
44	110 0	249 0	850 0	-139 0	1 108	1 127
45	110 0	229 0	830 0	-119 0	1 117	1 125
46	110 0	269 0	850 0	-159 0	1 107	1 128
47	110 0	249 0	870 0	-139 0	1 106	1 133
48	110 0	229 0	850 0	-119 0	1 109	1 126
49	110 0	269 0	870 0	-159 0	1 107	1 135
50	110 0	249 0	890 0	-139 0	1 118	1 152
51	110 0	229 0	870 0	-119 0	1 106	1 132

SEARCH IS ABANDONED AFTER 51 CIRCLES

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	120 0	259 0	870 0	-139 0	1 231	1 213
2	120 0	239 0	830 0	-119 0	1 219	1 191
3	120 0	279 0	870 0	-159 0	1 226	1 211

4	120 0	239 0	910 0	-119 0	1 367	1 332
5	120 0	199 0	870 0	-79 0	1 249	1 216
6	120 0	239 0	810 0	-119 0	1 232	1 196
7	120 0	259 0	830 0	-139 0	1 210	1 187
8	120 0	239 0	850 0	-119 0	1 215	1 192
9	120 0	219 0	830 0	-99 0	1 228	1 194
10	120 0	259 0	810 0	-139 0	1 221	1 191
11	120 0	279 0	830 0	-159 0	1 203	1 184
12	120 0	259 0	850 0	-139 0	1 210	1 191
13	120 0	279 0	810 0	-159 0	1 211	1 186
14	120 0	299 0	830 0	-179 0	1 197	1 182
15	120 0	279 0	850 0	-159 0	1 205	1 190
16	120 0	299 0	810 0	-179 0	1 204	1 183
17	120 0	319 0	830 0	-199 0	1 192	1 180
18	120 0	299 0	850 0	-179 0	1 201	1 189
19	120 0	319 0	810 0	-199 0	1 199	1 182
20	120 0	339 0	830 0	-219 0	1 188	1 179
21	120 0	319 0	850 0	-199 0	1 197	1 188
22	120 0	339 0	810 0	-219 0	1 194	1 180
23	120 0	359 0	830 0	-239 0	1 185	1 178
24	120 0	339 0	850 0	-219 0	1 194	1 187
25	120 0	359 0	810 0	-239 0	1 189	1 178
26	120 0	379 0	830 0	-259 0	1 182	1 177
27	120 0	359 0	850 0	-239 0	1 191	1 186
28	120 0	379 0	810 0	-259 0	1 184	1 176
29	120 0	399 0	830 0	-279 0	1 179	1 176
30	120 0	379 0	850 0	-259 0	1 189	1 186
31	120 0	399 0	810 0	-279 0	1 181	1 174
32	120 0	419 0	830 0	-299 0	1 176	1 175
33	120 0	399 0	850 0	-279 0	1 187	1 186
34	120 0	419 0	810 0	-299 0	1 177	1 173
35	120 0	439 0	830 0	-319 0	1 174	1 174
36	120 0	419 0	850 0	-299 0	1 185	1 186
37	120 0	439 0	810 0	-319 0	1 174	1 172
38	120 0	459 0	830 0	-339 0	1 172	1 174
39	120 0	439 0	850 0	-319 0	1 183	1 185
40	120 0	459 0	810 0	-339 0	1 172	1 171
41	120 0	479 0	830 0	-359 0	1 170	1 174
42	120 0	459 0	850 0	-339 0	1 181	1 184
43	120 0	479 0	810 0	-359 0	1 170	1 171
44	120 0	499 0	830 0	-379 0	1 169	1 174
45	120 0	479 0	850 0	-359 0	1 179	1 184
46	120 0	499 0	810 0	-379 0	1 167	1 170
47	120 0	519 0	830 0	-399 0	1 168	1 174
48	120 0	499 0	850 0	-379 0	1 178	1 183
49	120 0	499 0	790 0	-379 0	1 169	1 168
50	120 0	519 0	810 0	-399 0	1 165	1 169
51	120 0	479 0	810 0	-359 0	1 170	1 171

SEARCH IS ABANDONED AFTER 51 CIRCLES

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	130 0	509 0	810 0	-379 0	1 150	1 135
2	130 0	489 0	770 0	-359 0	1 159	1 138
3	130 0	529 0	810 0	-399 0	1 149	1 135

4	130 0	489 0	850 0	-359 0	1 166	1 148
5	130 0	449 0	810 0	-319 0	1 157	1 135
6	130 0	529 0	790 0	-399 0	1 149	1 134
7	130 0	549 0	810 0	-419 0	1 147	1 135
8	130 0	529 0	830 0	-399 0	1 153	1 140
9	130 0	509 0	810 0	-379 0	1 150	1 135
10	130 0	549 0	790 0	-419 0	1 147	1 134
11	130 0	569 0	810 0	-439 0	1 146	1 135
12	130 0	549 0	830 0	-419 0	1 152	1 140
13	130 0	569 0	790 0	-439 0	1 146	1 134
14	130 0	589 0	810 0	-459 0	1 145	1 136
15	130 0	569 0	830 0	-439 0	1 151	1 140
16	130 0	589 0	790 0	-459 0	1 144	1 134
17	130 0	609 0	810 0	-479 0	1 144	1 137
18	130 0	589 0	830 0	-459 0	1 150	1 140
19	130 0	589 0	770 0	-459 0	1 146	1 135
20	130 0	609 0	790 0	-479 0	1 142	1 134
21	130 0	569 0	790 0	-439 0	1 146	1 134
22	130 0	609 0	770 0	-479 0	1 144	1 134
23	130 0	629 0	790 0	-499 0	1 141	1 134
24	130 0	609 0	810 0	-479 0	1 144	1 137
25	130 0	629 0	770 0	-499 0	1 143	1 134
26	130 0	649 0	790 0	-519 0	1 140	1 134
27	130 0	629 0	810 0	-499 0	1 143	1 137
28	130 0	649 0	770 0	-519 0	1 142	1 135
29	130 0	669 0	790 0	-539 0	1 138	1 134
30	130 0	649 0	810 0	-519 0	1 142	1 137
31	130 0	669 0	770 0	-539 0	1 141	1 135
32	130 0	689 0	790 0	-559 0	1 137	1 134
33	130 0	669 0	810 0	-539 0	1 141	1 137
34	130 0	689 0	770 0	-559 0	1 141	1 136
35	130 0	709 0	790 0	-579 0	1 137	1 135
36	130 0	689 0	810 0	-559 0	1 140	1 137
37	130 0	709 0	770 0	-579 0	1 141	1 138
38	130 0	729 0	790 0	-599 0	1 137	1 136
39	130 0	709 0	810 0	-579 0	1 139	1 137
40	130 0	729 0	770 0	-599 0	1 141	1 139
41	130 0	729 0	810 0	-599 0	1 138	1 137
42	130 0	689 0	810 0	-559 0	1 140	1 137
43	130 0	689 0	770 0	-559 0	1 141	1 136

F S MINIMUM= 1 137 FOR THE CIRCLE OF CENTER (790 0,-579 0)

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	140 0	719 0	790 0	-579 0	1 135	1 118
2	140 0	699 0	730 0	-559 0	1 159	1 139
3	140 0	739 0	770 0	-599 0	1 141	1 125
4	140 0	699 0	810 0	-559 0	1 138	1 119
5	140 0	659 0	770 0	-519 0	1 138	1 116
6	140 0	699 0	750 0	-559 0	1 147	1 128
7	140 0	679 0	770 0	-539 0	1 139	1 119
8	140 0	719 0	750 0	-579 0	1 148	1 131
9	140 0	719 0	790 0	-579 0	1 135	1 118
10	140 0	679 0	790 0	-539 0	1 136	1 116

11	140 0	679 0	750 0	-539 0	1 146	1 125
12	140 0	739 0	790 0	-599 0	1 136	1 120
13	140 0	719 0	810 0	-579 0	1 137	1 119
14	140 0	739 0	770 0	-599 0	1 141	1 125
15	140 0	739 0	810 0	-599 0	1 136	1 120
16	140 0	699 0	810 0	-559 0	1 138	1 119
17	140 0	699 0	770 0	-559 0	1 138	1 120

F S MINIMUM= 1 135 FOR THE CIRCLE OF CENTER (790 0,-579 0)
1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	150 0	729 0	790 0	-579 0	1 142	1 109
2	150 0	709 0	730 0	-559 0	1 162	1 128
3	150 0	749 0	770 0	-599 0	1 147	1 117
4	150 0	709 0	810 0	-559 0	1 144	1 108
5	150 0	669 0	770 0	-519 0	1 144	1 106
6	150 0	709 0	750 0	-559 0	1 152	1 118
7	150 0	689 0	770 0	-539 0	1 145	1 109
8	150 0	729 0	750 0	-579 0	1 153	1 121
9	150 0	729 0	790 0	-579 0	1 142	1 109
10	150 0	689 0	790 0	-539 0	1 143	1 106
11	150 0	689 0	750 0	-539 0	1 151	1 116
12	150 0	749 0	790 0	-599 0	1 143	1 112
13	150 0	729 0	810 0	-579 0	1 142	1 109
14	150 0	749 0	770 0	-599 0	1 147	1 117
15	150 0	749 0	810 0	-599 0	1 143	1 111
16	150 0	709 0	810 0	-559 0	1 144	1 108
17	150 0	709 0	770 0	-559 0	1 145	1 111

F S MINIMUM= 1 142 FOR THE CIRCLE OF CENTER (790 0,-579 0)
1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	160 0	739 0	790 0	-579 0	1 153	1 105
2	160 0	719 0	730 0	-559 0	1 171	1 122
3	160 0	759 0	770 0	-599 0	1 156	1 111
4	160 0	719 0	810 0	-559 0	1 154	1 102
5	160 0	679 0	770 0	-519 0	1 155	1 101
6	160 0	719 0	750 0	-559 0	1 162	1 113
7	160 0	699 0	770 0	-539 0	1 155	1 103
8	160 0	739 0	750 0	-579 0	1 162	1 116
9	160 0	739 0	790 0	-579 0	1 153	1 105
10	160 0	699 0	790 0	-539 0	1 153	1 100
11	160 0	699 0	750 0	-539 0	1 161	1 109
12	160 0	699 0	810 0	-539 0	1 154	1 100
13	160 0	679 0	790 0	-519 0	1 154	1 098
14	160 0	719 0	770 0	-559 0	1 156	1 107
15	160 0	719 0	810 0	-559 0	1 154	1 102

16	160 0	679 0	810 0	-519 0	1 156	1 099
17	160 0	679 0	770 0	-519 0	1 155	1 101

F S MINIMUM= 1 153 FOR THE CIRCLE OF CENTER (790 0,-539 0)

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	170 0	709 0	790 0	-539 0	1 168	1 098
2	170 0	689 0	730 0	-519 0	1 181	1 111
3	170 0	729 0	770 0	-559 0	1 169	1 103
4	170 0	689 0	810 0	-519 0	1 169	1 094
5	170 0	649 0	770 0	-479 0	1 171	1 093
6	170 0	689 0	750 0	-519 0	1 174	1 103
7	170 0	669 0	770 0	-499 0	1 170	1 095
8	170 0	709 0	750 0	-539 0	1 174	1 106
9	170 0	709 0	790 0	-539 0	1 168	1 098
10	170 0	669 0	790 0	-499 0	1 169	1 092
11	170 0	669 0	750 0	-499 0	1 174	1 100
12	170 0	729 0	790 0	-559 0	1 167	1 099
13	170 0	709 0	810 0	-539 0	1 169	1 097
14	170 0	729 0	770 0	-559 0	1 169	1 103
15	170 0	749 0	790 0	-579 0	1 166	1 102
16	170 0	729 0	810 0	-559 0	1 167	1 098
17	170 0	749 0	770 0	-579 0	1 169	1 105
18	170 0	769 0	790 0	-599 0	1 166	1 104
19	170 0	749 0	810 0	-579 0	1 166	1 100
20	170 0	769 0	770 0	-599 0	1 169	1 108
21	170 0	769 0	810 0	-599 0	1 166	1 103
22	170 0	729 0	810 0	-559 0	1 167	1 098
23	170 0	729 0	770 0	-559 0	1 169	1 103

F S MINIMUM= 1 166 FOR THE CIRCLE OF CENTER (790 0,-579 0)

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	180 0	759 0	790 0	-579 0	1 181	1 100
2	180 0	739 0	730 0	-559 0	1 194	1 114
3	180 0	779 0	770 0	-599 0	1 183	1 107
4	180 0	739 0	810 0	-559 0	1 181	1 096
5	180 0	699 0	770 0	-519 0	1 185	1 096
6	180 0	739 0	750 0	-559 0	1 188	1 107
7	180 0	719 0	770 0	-539 0	1 184	1 099
8	180 0	759 0	750 0	-579 0	1 187	1 109
9	180 0	759 0	790 0	-579 0	1 181	1 100
10	180 0	719 0	790 0	-539 0	1 182	1 095
11	180 0	719 0	750 0	-539 0	1 189	1 104
12	180 0	779 0	790 0	-599 0	1 181	1 103
13	180 0	759 0	810 0	-579 0	1 181	1 099
14	180 0	779 0	770 0	-599 0	1 183	1 107

15	180 0	779 0	810 0	-599 0	1 181	1 101
16	180 0	739 0	810 0	-559 0	1 181	1 096
17	180 0	739 0	770 0	-559 0	1 183	1 101
18	180 0	799 0	810 0	-619 0	1 179	1 103
19	180 0	779 0	830 0	-599 0	1 182	1 101
20	180 0	799 0	790 0	-619 0	1 181	1 106
21	180 0	819 0	810 0	-639 0	1 179	1 105
22	180 0	799 0	830 0	-619 0	1 181	1 102
23	180 0	819 0	790 0	-639 0	1 180	1 108
24	180 0	839 0	810 0	-659 0	1 179	1 108
25	180 0	819 0	830 0	-639 0	1 180	1 105
26	180 0	839 0	790 0	-659 0	1 180	1 110
27	180 0	839 0	830 0	-659 0	1 180	1 107
28	180 0	799 0	830 0	-619 0	1 181	1 102
29	180 0	799 0	790 0	-619 0	1 181	1 106

F S MINIMUM= 1 179 FOR THE CIRCLE OF CENTER (810 0,-639 0)

Appendix M

Fugitive Dust Control Plan

Bountiful City Corp
Bountiful Sanitary Landfill

Fugitive Dust Control Plan

Bountiful Sanitary Landfill operators use water spray and moisture conditioning to control fugitive dust emissions from the facility In addition, topsoil and vegetative cover is placed in areas which will be undisturbed for long periods of time

Paved roads are sprayed using a water truck at least weekly during times of low precipitation and more often when evidence exists that additional water is necessary The paved roads are swept as needed Unpaved roads are sprayed at least two times per week when fugitive dust emissions are possible Fugitive dust from landfilling operations and composting operations are also controlled using water spray

Reference

Utah **R307-205** and Utah **R307-309**
Fugitive **D**ust **E**missions

The facility is subject to the Fugitive **D**ust requirements contained in Utah R307-205 Because the facility is located in **D**avis County, the provisions of Utah **R**307-309 apply These regulations require the following

1 Fugitive from any source shall not exceed 15% opacity
2 Opacity caused by fugitive dust shall not exceed
    a 10% at the property boundary
    b 20% on site
    c Opacity requirements are not applicable when the wind exceeds 25 miles per hour, but appropriate actions must still be taken to control fugitive dust
3 Facility must submit a plan to control fugitive dust emissions
4 Clean up any materials deposited on any paved roads that may create fugitive dust
5 Minimize fugitive dust emissions from unpaved roads

Appendix N

Demonstration of Naturally Occurring Arsenic;
Intrawell Arsenic Groundwater Protection Standards;
Letter of Approval from Division of Solid and Hazardous Waste

Demonstration of Naturally Occurring Arsenic

Bountiful Landfill
Bountiful, Utah

October 29, 2010

Environmental Resources Management
102 West 500 South, Suite 650
Salt Lake City, Utah 84101
(801) 595-8400
www.erm.com

Presented to:
Bountiful City Engineering Department
790 South 100 East
Bountiful, Utah 84010

Environmental
Resources
Management

102 West 500 South
Suite 650
Salt Lake City, Utah 84101
(801) 595-8400
(801) 595-8484 (fax)
www.erm.com

October 29, 2010

Mr. Todd G. Christensen, P.E.
Bountiful City Engineering Department
790 South 100 East
Bountiful, Utah 84010

RE: Demonstration of Naturally Occurring Arsenic

Dear Todd:

Environmental Resources Management (ERM) has prepared this report for the City of Bountiful to present the findings and conclusions of the evaluation of naturally occurring arsenic in groundwater at the Bountiful Landfill. This work was performed in accordance with the Work Plan dated May 17, 2010, which was submitted to the Utah Department of Environmental Quality, Division of Solid and Hazardous Waste (DSHW). The purpose of this evaluation was to assess potential source(s) of arsenic in the shallow groundwater in accordance with Utah Administrative Code (UAC) R315-308-2(13). We understand that you plan to submit this report of findings to the DSHW, to demonstrate to the agency that based on the findings the arsenic detected in down-gradient wells appears to be related to naturally occurring conditions and not releases from the landfill.

BACKGROUND

Groundwater samples have been collected at the Bountiful Landfill on a quarterly basis since June 1988 until the present. ERM has participated in groundwater monitoring activities since 2001, and continues to perform the monitoring for the three wells currently comprising the compliance monitoring program (i.e., Wells BSL-1, -2 and -3). Statistical analysis completed earlier this year for the compliance monitoring results showed that the arsenic concentration in Well BSL-3 is above the landfill groundwater protection standard (UGWPS) of 0.01 mg/L. Arsenic has historically been detected in Monitoring Well BSL-3 above the 2006-revised UGWPS for this metal; prior to 2006 the comparison standard was 0.05 mg/L.

directions for arsenic in the wells (Mann-Kendall analysis has been recommended by the DSHW).

Task 2 - Monitoring Well Installation and Development

Two new monitoring wells were installed to support the evaluation of background groundwater quality conditions outside of the influence of the landfill on its western (down-gradient) boundary on both the north and south sides of the landfill. The monitoring well network at the landfill has included a number of existing wells upgradient and downgradient from the landfill; however, there have been no wells on the west (downgradient) side of the landfill to monitor naturally-occurring conditions outside the influence of the landfill footprint. The locations of the new wells were intended to fill this gap in the monitoring well network to complete the arsenic demonstration.

Figure 1 (attached) shows the groundwater flow contours for the landfill from the March 2010 monitoring event. The general flow direction across the landfill is from southeast to northwest; however, Monitoring Well JMM-5 showed a water level approximately 0.5 feet higher than other wells in this area. Due to the shallow water table and numerous surface water bodies in the area (e.g., ditches, ponds, and Farmington Bay), it is difficult to develop an accurate groundwater table map. The elevated water level in Well JMM-5 is believed to be attributable to surface drainage ditches that carry water from both the north and south sides of the landfill road that carry storm water to the triangular-shaped, landfill storm water pond.

The March 2010 water table contour map was used to the extent practical to select the locations for two additional new wells installed north and south of the landfill at the locations shown on Figure 2. This map shows similar groundwater table contours developed from the water level measurements obtained during the September 2010 sampling event. The new background wells (BG-1 and BG-2) were installed in north and south of the anticipated influence of the landfill. The wells were installed accordance with the specifications presented in the approved Work Plan.

locations. The chronology of major landfill operational changes is presented on the summary below.

Chronology of Bountiful Landfill Operations

1959	Bountiful municipal waste began being disposed (trench method); about 30,000 ton/year
1962	BARD formed; waste acceptance increased to about 59,000 ton/year
1986	Fill was added to perimeter dikes to increase their size and effectiveness in protecting the landfill from flooding
July, 1987	Bountiful City took over the landfill; waste acceptance dropped to about 28,000 ton/year
Approximately 1984	Waste disposal method changed from trench method to area fill method
Approximately 1992	Bountiful Pond was excavated; clay spoils were stockpiled onto the South half of the landfill
1992	Deuel/Barton/Stone Creek was realigned from its unlined traverse through the South portion of the landfill to its current location near the South boundary line of the property; the new channel is concrete-lined
May, 1996	Completion of large storm water retention pond; began practice of constructing top of filled areas with intermediate cover sloped to drain toward the retention pond
1996	Diversion and composting of green waste began
2006	Perimeter Roadway was re-graded, and a V-ditch was constructed to carry all runoff from the active phase to the large retention pond
2007	Legacy Parkway project takes a portion of the SE corner of the landfill real-estate. New scale constructed, and new shop and compost pad constructed on property acquired by UDOT; Well BSL-1 separated from landfill by Legacy Parkway
2008	Curbside Recycling Program began
Current	Current waste acceptance rate is about 50,000 ton/year

The changes described in the summary above are reflected on the aerial photographs. The historical summary and photographs document numerous changes at the landfill, some of which relate directly to the hydrogeology of the area. In particular, the flooding events and subsequent dike construction events during the mid 1980s, and excavation of borrow materials and subsequent development of the Bountiful Pond (1992) and Landfill Storm Water Pond and drainages (1996), have altered the hydrogeological conditions around the landfill.

variety of landfill modifications occurred from 1996 through the present, groundwater does not appear to be affected.

A detailed analysis was performed for the arsenic data using the Mann-Kendall statistical method to determine whether a statistical trend was occurring along with the observed exceedance of the UGWPS. Preliminary visual examination of the arsenic data plots from 1996 to the present appeared to show potential increasing trends for Wells BSL-2 and BLS-3. However, the statistical evaluation did not find a significant long-term trend based on the quarterly groundwater data. In fact, the trend analysis divided the analysis into various quarterly groupings, and assessment of the most recent data shows mixed increasing and decreasing trends over the past two to three years, and no statistical trends for the compliance wells (BSL-2 and BSL-3) over the longer-term assessments of four to seven years. The most prominent statistical trend over the past four years, according to the Mann-Kendall evaluation, is the increase of arsenic for up-gradient well BSL-1. This suggests that recent increases in arsenic in the groundwater are not related to landfill operations. The Mann-Kendall analysis was performed using a spreadsheet based program developed by the Indiana Department of Environmental Management, which is based on the EPA's Practical Methods for Data Analysis, EPA QA/G-9 QA00 UPDATE, July 2000. The results from the Mann-Kendall analysis are presented in Attachment 2.

Groundwater Sampling and Analysis

The analytical results from the September 2010 quarterly monitoring event have been organized on Table 1 (attached). The results show that arsenic was the only heavy metal observed at concentrations that exceed the UGWPSs (0.010 mg/L for arsenic). Arsenic was detected in landfill Monitoring Wells BSL-2 and BSL-3 at concentrations of 0.017 mg/L and 0.052 mg/L, respectively, and in the new background wells BG-1 and BG-2 at 0.026 mg/L and 0.033 mg/L, respectively. Comparison of the arsenic concentrations in the background and landfill compliance monitoring wells shows them to be about the same. The two background well results fall between the two compliance well results, and within the same order of magnitude.

alternative comparison criteria could be developed in compliance with applicable regulations and cooperation with the DSHW. The alternative criteria would likely be based on the statistical average, standard deviation, and an agreed confidence interval based on the data for each well (BLS-2 and BSL-3).

We appreciate the opportunity to have performed this demonstration project for Bountiful City, and we look forward to your submittal of this assessment to the DSHW. If you have any questions, please contact us at (801) 595-8400.

Sincerely,
ERM-West, Inc.

David S. Wilson, P.E., P.G.
Principal

R-Bountiful Arsenic_October 2010.doc

CAD File: G:\\011560800-03.DWG

Drawn By: J. Estrada

Date: 10/22/10

Project No. 0115608.00

Aerial Photo Source: © 2009 Google Earth Pro Ver 5.0.11733.9347

LEGEND

Monitoring Well

4206.6 Groundwater Elevation (ft. amsl), March 2010

— 4214 — Groundwater Elevation Contour (ft. amsl)

N

0 300

Approx. Scale (feet)

Figure 1

Potentiometric Surface Map

March 2010

Bountiful Sanitary Landfill

Bountiful, Utah

ERM *10/10*

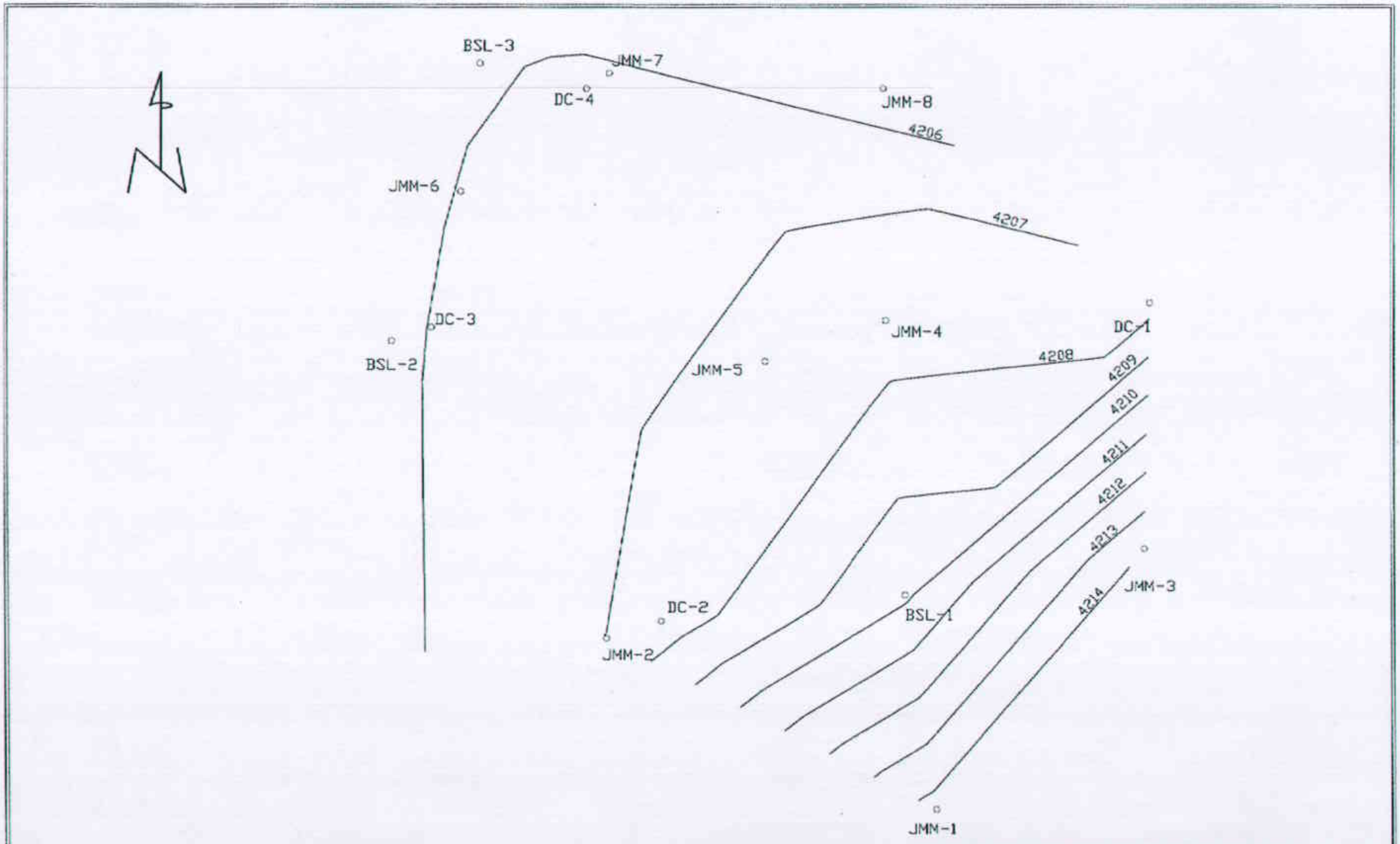
Tables

Attachment 1
Historical Aerial Photographs

April 17, 1974

May 9, 1997

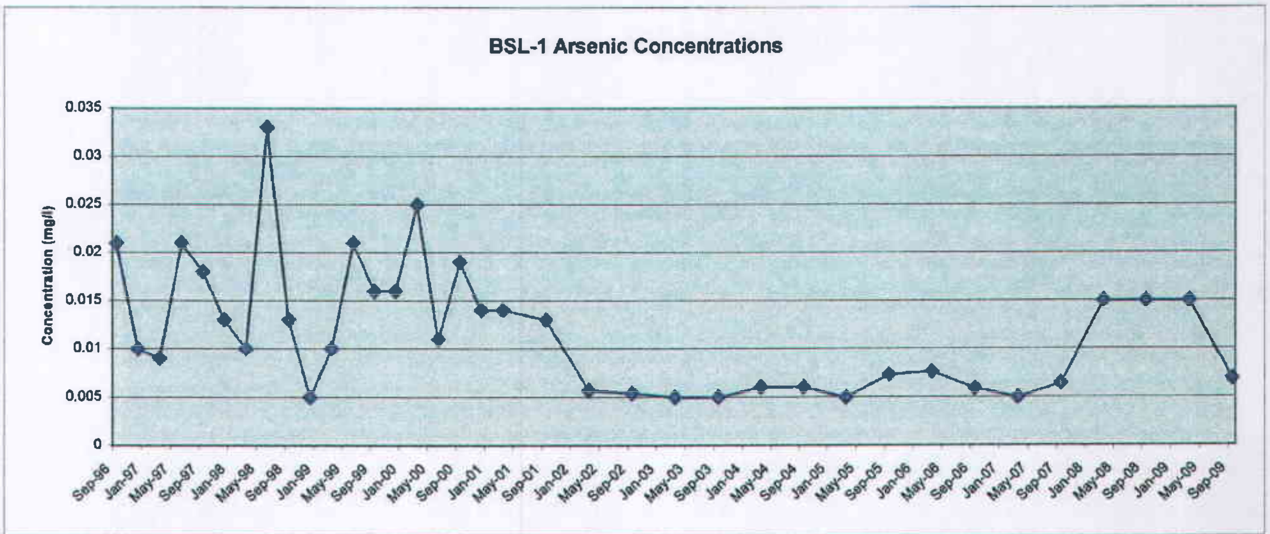
Attachment 2
Historical Groundwater Contour Maps

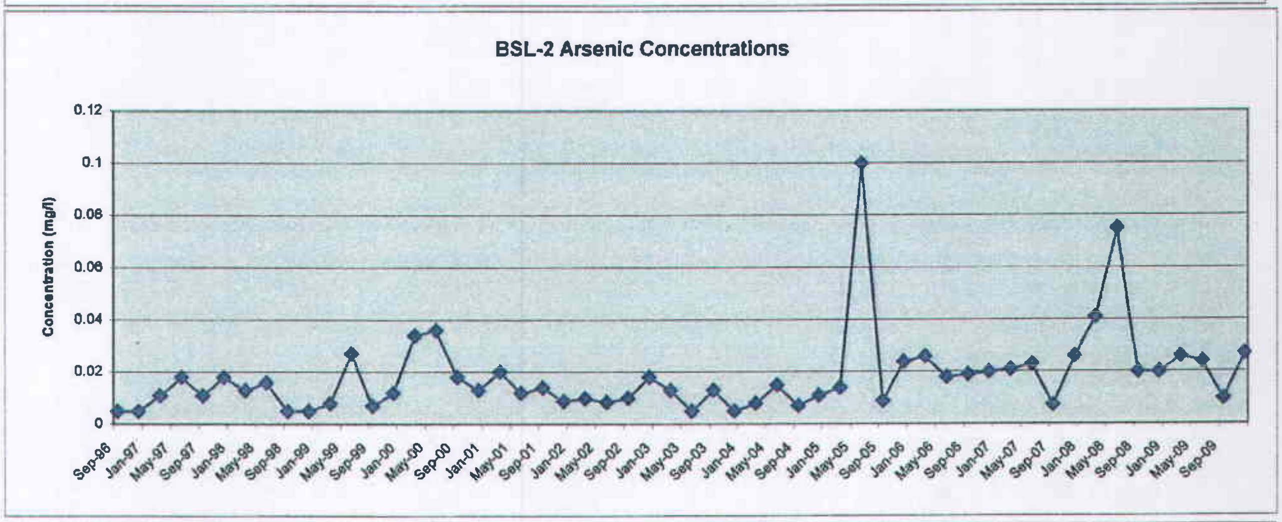


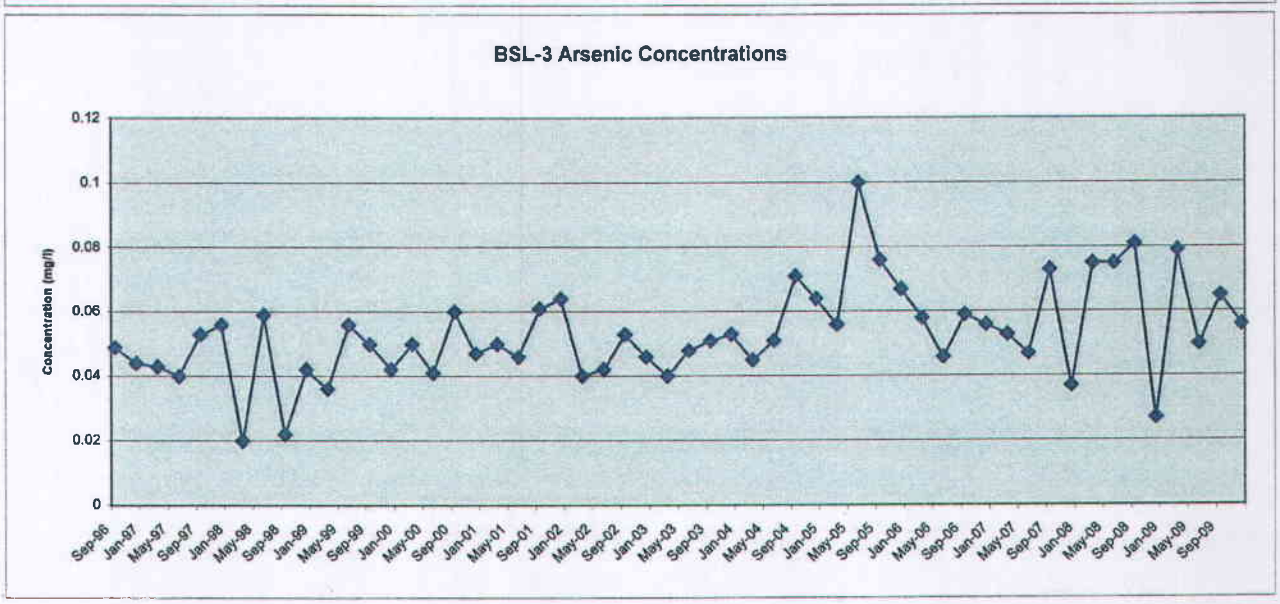
Bountiful City Engineering Dept.

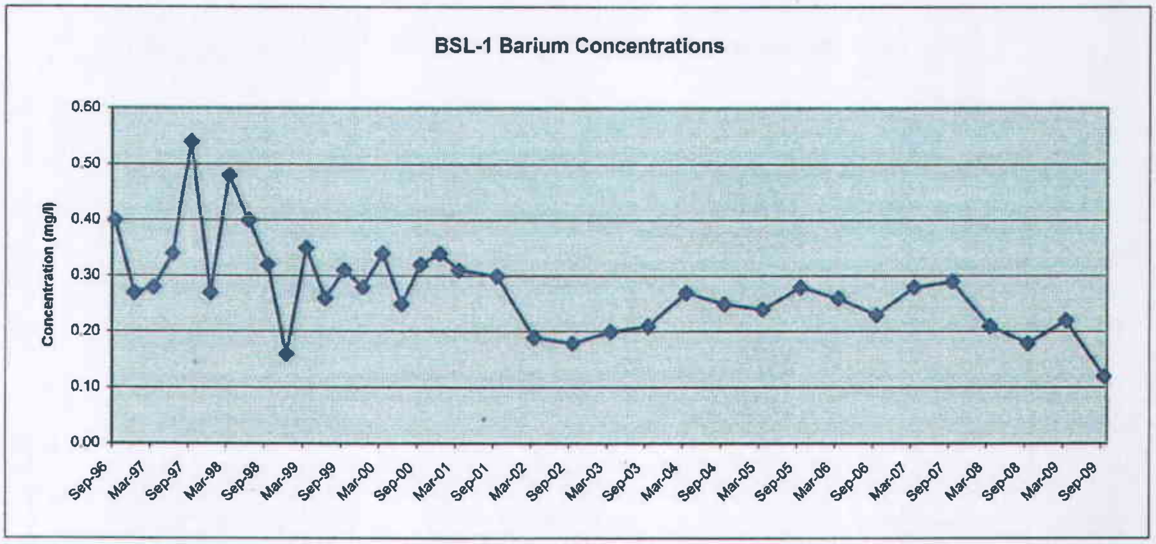
General Groundwater Contours

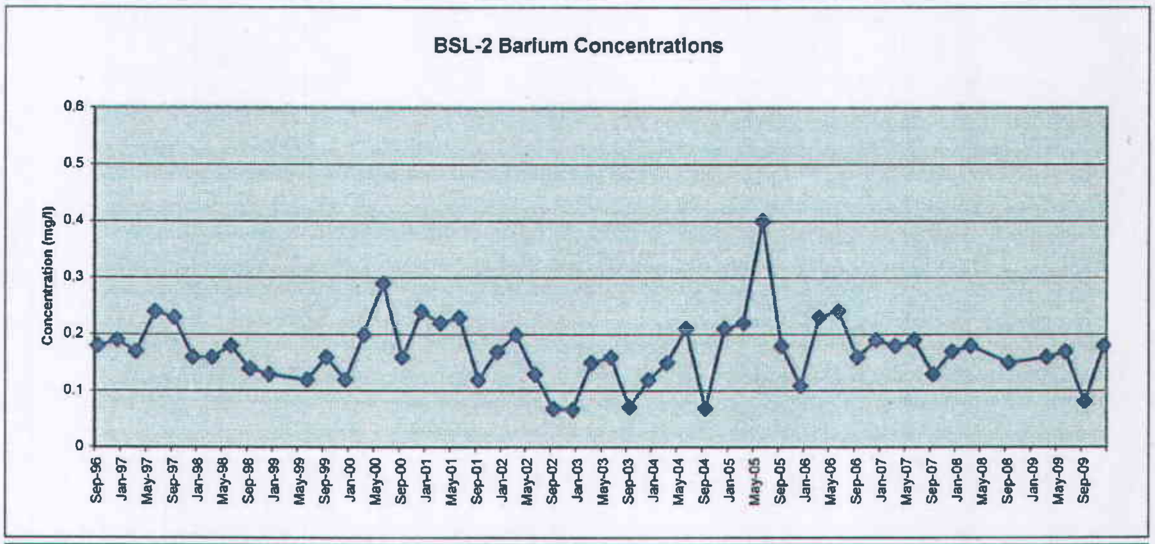
Scale: Not To Scale	Revision: TGC 11/30/05
Date: 10/27/2010	
Sheet: 1 of 1	
File:	

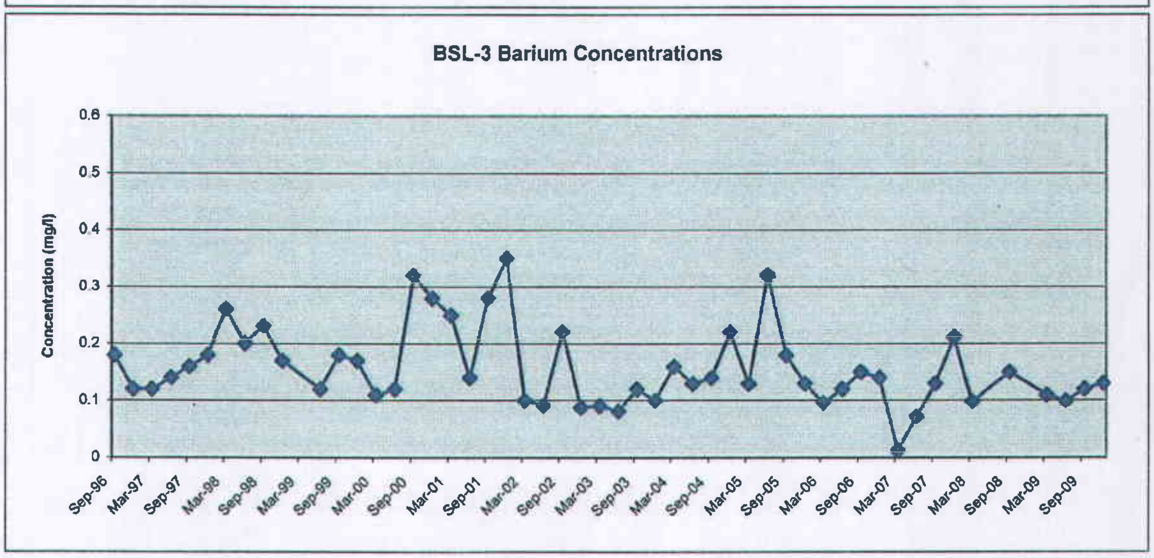

BSL-1 Arsenic Concentrations
Concentration (mg/l)
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
Sep-96 Jan-97 May-97 Sep-97 Jan-98 May-98 Sep-98 Jan-99 May-99 Sep-99 Jan-00 May-00 Sep-00 Jan-01 May-01 Sep-01 Jan-02 May-02 Sep-02 Jan-03 May-03 Sep-03 Jan-04 May-04 Sep-04 Jan-05 May-05 Sep-05 Jan-06 May-06 Sep-06 Jan-07 May-07 Sep-07 Jan-08 May-08 Sep-08 Jan-09 May-09 Sep-09

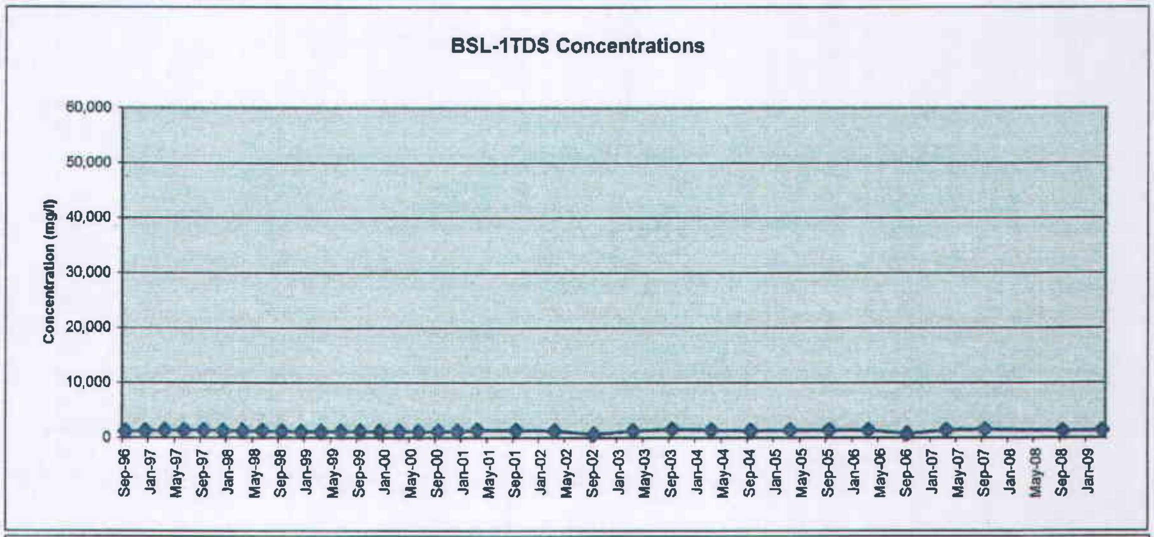

BSL-2 Arsenic Concentrations
Concentration (mg/l)
0.12
0.1
0.08
0.06
0.04
0.02
0
Sep-96 Jan-97 May-97 Sep-97 Jan-98 May-98 Sep-98 Jan-99 May-99 Sep-99 Jan-00 May-00 Sep-00 Jan-01 May-01 Sep-01 Jan-02 May-02 Sep-02 Jan-03 May-03 Sep-03 Jan-04 May-04 Sep-04 Jan-05 May-05 Sep-05 Jan-06 May-06 Sep-06 Jan-07 May-07 Sep-07 Jan-08 May-08 Sep-08 Jan-09 May-09 Sep-09


BSL-3 Arsenic Concentrations
Concentration (mg/l)
0.12
0.1
0.08
0.06
0.04
0.02
0
Sep-96 Jan-97 May-97 Sep-97 Jan-98 May-98 Sep-98 Jan-99 May-99 Sep-99 Jan-00 May-00 Sep-00 Jan-01 May-01 Sep-01 Jan-02 May-02 Sep-02 Jan-03 May-03 Sep-03 Jan-04 May-04 Sep-04 Jan-05 May-05 Sep-05 Jan-06 May-06 Sep-06 Jan-07 May-07 Sep-07 Jan-08 May-08 Sep-08 Jan-09 May-09 Sep-09


BSL-1 Barium Concentrations
Concentration (mg/l)
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Sep-96 Mar-97 Sep-97 Mar-98 Sep-98 Mar-99 Sep-99 Mar-00 Sep-00 Mar-01 Sep-01 Mar-02 Sep-02 Mar-03 Sep-03 Mar-04 Sep-04 Mar-05 Sep-05 Mar-06 Sep-06 Mar-07 Sep-07 Mar-08 Sep-08 Mar-09 Sep-09


BSL-2 Barium Concentrations
Concentration (mg/l)
0.6
0.5
0.4
0.3
0.2
0.1
0
Sep-96 Jan-97 May-97 Sep-97 Jan-98 May-98 Sep-98 Jan-99 May-99 Sep-99 Jan-00 May-00 Sep-00 Jan-01 May-01 Sep-01 Jan-02 May-02 Sep-02 Jan-03 May-03 Sep-03 Jan-04 May-04 Sep-04 Jan-05 May-05 Sep-05 Jan-06 May-06 Sep-06 Jan-07 May-07 Sep-07 Jan-08 May-08 Sep-08 Jan-09 May-09 Sep-09


BSL-3 Barium Concentrations
Concentration (mg/l)
0.6
0.5
0.4
0.3
0.2
0.1
0
Sep-96 Mar-97 Sep-97 Mar-98 Sep-98 Mar-99 Sep-99 Mar-00 Sep-00 Mar-01 Sep-01 Mar-02 Sep-02 Mar-03 Sep-03 Mar-04 Sep-04 Mar-05 Sep-05 Mar-06 Sep-06 Mar-07 Sep-07 Mar-08 Sep-08 Mar-09 Sep-09


BSL-1TDS Concentrations
Concentration (mg/l)
60,000
50,000
40,000
30,000
20,000
10,000
0
Sep-96
Jan-97
May-97
Sep-97
Jan-98
May-98
Sep-98
Jan-99
May-99
Sep-99
Jan-00
May-00
Sep-00
Jan-01
May-01
Sep-01
Jan-02
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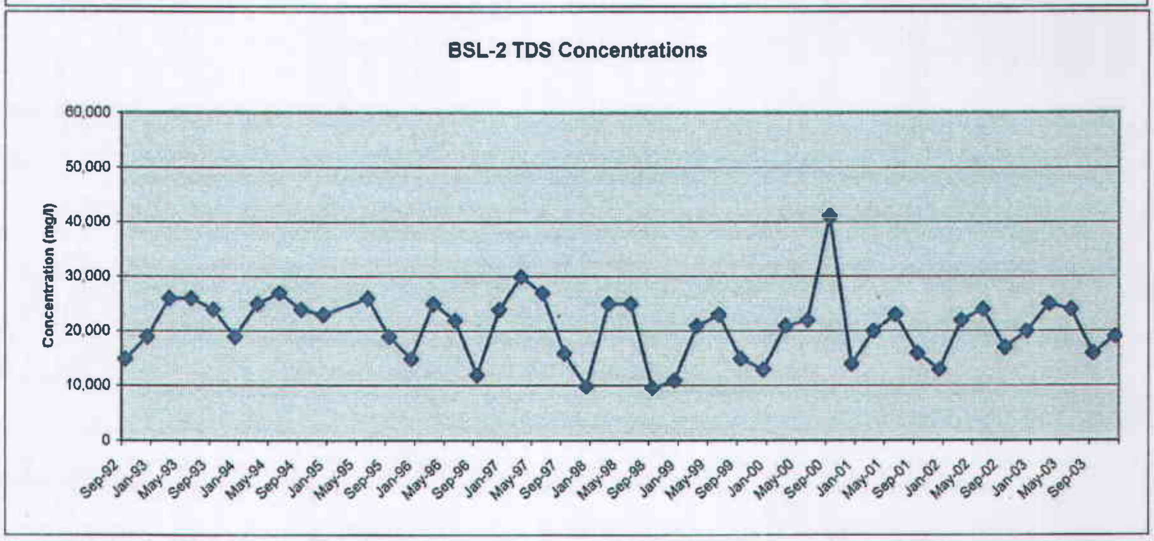
May-08
Sep-08
Jan-09


BSL-2 TDS Concentrations
Concentration (mg/l)
60,000
50,000
40,000
30,000
20,000
10,000
0
Sep-92
Jan-93
May-93
Sep-93
Jan-94
May-94
Sep-94
Jan-95
May-95
Sep-95
Jan-96
May-96
Sep-96
Jan-97
May-97
Sep-97
Jan-98
May-98
Sep-98
Jan-99
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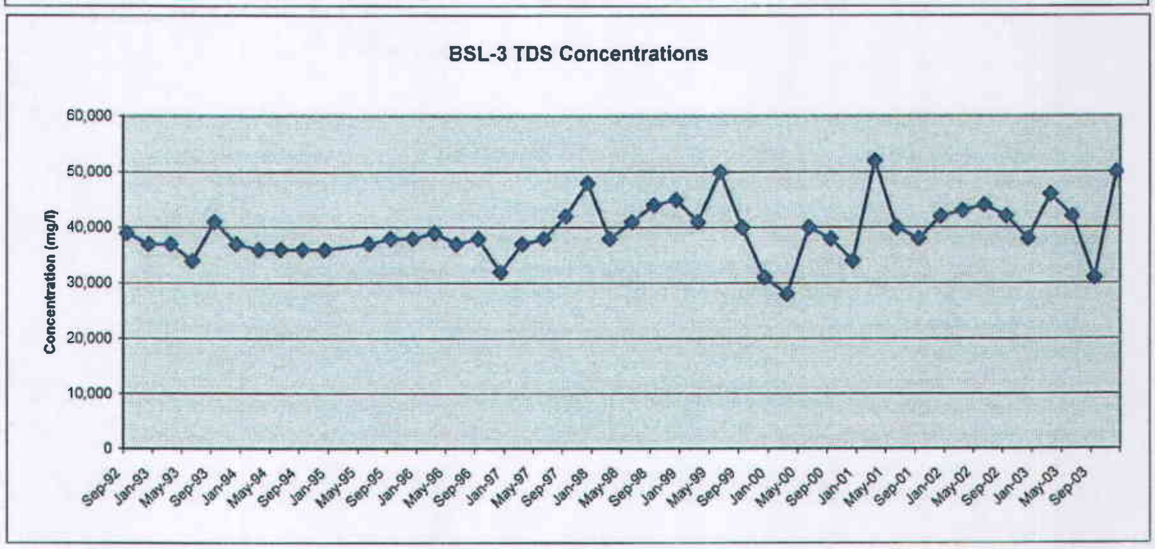
Jan-03
May-03
Sep-03


BSL-3 TDS Concentrations
Concentration (mg/l)
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50,000
40,000
30,000
20,000
10,000
0
Sep-92
Jan-93
May-93
Sep-93
Jan-94
May-94
Sep-94
Jan-95
May-95
Sep-95
Jan-96
May-96
Sep-96
Jan-97
May-97
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May-98
Sep-98
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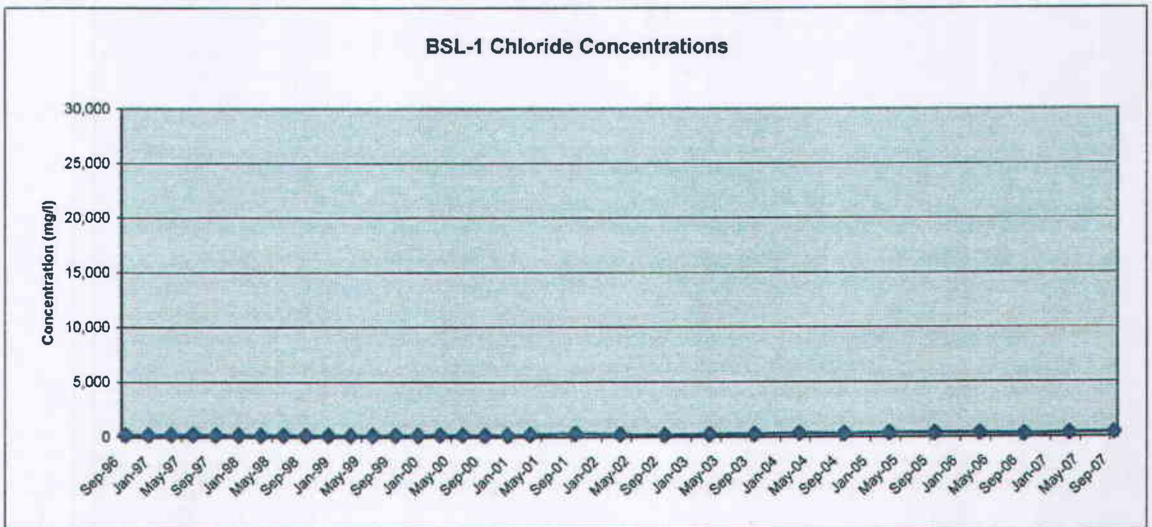
May-03
Sep-03


BSL-1 Chloride Concentrations
Concentration (mg/l)
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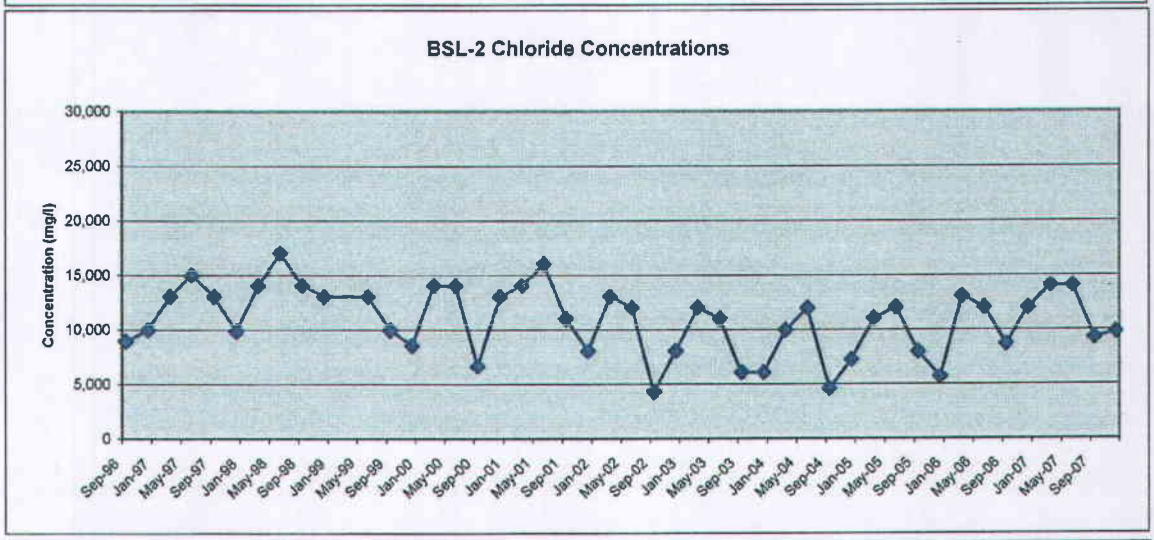
25,000
20,000
15,000
10,000
5,000
0


BSL-2 Chloride Concentrations
Concentration (mg/l)
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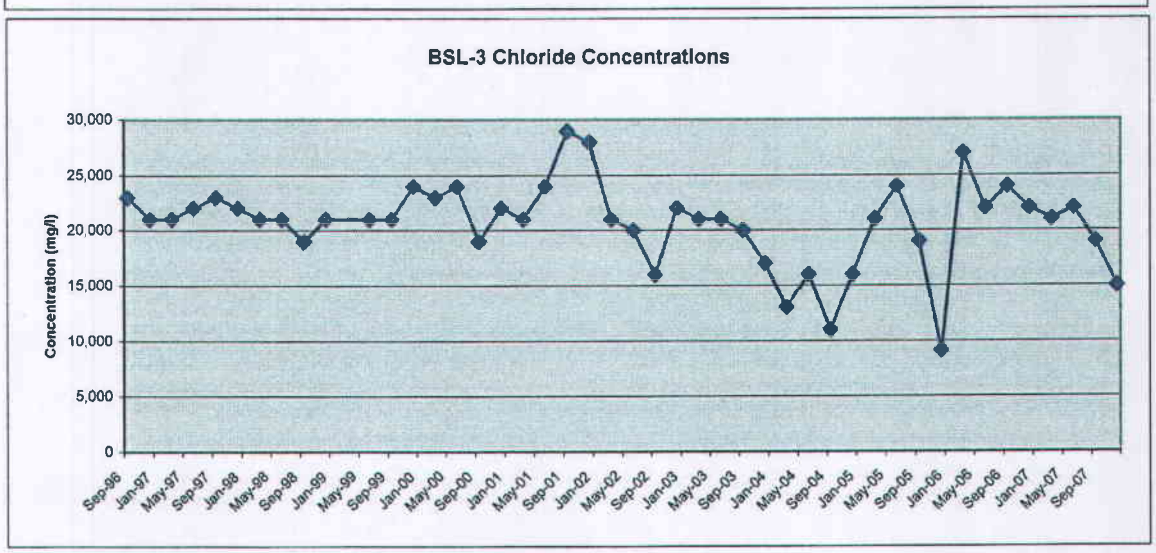
25,000
20,000
15,000
10,000
5,000
0


BSL-3 Chloride Concentrations
Concentration (mg/l)
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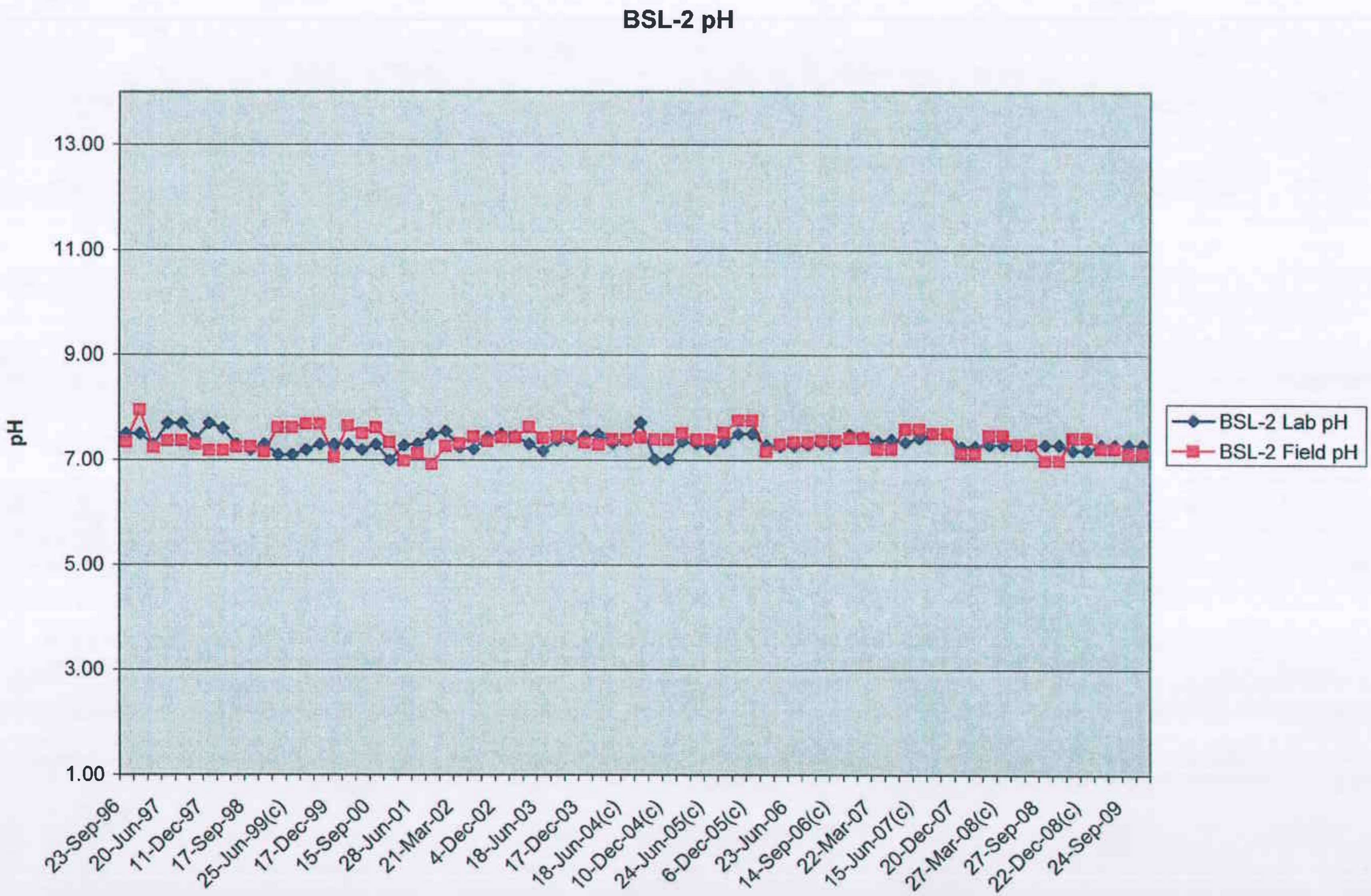
20,000
15,000
10,000
5,000
0



BSL-2 pH
pH
13.00
11.00
9.00
7.00
5.00
3.00
1.00
23-Sep-96
20-Jun-97
11-Dec-97
17-Sep-98
25-Jun-99(c)
17-Dec-99
15-Sep-00
28-Jun-01
21-Mar-02
4-Dec-02
18-Jun-03
17-Dec-03
18-Jun-04(c)
10-Dec-04(c)
24-Jun-05(c)
6-Dec-05(c)
23-Jun-06
14-Sep-06(c)
22-Mar-07
15-Jun-07(c)
20-Dec-07
27-Mar-08(c)
27-Sep-08
22-Dec-08(c)
24-Sep-09
BSL-2 Lab pH
BSL-2 Field pH

Attachment 4
Mann-Kendall Trend Analysis for Arsenic

Mann-Kendall Trend: Quarters 0-8

Contaminant: Arsenic

BSL-1

S Value

Neg	Pos
6	18
S Value	12
Evaluation	Increasing

Mann-Kendall Trend: Quarters 0-8

Quarter	1	2	3	4	5	6	7	8
Data	0.005	0.005	0.006	0.006	0.005	0.0073	0.0076	0.0059
0.005		0	0.001	0.001	0	0.0023	0.0026	0.0009
0.005			0.001	0.001	0	0.0023	0.0026	0.0009
0.006				0	-0.001	0.0013	0.0016	-0.0001
0.006					-0.001	0.0013	0.0016	-0.0001
0.005						0.0023	0.0026	0.0009
0.0073							0.0003	-0.0014
0.0076								-0.0017
0.0059								

BSL-2

S Value

Neg	Pos
8	19
S Value	11
Evaluation	Increasing

Mann-Kendall Trend: Quarters 0-8

Quarter	1	2	3	4	5	6	7	8
Data	0.02	0.021	0.023	0.0074	0.026	0.041	0.075	0.02
0.02		0.001	0.003	-0.0126	0.006	0.021	0.055	0
0.021			0.002	-0.0136	0.005	0.02	0.054	-0.001
0.023				-0.0156	0.003	0.018	0.052	-0.003
0.0074					0.0186	0.0336	0.0676	0.0126
0.026						0.015	0.049	-0.006
0.041							0.034	-0.021
0.075								-0.055
0.02								

BSL-3

S Value

Neg	Pos
7	20
S Value	13
Evaluation	Increasing

Mann-Kendall Trend: Quarters 0-8

Quarter	1	2	3	4	5	6	7	8
Data	0.056	0.053	0.047	0.073	0.037	0.075	0.075	0.081
0.056		-0.003	-0.009	0.017	-0.019	0.019	0.019	0.025
0.053			-0.006	0.02	-0.016	0.022	0.022	0.028
0.047				0.026	-0.01	0.028	0.028	0.034
0.073					-0.036	0.002	0.002	0.008
0.037						0.038	0.038	0.044
0.075							0	0.006
0.075								0.006
0.081								

Mann-Kendall Trend: Quarters 9-16

Contaminant: Arsenic

BSL-1

S Value

Neg	Pos
9	16
S Value	7
Evaluation	Stable/No Trend

Mann-Kendall Trend: Quarters 9-16

Quarter	1	2	3	4	5	6	7	8
Data	0.005	0.0064	0.015	0.015	0.015	0.0069	0.0077	0.0081
0.005		0.0014	0.01	0.01	0.01	0.0019	0.0027	0.0031
0.0064			0.0086	0.0086	0.0086	0.0005	0.0013	0.0017
0.015				0	0	-0.0081	-0.0073	-0.0069
0.015					0	-0.0081	-0.0073	-0.0069
0.015						-0.0081	-0.0073	-0.0069
0.0069							0.0008	0.0012
0.0077								0.0004
0.0081								

BSL-2

S Value

Neg	Pos
14	13
S Value	-1
Evaluation	Stable/No Trend

Mann-Kendall Trend: Quarters 9-16

Quarter	1	2	3	4	5	6	7	8
Data	0.02	0.026	0.024	0.0099	0.027	0.027	0.023	0.017
0.02		0.006	0.004	-0.0101	0.007	0.007	0.003	-0.003
0.026			-0.002	-0.0161	0.001	0.001	-0.003	-0.009
0.024				-0.0141	0.003	0.003	-0.001	-0.007
0.0099					0.0171	0.0171	0.0131	0.0071
0.027						0	-0.004	-0.01
0.027							-0.004	-0.01
0.023								-0.006
0.017								

BSL-3

S Value

Neg	Pos
15	13
S Value	-2
Evaluation	Stable/No Trend

Mann-Kendall Trend: Quarters 9-16

Quarter	1	2	3	4	5	6	7	8
Data	0.027	0.079	0.05	0.065	0.056	0.044	0.048	0.052
0.027		0.052	0.023	0.038	0.029	0.017	0.021	0.025
0.079			-0.029	-0.014	-0.023	-0.035	-0.031	-0.027
0.05				0.015	0.006	-0.006	-0.002	0.002
0.065					-0.009	-0.021	-0.017	-0.013
0.056						-0.012	-0.008	-0.004
0.044							0.004	0.008
0.048								0.004
0.052								

Mann-Kendall Trend: 16 Quarters

Contaminant: **Arsenic**

BSL-1

Evaluation

V(S)	480
Z Well	2.784256334
Zalpha	1.645
Stable/No Trend/Exp	**Increasing**

S Value

Neg	Pos
24	86
S Value	62

Count matches	
2 limit = 3	3
3 limit = 3	2
4 limit = 3	1
5 limit = 2	0
6 limit = 2	0

Formula	Wp
2	18
0	0
0	0
3	66
0	0
0	0
4	156
0	0
0	0
0	0
0	0
0	0
0	0
SUM	240

Mann-Kendall Trend: Samples > 10, Normal Approx:

Quarte	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Data	0.005	0.005	0.006	0.006	0.005	0.0073	0.0076	0.0059	0.005	0.0064	0.015	0.015	0.015	0.0069	0.0077	0.0081
0.005		0	0.001	0.001	0	0.0023	0.0026	0.0009	0	0.0014	0.01	0.01	0.01	0.0019	0.0027	0.0031
0.005			0.001	0.001	0	0.0023	0.0026	0.0009	0	0.0014	0.01	0.01	0.01	0.0019	0.0027	0.0031
0.006				0	-0.001	0.0013	0.0016	-1E-04	-0.001	0.0004	0.009	0.009	0.009	0.0009	0.0017	0.0021
0.006					-0.001	0.0013	0.0016	-1E-04	-0.001	0.0004	0.009	0.009	0.009	0.0009	0.0017	0.0021
0.005						0.0023	0.0026	0.0009	0	0.0014	0.01	0.01	0.01	0.0019	0.0027	0.0031
0.007							0.0003	-0.001	-0.002	-9E-04	0.0077	0.0077	0.0077	-4E-04	0.0004	0.0008
0.008								-0.002	-0.003	-0.001	0.0074	0.0074	0.0074	-7E-04	0.0001	0.0005
0.006									-9E-04	0.0005	0.0091	0.0091	0.0091	0.001	0.0018	0.0022
0.005										0.0014	0.01	0.01	0.01	0.0019	0.0027	0.0031
0.006											0.0086	0.0086	0.0086	0.0005	0.0013	0.0017
0.015												0	0	-0.008	-0.007	-0.007
0.015													0	-0.008	-0.007	-0.007
0.015														-0.008	-0.007	-0.007
0.007															0.0008	0.0012
0.008																0.0004
0.008	# 0s	1	0	1	2	0	0	0	3	0	0	1	2	0	0	0

BSL-2

Evaluation

V(S)	486.6666667
Z Well	0.31730869
Zalpha	1.645
Stable/No Trend/Exp	**Stable/No Trend**

S Value

Neg	Pos
53	61
S Value	8

Count matches	
2 limit = 3	4
3 limit = 3	1
4 limit = 3	0
5 limit = 2	0
6 limit = 2	0

Formula	Wp
2	18
2	18
2	18
3	66
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
SUM	120

Mann-Kendall Trend: Samples > 10, Normal Approx:

Quarte	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Data	0.02	0.021	0.023	0.0074	0.026	0.041	0.075	0.02	0.02	0.026	0.024	0.0099	0.027	0.027	0.023	0.017
0.02		0.001	0.003	-0.013	0.006	0.021	0.055	0	0	0.006	0.004	-0.01	0.007	0.007	0.003	-0.003
0.021			0.002	-0.014	0.005	0.02	0.054	-0.001	-0.001	0.005	0.003	-0.011	0.006	0.006	0.002	-0.004
0.023				-0.016	0.003	0.018	0.052	-0.003	-0.003	0.003	0.001	-0.013	0.004	0.004	0	-0.006
0.007					0.0186	0.0336	0.0676	0.0126	0.0126	0.0186	0.0166	0.0025	0.0196	0.0196	0.0156	0.0096
0.026						0.015	0.049	-0.006	-0.006	0	-0.002	-0.016	0.001	0.001	-0.003	-0.009
0.041							0.034	-0.021	-0.021	-0.015	-0.017	-0.031	-0.014	-0.014	-0.018	-0.024
0.075								-0.055	-0.055	-0.049	-0.051	-0.065	-0.048	-0.048	-0.052	-0.058
0.02									0	0.006	0.004	-0.01	0.007	0.007	0.003	-0.003
0.02										0.006	0.004	-0.01	0.007	0.007	0.003	-0.003
0.026											-0.002	-0.016	0.001	0.001	-0.003	-0.009
0.024												-0.014	0.003	0.003	-0.001	-0.007
0.01													0.0171	0.0171	0.0131	0.0071
0.027														0	-0.004	-0.01
0.027															-0.004	-0.01
0.023																-0.006
0.017	# 0s	0	0	0	0	0	0	1	2	1	0	0	0	1	1	0

BSL-3

Evaluation

V(S)	491.3333333
Z Well	-0.496254629
Zalpha	1.645
Stable/No Trend/Exp	**Stable/No Trend**

S Value

Neg	Pos
64	54
S Value	-10

Count matches	
2 limit = 3	2
3 limit = 3	0
4 limit = 3	0
5 limit = 2	0
6 limit = 2	0

Formula	Wp
2	18
2	18
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
SUM	36

Mann-Kendall Trend: Samples > 10, Normal Approx:

Quarte	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Data	0.056	0.053	0.047	0.073	0.037	0.075	0.075	0.081	0.027	0.079	0.05	0.065	0.056	0.044	0.048	0.052
0.056		-0.003	-0.009	0.017	-0.019	0.019	0.019	0.025	-0.029	0.023	-0.006	0.009	0	-0.012	-0.008	-0.004
0.053			-0.006	0.02	-0.016	0.022	0.022	0.028	-0.026	0.026	-0.003	0.012	0.003	-0.009	-0.005	-0.001
0.047				0.026	-0.01	0.028	0.028	0.034	-0.02	0.032	0.003	0.018	0.009	-0.003	0.001	0.005
0.073					-0.036	0.002	0.002	0.008	-0.046	0.006	-0.023	-0.008	-0.017	-0.029	-0.025	-0.021
0.037						0.038	0.038	0.044	-0.01	0.042	0.013	0.028	0.019	0.007	0.011	0.015
0.075							0	0.006	-0.048	0.004	-0.025	-0.01	-0.019	-0.031	-0.027	-0.023
0.075								0.006	-0.048	0.004	-0.025	-0.01	-0.019	-0.031	-0.027	-0.023
0.081									-0.054	-0.002	-0.031	-0.016	-0.025	-0.037	-0.033	-0.029
0.027										0.052	0.023	0.038	0.029	0.017	0.021	0.025
0.079											-0.029	-0.014	-0.023	-0.035	-0.031	-0.027
0.05												0.015	0.006	-0.006	-0.002	0.002
0.065													-0.009	-0.021	-0.017	-0.013
0.056														-0.012	-0.008	-0.004
0.044															0.004	0.008
0.048																0.004
0.052	# 0s	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0

28 QTR Mann-Kendall Analysis

Contaminant: Arsenic

Concentration or variance inputs (don't touch white cells)

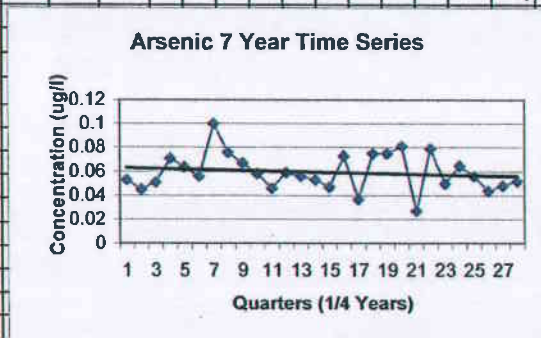
Mann-Kendall "S"	
"S" Value	-29

Variance of "S"	
	Number of tied groups
# 2 times	2
# 3 times	1
# 4 times	0
# 5 times	0
# 6 times	0
# 7 times	0
# 8 times	0
# 9 times	0
# 10 times	0
Variance V(S)	2556.333333

Trend Evaluation	
Z 95%	Sample Z
1.645	-0.59335214
Trend	Stable/No Trend

Messenger Well BSL-2

	Time:Quarters	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
# Quarters	Concentration	0.05	0.05	0.05	0	0	0	0	0	0	0	0	0	0.1	0.1	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	Sum
1	0.053		-1	-1	1	1	1	1	1	1	1	-1	1	1	0	-1	1	-1	1	1	1	-1	1	-1	1	1	-1	-1	-1	6
2	0.045			1	1	1	1	1	1	1	1	1	1	1	1	1	1	-1	1	1	1	-1	1	1	1	1	-1	1	1	20
3	0.051				1	1	1	1	1	1	1	-1	1	1	1	-1	1	-1	1	1	1	-1	1	-1	1	1	-1	-1	1	11
4	0.071					-1	-1	1	1	-1	-1	-1	-1	-1	-1	-1	1	-1	1	1	1	-1	1	-1	-1	-1	-1	-1	-1	-10
5	0.064						-1	1	1	1	-1	-1	-1	-1	-1	-1	1	-1	1	1	1	-1	1	-1	1	-1	-1	-1	-1	-5
6	0.056							1	1	1	1	-1	1	0	-1	-1	1	-1	1	1	1	-1	1	-1	1	0	-1	-1	-1	2
7	0.1								-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-21
8	0.076									-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	-1	-1	-1	-1	-16
9	0.067										-1	-1	-1	-1	-1	-1	1	-1	1	1	1	-1	1	-1	-1	-1	-1	-1	-1	-9
10	0.058											-1	1	-1	-1	-1	1	-1	1	1	1	-1	1	-1	1	-1	-1	-1	-1	-4
11	0.046												1	1	1	1	1	-1	1	1	1	-1	1	1	1	1	-1	1	1	11
12	0.059													-1	-1	-1	1	-1	1	1	1	-1	1	-1	1	-1	-1	-1	-1	-4
13	0.056														-1	-1	1	-1	1	1	1	-1	1	-1	1	0	-1	-1	-1	-2
14	0.053															-1	1	-1	1	1	1	-1	1	-1	1	1	-1	-1	-1	0
15	0.047																1	-1	1	1	1	-1	1	1	1	1	-1	1	1	7
16	0.073																	-1	1	1	1	-1	1	-1	-1	-1	-1	-1	-1	-4
17	0.037																		1	1	1	-1	1	1	1	1	1	1	1	9
18	0.075																			0	1	-1	1	-1	-1	-1	-1	-1	-1	-5
19	0.075																				1	-1	1	-1	-1	-1	-1	-1	-1	-5
20	0.081																					-1	-1	-1	-1	-1	-1	-1	-1	-8
21	0.027																						1	1	1	1	1	1	1	7
22	0.079																							-1	-1	-1	-1	-1	-1	-6
23	0.05																								1	1	-1	-1	1	1
24	0.065																									-1	-1	-1	-1	-4
25	0.056																										-1	-1	-1	-3
26	0.044																											1	1	2
27	0.048																												1	1
28	0.052																													



Mann-Kendall "S" (# plus - # minus): -29

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December 14, 2011

Mr. Todd G. Christensen, P.E.
Bountiful City Engineering Department
790 South 100 East
Bountiful, Utah 84010

RE: Intrawell Arsenic Groundwater Protection Standards

Dear Todd:

ERM-West, Inc. (ERM) has prepared this report for the City of Bountiful to present the calculations and recommendations for establishing alternate groundwater protection standards (GWPSs) for arsenic at the Bountiful Landfill. This work was performed in accordance with our proposal dated June 22, 2011. The purpose of this work was to evaluate alternative methods for establishing new GWPSs for arsenic based on background concentrations, and recommend the most appropriate GWPS(s) for the wells.

We understand that you plan to submit this report to the Utah Department of Environmental Quality Division of Solid and Hazardous Waste (DSHW) to document and support a request for approval of the alternate GWPSs presented herein. The information presented herein summarizes our prior discussions and correspondence with the DSHW. The alternate GWPSs do not become effective until approved by the Executive Secretary of DSHW, and any subsequent revisions of the standards must be approved by the Executive Secretary before becoming effective.

BACKGROUND

Groundwater samples have been collected at the Bountiful Landfill on a quarterly basis from June 1988 to the present. ERM has participated in groundwater monitoring activities since 2001, and continues to perform the monitoring for the three wells currently comprising the compliance monitoring program (i.e., Wells BSL-1, -2 and -3). Statistical analysis completed in 2010 for the compliance monitoring results

- Identify the potential ramifications for the alternative testing approaches on the groundwater monitoring program for the Bountiful Landfill; and
- Summarize the evaluations, results and recommendations in a letter report.

BACKGROUND DATA SET EVALUATION

Monitoring data through December 2010 was identified for use in the background evaluations. This approximately coincides with the data set used for the Determination of Naturally Occurring Arsenic completed by ERM in October 2010. To reduce potential variability resulting from analysis of unfiltered groundwater samples, only results from filtered groundwater samples were included in the data sets. Groundwater samples were field-filtered beginning with the June 2002 sampling event.

The available data from June 2002 to December 2010 for wells BSL-1, BSL-2, BSL-3, BG-1 and BG-2 are provided on Table 1. Locations of these monitoring wells are shown on Figure 1. A plot of arsenic concentrations from quarterly groundwater monitoring is provided on Figure 2. This plot suggests that arsenic concentrations do not exhibit seasonality. It should be noted that only data from wells BSL-2 and BSL-3 were used for GWPS calculations; arsenic data for background wells BSL-1, BG-1, and BG-2 are provided for comparison purposes only.

The data sets for GWPS calculations were prepared from the monitoring data listed on Table 1 by removing duplicate and non-detected results from the monitoring data. For samples that have an associated field duplicate, only the result from the primary sample was used in calculations. Both BSL-2 and BSL-3 have low frequencies of non-detected results. From June 2002 to December 2010:

- Four (4) out of 35 samples, or 11 percent, were non-detect at well BSL-2; and
- Three (3) out of 35 samples, or 9 percent, were non-detect at well BSL-3.

INTRAWELL GWPS DEVELOPMENT

The 2010 arsenic study found that arsenic is naturally occurring in groundwater at the Bountiful Landfill; therefore, alternate GWPSs have been developed to reflect background concentrations for presentation to the DSHW Executive Secretary for approval. The background data sets for wells BSL-2 and BSL-3 illustrate that there is spatial variability in groundwater arsenic concentrations at the site, as illustrated by the histograms presented on Figure 2. Because of the spatial variability in arsenic concentrations, and consistent with the RCRA Unified Guidance, background GWPSs are calculated on an intrawell basis.

The intrawell approach for establishing well-specific GWPSs based on historical data is a recommended and well-documented approach under the RCRA Unified Guidance; however, the intrawell approach is not specifically mentioned by the R315-308 DSHW rules for Ground Water Monitoring Requirements at landfills. R315-308-2(6)(c) states that "[i]f a constituent is detected and a background level is established and the established background level is higher" than the listed GWPS or the health risk standard, the GWPS "shall be the background concentration."

The RCRA Unified Guidance identifies two approaches for developing background GWPS: a one-sample test and a two-sample test. Either approach may be applied for intrawell GWPS calculations. Under the one-sample test approach, background data are used to generate a fixed GWPS somewhat elevated above current background level(s). Under the two-sample test approach, the GWPS is defined as the critical limit from a pre-selected detection-level statistical test (e.g., a prediction limit) based on background measurements (EPA 2009). The one-sample test is generally consistent with the Bountiful Landfill's current practice of comparing monitoring data from compliance wells to a fixed value, therefore the one-sample test was identified as the preferred approach for background GWPS calculations.

The RCRA Unified Guidance for single-sample testing recommends definition of a fixed GWPS based on a background upper tolerance limit (UTL) with 95% confidence and 95% coverage (EPA 2009, page 7-24). The UTL is the upper limit of a tolerance interval, which is a statistical interval constructed to "cover" a specified proportion of the

- Calculated $UTL_{0.99,0.99}$ values are greater than $UTL_{0.95,0.95}$ values, with the difference being relatively greater for BSL-2 than for BSL-3 due to the lognormal distribution of data for well BSL-2.

RECOMMENDATIONS

Based on the information presented above, and to be consistent with the recommended approach from the RCRA Unified Guidance, ERM proposes that alternate GWPSs for compliance wells BSL-2 and BSL-3 be established as the intrawell background arsenic concentrations calculated as the UTL with 95% confidence and 95% coverage. Proposed alternate GWPSs are shown on Table 3 (below).

Table 3. Proposed Alternate GWPSs for Arsenic

Well	Proposed Arsenic GWPS (mg/L)
BSL-2	0.046
BSL-3	0.082

Once the alternate arsenic GWPSs are approved by the Executive Secretary of the DSHW, monitoring at compliance wells BSL-2 and BSL-3 will be performed using the alternate GWPS values instead of the arsenic GWPS listed in R315-308-4. Assessment monitoring will be performed consistent with R-315-308-2(12)(d) and the approach previously used by the City of Bountiful, where a parametric analysis of variance (ANOVA) is followed by a comparison between the calculated LCL on mean arsenic concentration at each compliance well (using post-2010 monitoring data) with the intrawell background concentrations. Statistically significant evidence of contamination at a compliance well would be indicated if the calculated LCL on the mean arsenic concentration exceeds the intrawell background concentration for that well. Whereas the 99% LCL (alpha = 0.01) has been used previously for GWPS comparisons, a more conservative 95% LCL (alpha = 0.05) will be used for comparisons to the alternate GWPS values. By using the 95% LCL, the confidence level will be consistent for the intrawell background values and GWPS comparisons.

In our meeting on September 15, 2011, the DSHW requested that the proposed alternate GWPS include an approach for regularly reviewing

We appreciate the opportunity to have performed this evaluation project for Bountiful City. If you have any questions, please contact us at (801) 595-8400.

Sincerely,
ERM-West, Inc.

David S. Wilson, P.E., P.G.
Principal

Kevin Lundmark
Project Manager

enclosures:

Table 1	*Summary of Arsenic Groundwater Monitoring Data 1996 – 2010*
Table 2	*Intrawell Arsenic Groundwater Protection Standard (GWPS) Calculations*
Figure 1	*Bountiful City Landfill Monitoring Well Locations*
Figure 2	*Dissolved Arsenic Data June 2002 – December 2010*
Figure 3	*Histograms for Dissolved Arsenic Data at Wells BSL-2 and BSL-3, June 2002 – December 2010*
Appendix A	*ProUCL Output*
Appendix B	*Upper Tolerance Limit Factors from RCRA Unified Guidance*

R-Bountiful Arsenic_October 2010.doc

Table 1
Groundwater Monitoring Data for Arsenic, June 2002 - December 2010
Bountiful Landfill

Well	Sample Date	Arsenic [a] (mg/L)	Primary (P) / Duplicate (DUP)	Detect (Det) / Non-Detect (ND)	GWPS Dataset [b]
BSL-1	09/26/02	0.0054	P	Det	
	03/27/03	<0.0050	P	ND	
	09/24/03	<0.0050	P	ND	
	03/12/04	0.0060	P	Det	
	09/30/04	0.0060	P	Det	
	03/18/05	<0.0050	P	ND	
	09/19/05	0.0073	P	Det	
	03/17/06	0.0076	P	Det	
	09/14/06	0.0059	P	Det	
	03/22/07	<0.0050	P	ND	
	09/27/07	0.0064	P	Det	
	03/27/08	<0.015	P	ND	
	09/23/08	<0.015	P	ND	
	03/12/09	<0.015	P	ND	
	09/24/09	0.0069	P	Det	
	03/19/10	0.0077	P	Det	
	09/16/10	0.0081	P	Det	
BSL-2	06/20/02	0.0084	P	Det	Y
	09/26/02	0.010	P	Det	Y
	12/04/02	0.018	P	Det	Y
	12/04/02	0.015	Dup	Det	
	03/27/03	0.013	P	Det	Y
	06/18/03	<0.0050	P	ND	
	09/24/03	0.013	P	Det	Y
	09/24/03	0.014	Dup	Det	
	12/17/03	<0.0050	P	ND	
	03/12/04	0.0080	P	Det	Y
	06/18/04	0.015	P	Det	Y
	06/18/04	0.036	Dup	Det	
	09/30/04	0.0070	P	Det	Y
	12/10/04	0.011	P	Det	Y
	12/10/04	0.011	Dup	Det	
	03/18/05	0.014	P	Det	Y
	06/24/05	<0.10	P	ND	
	06/24/05	<0.10	Dup	ND	
	09/19/05	0.0089	P	Det	Y
	12/06/05	0.024	P	Det	Y
	12/06/05	0.019	Dup	Det	
	03/17/06	0.026	P	Det	Y
	03/17/06	0.021	Dup	Det	
	06/23/06	0.018	P	Det	Y
	06/23/06	0.016	Dup	Det	
	09/14/06	0.019	P	Det	Y
	09/14/06	0.017	Dup	Det	
	12/05/06	0.020	P	Det	Y
	12/05/06	0.021	Dup	Det	
	03/22/07	0.021	P	Det	Y
	03/22/07	0.021	Dup	Det	
	06/15/07	0.023	P	Det	Y
	06/15/07	0.026	Dup	Det	
	09/27/07	0.0074	P	Det	Y
	09/27/07	0.0059	Dup	Det	
	12/20/07	0.026	P	Det	Y
	12/20/07	0.034	Dup	Det	
	03/27/08	0.041	P	Det	Y
	03/27/08	0.033	Dup	Det	
	06/27/08	<0.075	P	ND	
	06/27/08	<0.075	Dup	ND	
	09/23/08	0.020	P	Det	Y
	09/23/08	0.022	Dup	Det	
	12/22/08	0.020	P	Det	Y
	12/22/08	0.024	Dup	Det	
	03/12/09	0.026	P	Det	Y

Table 2
Intrawell Arsenic Groundwater Protection Standard (GWPS) Calculations
Bountiful Landfill

Well	Arsenic Sample Results June 2002 [a] - December 2010				Summary Statistics (Using Detected Results Only)							Arsenic GWPS Calculations (Using Detected Results Only)		
	Total Samples	Number Detects	Number Non-Detect	Percent Non-Detect	Maximum (mg/L)	Mean (mg/L)	Median (mg/L)	Standard Deviation (mg/L)	Distribution	LCL on Mean (mg/L)		UTL [b] (mg/L)		Comparison to sample results
										95%	99%	95%	99%	
BSL-2	35	31	4	11%	0.041	0.018	0.019	0.008	Lognormal	0.008	0.006	0.046	0.081	No detections above 95% or 99% UTLs
BSL-3	35	32	3	9%	0.081	0.054	0.0525	0.012	Normal	0.034	0.025	0.082	0.097	No detections above 95% or 99% UTLs

Notes:
[a] Groundwater samples for metals analysis were filtered beginning June 2002
[b] UTLs are presented with equal confidence coefficient and coverage, e.g., the 95% UTL represents the 95% upper confidence limit for 95% coverage of the data
GWPS = Groundwater Protection Standard for arsenic
LCL = lower confidence limit
UTL = upper tolerance limit

Drawn By: G. Rigard | Date: 1/13/11 | Project No. 0111980 | CAD File:

Aerial Photo Source: © 2009 Google Earth Pro Ver 5.0.11733.9347

LEGEND

Monitoring Well

NOTE: Monitoring well locations JMM-1 thru JMM-8 correspond with piezometer locations P-1 thru P-8

N

0 300

Approx. Scale (feet)

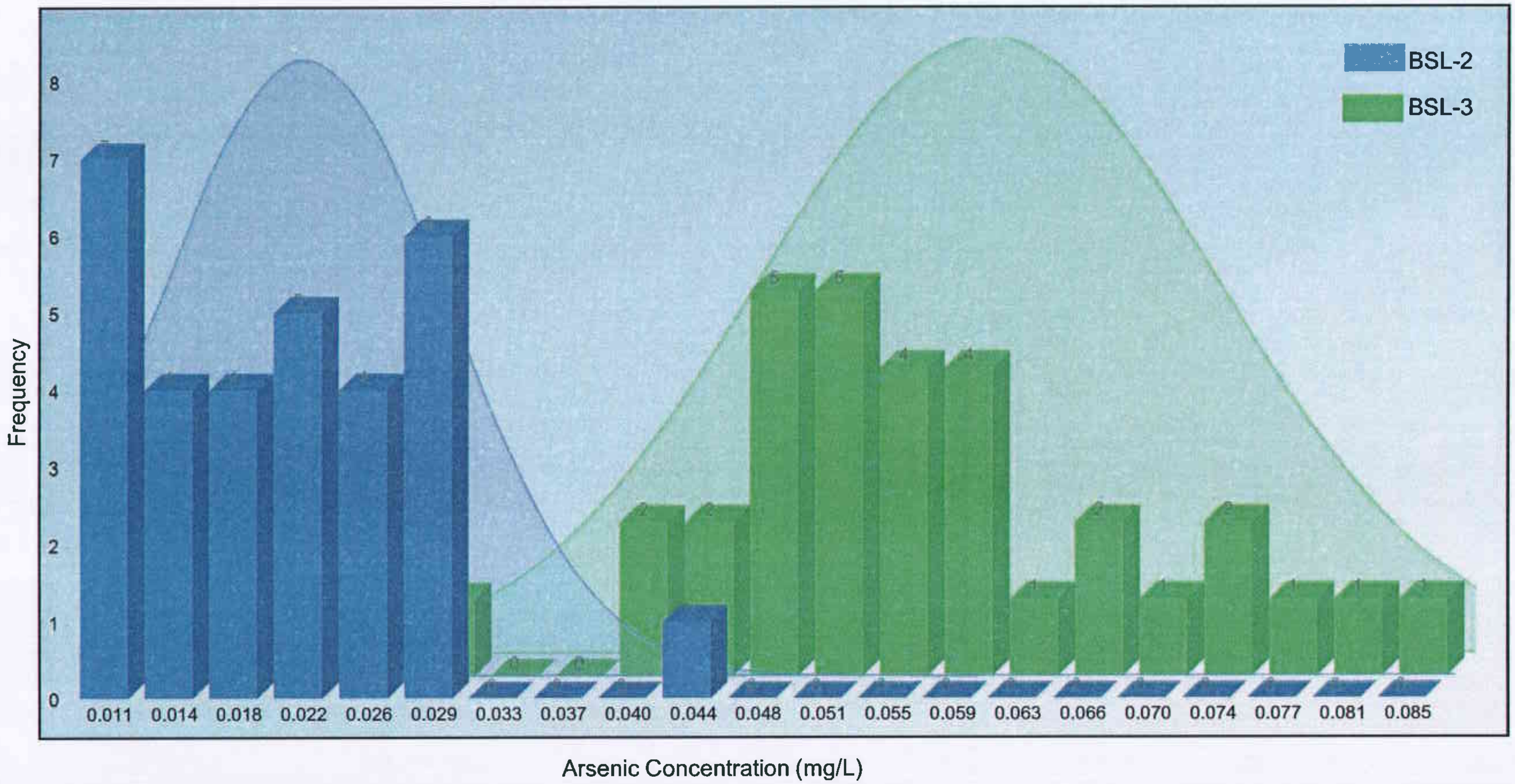
Figure 1

Monitoring Well Location Map

Bountiful Sanitary Landfill

Bountiful, Utah

ERM 1/11



Well	Upper Tolerance Limit (UTL) (mg/L)	
	95%	99%
BSL-2	0.046	0.081
BSL-3	0.082	0.097

Figure 3
Histograms for Dissolved Arsenic Data at Wells BSL-2 and BSL-3,
June 2002 – December 2010
Bountiful Sanitary Landfill
Bountiful, Utah

General Background Statistics for Full Data Sets

User Selected Options	
From File	As_ProUCL_NoDup.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Values	1
Number of Bootstrap Operations	2000

As (BSL-2)

General Statistics

Total Number of Observations	31	Number of Distinct Observations	21
Tolerance Factor	2.197		

Raw Statistics		**Log-Transformed Statistics**	
Minimum	0.007	Minimum	-4.962
Maximum	0.041	Maximum	-3.194
Second Largest	0.027	Second Largest	-3.612
First Quartile	0.012	First Quartile	-4.426
Median	0.019	Median	-3.963
Third Quartile	0.024	Third Quartile	-3.73
Mean	0.0184	Mean	-4.089
SD	0.00785	SD	0.462
Coefficient of Variation	0.426		
Skewness	0.522		

Background Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.937	Shapiro Wilk Test Statistic	0.934
Shapiro Wilk Critical Value	0.929	Shapiro Wilk Critical Value	0.929
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% UTL with 95% Coverage	0.0357	95% UTL with 95% Coverage	0.0462
95% UPL (t)	0.032	95% UPL (t)	0.0372
90% Percentile (z)	0.0285	90% Percentile (z)	0.0303
95% Percentile (z)	0.0313	95% Percentile (z)	0.0358
99% Percentile (z)	0.0367	99% Percentile (z)	0.0491

Goodness-of-Fit Test Statistics for Full Data Sets without Non-Detects

User Selected Options

From File	As_ProUCL_NoDup.wst
Full Precision	OFF
Confidence Coefficient	0.95

As (BSL-2)

Raw Statistics

Number of Valid Observations	31
Number of Distinct Observations	21
Minimum	0.007
Maximum	0.041
Mean of Raw Data	0.0184
Standard Deviation of Raw Data	0.00785
Kstar	4.862
Mean of Log Transformed Data	-4.089
Standard Deviation of Log Transformed Data	0.462

Normal Distribution Test Results

Correlation Coefficient R	0.968
Shapiro Wilk Test Statistic	0.937
Shapiro Wilk Critical (0.95) Value	0.929
Approximate Shapiro Wilk P Value	0.0826
Lilliefors Test Statistic	0.105
Lilliefors Critical (0.95) Value	0.159

Data appear Normal at (0.05) Significance Level

Lognormal Distribution Test Results

Correlation Coefficient R	0.971
Shapiro Wilk Test Statistic	0.934
Shapiro Wilk Critical (0.95) Value	0.929
Approximate Shapiro Wilk P Value	0.066
Lilliefors Test Statistic	0.143
Lilliefors Critical (0.95) Value	0.159

Data appear Lognormal at (0.05) Significance Level

As (BSL-3)

Raw Statistics

Number of Valid Observations	32
Number of Distinct Observations	24
Minimum	0.027
Maximum	0.081
Mean of Raw Data	0.0544
Standard Deviation of Raw Data	0.0125
Kstar	17.67
Mean of Log Transformed Data	-2.938
Standard Deviation of Log Transformed Data	0.234

Normal Distribution Test Results

Correlation Coefficient R	0.98
Shapiro Wilk Test Statistic	0.959
Shapiro Wilk Critical (0.95) Value	0.93
Approximate Shapiro Wilk P Value	0.313
Lilliefors Test Statistic	0.138
Lilliefors Critical (0.95) Value	0.157

Data appear Normal at (0.05) Significance Level

Lognormal Distribution Test Results

Correlation Coefficient R	0.979
Shapiro Wilk Test Statistic	0.965
Shapiro Wilk Critical (0.95) Value	0.93
Approximate Shapiro Wilk P Value	0.431
Lilliefors Test Statistic	0.094
Lilliefors Critical (0.95) Value	0.157

Data appear Lognormal at (0.05) Significance Level

Quantile-Quantile Plots for Log-Transformed Data Sets

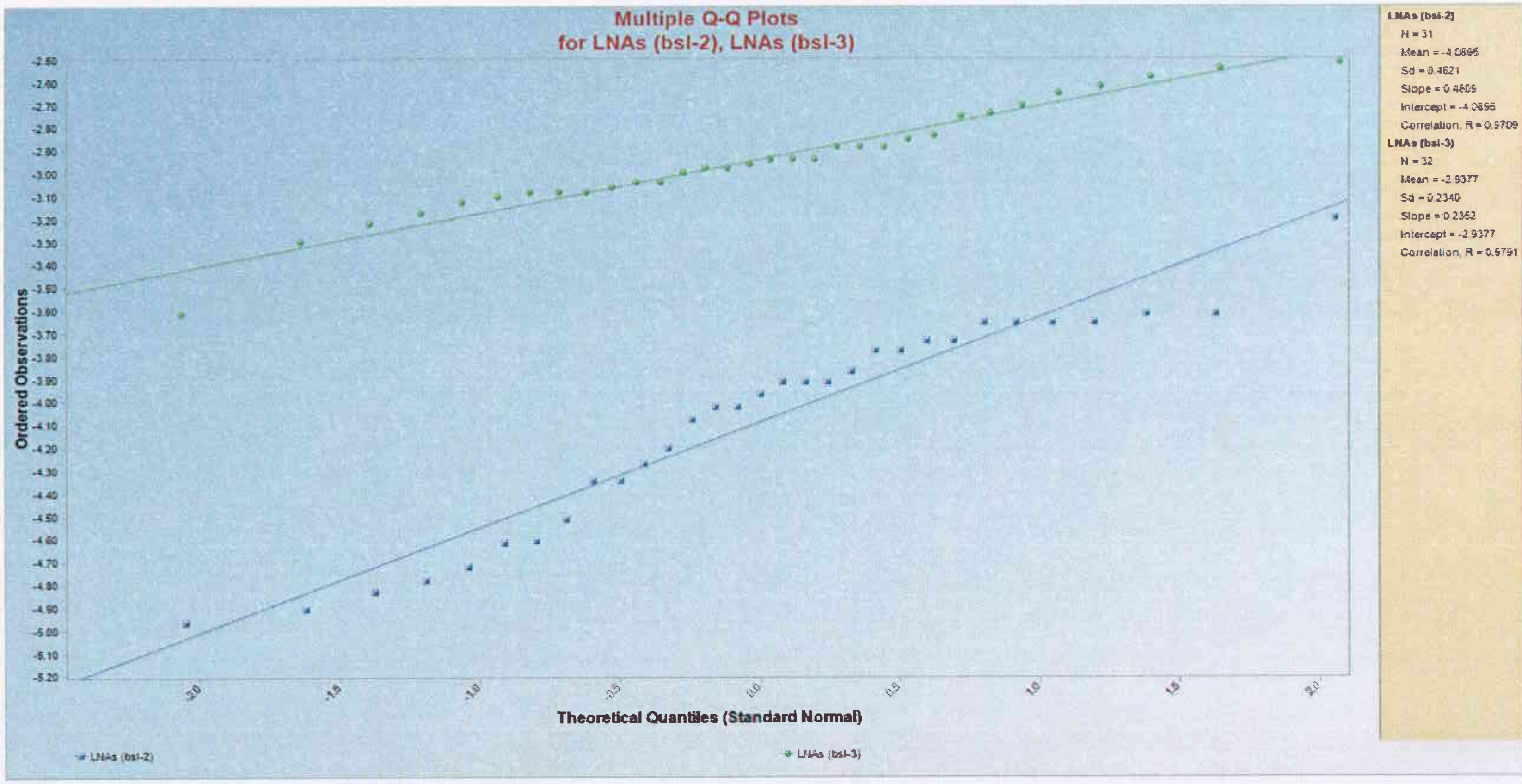


Table 17-3. Upper Tolerance Limit Factors With γ Coverage for *n* = 4(1)30(5)100

	95% Confidence			99% Confidence		
n\γ	**0.90**	**0.95**	**0.99**	**0.90**	**0.95**	**0.99**
4	4.162	5.144	7.042	7.380	9.083	12.387
5	3.407	4.203	5.741	5.362	6.578	8.939
6	3.006	3.708	5.062	4.411	5.406	7.335
7	2.755	3.399	4.642	3.859	4.728	6.412
8	2.582	3.187	4.354	3.497	4.285	5.812
9	2.454	3.031	4.143	3.240	3.972	5.389
10	2.355	2.911	3.981	3.048	3.738	5.074
11	2.275	2.815	3.852	2.898	3.556	4.829
12	2.210	2.736	3.747	2.777	3.410	4.633
13	2.155	2.671	3.659	2.677	3.290	4.472
14	2.109	2.614	3.585	2.593	3.189	4.337
15	2.068	2.566	3.520	2.521	3.102	4.222
16	2.033	2.524	3.464	2.459	3.028	4.123
17	2.002	2.486	3.414	2.405	2.963	4.037
18	1.974	2.453	3.370	2.357	2.905	3.960
19	1.949	2.423	3.331	2.314	2.854	3.892
20	1.926	2.396	3.295	2.276	2.808	3.832
21	1.905	2.371	3.263	2.241	2.766	3.777
22	1.886	2.349	3.233	2.209	2.729	3.727
23	1.869	2.328	3.206	2.180	2.694	3.681
24	1.853	2.309	3.181	2.154	2.662	3.640
25	1.838	2.292	3.158	2.129	2.633	3.601
26	1.824	2.275	3.136	2.106	2.606	3.566
27	1.811	2.260	3.116	2.085	2.581	3.533
28	1.799	2.246	3.098	2.065	2.558	3.502
29	1.788	2.232	3.080	2.047	2.536	3.473
30	1.777	2.220	3.064	2.030	2.515	3.447
35	1.732	2.167	2.995	1.957	2.430	3.334
40	1.697	2.125	2.941	1.902	2.364	3.249
45	1.669	2.092	2.898	1.857	2.312	3.180
50	1.646	2.065	2.862	1.821	2.269	3.125
55	1.626	2.042	2.833	1.790	2.233	3.078
60	1.609	2.022	2.807	1.764	2.202	3.038
65	1.594	2.005	2.785	1.741	2.176	3.004
70	1.581	1.990	2.765	1.722	2.153	2.974
75	1.570	1.976	2.748	1.704	2.132	2.947
80	1.559	1.964	2.733	1.688	2.114	2.924
85	1.550	1.954	2.719	1.674	2.097	2.902
90	1.542	1.944	2.706	1.661	2.082	2.883
95	1.534	1.935	2.695	1.650	2.069	2.866
100	1.527	1.927	2.684	1.639	2.056	2.850

Source of algorithm used to compute table: Odeh & Owen (1980)
Footnote. The notation *n* = 4(1)30(5)100 is a shorthand for *n* from 4 to 30 by unit steps, then from 35 to 100 by 5's

State of Utah

GARY HERBERT
Governor

GREG BELL
Lieutenant Governor

Department of
Environmental Quality

Amanda Smith
Executive Director

DIVISION OF SOLID AND
HAZARDOUS WASTE
Scott T. Anderson
Director

March 15, 2012

Todd Christensen, Engineer
Bountiful City Engineering Department
P.O. Box 140102
Salt Lake City, Utah 84114-0102

RE: Bountiful Landfill
Alternate Arsenic Ground Water Protection Standards

Dear Mr. Christensen:

The Division of Solid and Hazardous Waste has completed its review of your request to establish alternate ground water protections standards for arsenic in groundwater at the Bountiful Landfill, as described in the report *Intrawell Arsenic Groundwater Protection Standards* prepared by Environmental Resources Management. You have already received approval for your demonstration that arsenic in landfill monitoring wells is naturally occurring. As a result of that approval, a new ground water protection standard for arsenic must be set.

Calculation of the alternative protection standards was done using a background upper tolerance limit method, as described in the EPA document *Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities – Unified Guidance* (March 2009; p 7-20 to 7-28). In the calculations performed on the Bountiful Landfill sample data, non-detect results were removed from the data set because they occurred at low frequency and would introduce significant uncertainty into the statistical calculations. A review of the data indicates that six out of 70 samples from the two wells used showed non-detect for arsenic. In four of the six non-detects, the sample detection limit was above the protection standard of 0.01 mg/l, leaving only two non-detect samples of potential concern. Since the non-detect samples are such a small percentage of the total number of samples, and because of the statistical difficulty in using non-detect samples, in this instance, it is acceptable to remove non-detect samples from the data.

TN201200479

The proposed alternate arsenic groundwater protection standards are approved. The revised standards must be reevaluated every five years, as outlined in your request. Also, the revised standards and the five-year re-evaluation will be included as permit conditions in the pending permit renewal for the Bountiful Landfill. Please provide the Division with copies of the reports *Demonstration of Naturally Occurring Arsenic* (October, 2010) and *Intrawell Arsenic Groundwater Protection Standards* (December, 2011) for inclusion as appendices in the permit application.

If you have any questions, please call Phil Burns at (801) 536-0253.

Sincerely,

Scott T. Anderson, Executive Secretary
Utah Solid and Hazardous Waste Control Board

STA/PEB/kk

c: Lewis R. Garrett, A.P.R.N., M.P.H., Health Officer, Davis County Health Department
David W. Spence, EHS, MBA, Environmental Health Director, Davis Co. Health Dept.