



Conservation Services, Inc.
41800 E 88th Ave
Bennett, CO 80102
303-644-4335 (Phone)
303-644-4378 (Fax)

January 18, 2024

Mr. Nick Eagleson
Adams County Planning and Development Division
4430 South Adams County Parkway
1st Floor, Suite W2000A
Brighton, CO 80601

**Re: Engineering Design and Operations Plan Summary and Attachments
First Submittal – Renewal of Certificate of Designation
Conservation Services, Inc. Disposal Facility
Bennett, Colorado**

Dear Mr. Eagleson:

Conservation Services, Inc. (CSI), a wholly owned subsidiary of Waste Management of Colorado, Inc. is pleased to submit this application for renewal of the Certificate of Designation (CD) for the CSI disposal facility. CSI appreciates the County's input and assistance throughout CSI's preparation of this submittal and looks forward to the County's review.

The CSI facility is unique to the region and has been providing environmentally sound specialty disposal services to industry and business since its opening in 1989. CSI has a proven track record of environmental stewardship and has developed a successful partnership with Adams County, continually striving to improve its services for responsible waste management.

The documents submitted with this application include the documents required for the "first submittal" consistent with the September 18, 2023 letter of comments and verbal guidance from Adams County resulting from the Conceptual Meeting between representatives of CSI and Adams County.

This submittal includes the following major sections:

1. A completed application for the CD
2. A completed CD application checklist

Attachment 1 – The Engineering Design and Operations Plan (EDOP) Summary

Appendix A – Title Report including proof of ownership, legal description, rights-of-way, easements, deeds, and encumbrances to the property.

Appendix B – 1995 CSI Drainage Study-Appendix G from the 1996 EDOP & Stormwater Discharge Certification

Mr. Nick Eagleson
January 18, 2024
Page 2

Appendix C – Energy Services Management Plan

Appendix D – Typical Site Staffing and Equipment

Drawings – Site Development Map, Permitted Base Grades, Permitted Final Grades

Attachment 2 – Proof of Taxes

Attachment 3 – Proof of Water

Attachment 4 – Proof of Sewer

Attachment 5 – Proof of Utilities

Attachment 6 – Neighborhood Meeting Documentation

Attachment 7 – 2014 Traffic Impact Analysis

Attachment 8 – Redline of Changes to EDOP Summary Document

In addition to the above documents, the 1996 EDOP is included with this application as a separate pdf document for ease of review. Two hard copies of the application document and the 1996 EDOP will be mailed to the County, and it is our understanding that the Colorado Department of Public Health and Environment, as a referral agency for the County, will receive the necessary documents from Adams County. We understand that CSI will be billed for the application once it is received and deemed complete by the County.

Please feel free to contact me by email (tschweit@wm.com) or phone (303-475-4408) if you have any questions.

Respectfully Submitted,



Tom Schweitzer, P.E.
Engineering Manager

CC: Sophia Parker, CSI
Mark McMullen, AEC



CERTIFICATE OF DESIGNATION

Application submittals must include all documents on this checklist as well as this page. Please use the reference guide (pg. 3) included in this packet for more information on each submittal item.

All applications shall be submitted electronically to epermitcenter@adcogov.org. If the submittal is too large to email as an attachment, the application may be sent as an unlocked OneDrive link. Alternatively, the application may be delivered on a flash drive to the One-Stop Customer Service Center. All documents should be combined in a single PDF. Once a complete application has been received, fees will be invoiced and payable online at <https://permits.adcogov.org/CitizenAccess/>.

- 1. Development Application Form (pg. 5)
 - 2. Application Fees (see table pg. 2)
 - 3. Written Explanation of the Project, including:
 - Purpose of fill, estimated life of the operation, and proposed after-use for the site
 - 4. Site Plan Showing Proposed Development
 - 5. Legal Description
 - 6. Certificate of Taxes Paid
 - 7. Proof of Ownership (warranty deed or title policy)
 - 8. Proof of Water and Sewer Services
 - 9. Proof of Utilities (e.g. electric, gas)
 - 10. Neighborhood Meeting Summary
 - 11. Certificate of Notice to Mineral Estate Owners/and Lessees(pg. 7)
 - 12. Certificate of Surface Development (pg. 8-10)
 - 13. Written Concurrence from the Colorado Department of Public Health and Environment
for the Use of a Certificate of Designation for the site.
 - 14. Design and Operations Plan
- Required Engineering Documents:
- 15. Drainage Report
 - 16. Traffic Impact Study
 - 17. Erosion and Sediment Control Plans
 - 18. Construction/ Engineering Design Plans

continued on next page...



Application Type:

<input type="checkbox"/> Conceptual Review	<input type="checkbox"/> Preliminary PUD	<input type="checkbox"/> Temporary Use
<input type="checkbox"/> Subdivision, Preliminary	<input type="checkbox"/> Final PUD	<input type="checkbox"/> Variance
<input type="checkbox"/> Subdivision, Final	<input type="checkbox"/> Rezone	<input type="checkbox"/> Conditional Use
<input type="checkbox"/> Plat Correction/ Vacation	<input type="checkbox"/> Special Use	<input checked="" type="checkbox"/> Other: <u>Certificate of Designation</u>

PROJECT NAME:

APPLICANT

Name(s): Phone #:

Address:

City, State, Zip:

2nd Phone #: Email:

OWNER

Name(s): Phone #:

Address:

City, State, Zip:

2nd Phone #: Email:

TECHNICAL REPRESENTATIVE (Consultant, Engineer, Surveyor, Architect, etc.)

Name: Phone #:

Address:

City, State, Zip:

2nd Phone #: Email:

DESCRIPTION OF SITE

Address: 41800 E. 88th Avenue

City, State, Zip: Bennett, Colorado 80102

Area (acres or square feet): Approximately 383 acres

Tax Assessor Parcel Number #1:0172725200001 #2: 0172700000157 #3: 0172700000158

Existing Zoning: A-3 Agriculture

Existing Land Use: Solid Waste Disposal

Proposed Land Use: Solid Waste Disposal

Have you attended a Conceptual Review? YES NO

If Yes, please list PRE#: PRE2023-00061

I hereby certify that I am making this application as owner of the above described property or acting under the authority of the owner (attached authorization, if not owner). I am familiar with all pertinent requirements, procedures, and fees of the County. I understand that the Application Review Fee is non-refundable. All statements made on this form and additional application materials are true to the best of my knowledge and belief.

Name: Tom Schweitzer

Date: January 18, 2024

Owner's Printed Name

Name: Tom Schweitzer

Owner's Signature

ATTACHMENT 1

**Conservation Services, Inc.
Engineering Design and Operation
Plan Summary**

**CONSERVATION SERVICES, INC.
ENGINEERING DESIGN AND OPERATIONS
PLAN SUMMARY**



Prepared for:

**Conservation Services, Inc.
41800 East 88th Avenue
Bennett, Colorado 80102**

Prepared by:

**American Environmental Consulting, LLC
6885 S. Marshall St. Suite 3
Littleton, Colorado 80128**

January 2024

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	Purpose	2
1.2	Regulatory Background	3
1.3	Site Description	4
1.4	Subtitle D Location Restrictions	8
1.4.1	Airports	8
1.4.2	Wetlands	8
1.4.3	Faults	8
1.4.4	Seismic Impact Zones	8
1.4.5	Unstable Areas	9
1.4.6	Topography	9
1.4.7	Floodplains	9
1.4.8	Design Standards	9
1.4.9	Surface Water/Groundwater	9
1.5	Permitted Wells Within Two Miles of Site	9
2.0	SITE CHARACTERISTICS	10
2.1	Site Topography	10
2.2	Surface Water Drainage	10
2.3	Climatology	11
3.0	GEOLOGY	12
3.1	Regional Geology	12
3.2	Site Geology	12
4.0	HYDROGEOLOGY	15
4.1	Regional Hydrogeology	15
4.2	Site Hydrogeology	15
4.3	Hydrological Summary and Conceptual Model	16
4.4	Groundwater Quality	16
4.4.1	Regional Groundwater Quality	16
4.4.2	Local Groundwater Quality	17
5.0	FACILITY CONFIGURATION	18
5.1	Support Facilities and Site Access	18
5.2	Disposal Area Layout	19
5.3	Anticipated Service Life	20
5.4	Soil Balance	20
5.5	Waste Characteristics	20
6.0	ENGINEERING DESIGN	22
6.1	Buffer Area	22
6.2	Disposal Area Layout and Status	22
6.3	Engineered Containment Systems	22
6.3.1	Base and Sideslope Liner System	23
6.3.2	Leachate Collection and Removal System	23

TABLE OF CONTENTS
(continued)

6.3.3	Daily/Intermediate Cover Material	23
6.3.4	Final Cover System.....	24
6.3.5	Construction Quality Assurance	24
6.4	Surface Water Management System.....	24
6.5	Evaporation Pond Configuration	25
6.6	Mixing Basins.....	25
7.0	OPERATIONAL INFORMATION	26
7.1	Operating Hours	26
7.2	Facility Management & Personnel.....	26
7.3	Facility Equipment	26
7.4	Site Security.....	26
7.5	Control of Nuisance Conditions.....	26
7.5.1	Control of Wind Blown Litter.....	26
7.5.2	Dust Control.....	27
7.5.3	Vectors (Birds, Insects, and Rodents) and Odors	27
7.5.4	Noise Control.....	28
7.5.5	Fire Protection and Control.....	28
7.6	Record Keeping.....	28
7.7	Leachate Management	29
7.8	Waste Placement	29
7.8.1	ISW Waste Placement.....	29
7.9	Evaporation Pond Operations	29
7.10	Treatment Facility for Recycling/Beneficial Reuse of Energy Production Wastes	29
8.0	ENVIRONMENTAL MONITORING PROGRAMS	30
8.1	Groundwater Monitoring	30
8.2	Landfill Gas Monitoring and Control	30
8.3	Surface Water Monitoring.....	30
8.4	Leachate Monitoring	31
9.0	CLOSURE and POST-CLOSURE.....	32
9.1	Closure Notification and Certification Requirements	32
9.2	Routine Site Closure.....	32
9.3	Closure Plan Elements	33
9.4	Financial Assurance	33

FIGURES

Figure 1	Site Location Map.....	7
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TABLE OF CONTENTS
(continued)

APPENDICES

- Appendix A Title Commitment, Legal Description, Rights-of-Way, and Encumbrances
- Appendix B 1995 CSI Site Drainage Study-Appendix G from 1996 Approved EDOP & Stormwater Discharge Certification
- Appendix C Energy Services Management Plan
- Appendix D Typical Site Staffing and Equipment

DRAWINGS

- Site Development Map
- Permitted Base Grades
- Permitted Final Grades

ADDITIONAL ATTACHMENTS TO SUBMITTAL

- Attachment 2 Proof of Taxes
- Attachment 3 Proof of Water
- Attachment 4 Proof of Sewer
- Attachment 5 Proof of Utilities
- Attachment 6 Neighborhood Meeting Documentation
- Attachment 7 2014 Traffic Impact Analysis
- Attachment 8 Redline of Changes to EDOP Summary Document

1.0 INTRODUCTION

Conservation Services, Inc. has been providing Adams County and the surrounding industrial community an environmentally sound management method for non-hazardous solid and liquid waste disposal since 1984. CSI is the only exclusive industrial waste facility approved under the stringent Subtitle-D regulations in the State of Colorado.

CSI originally commenced solidification operations located at 777 W. 62nd Ave. in Adams County in 1984 and continued operations at this location until 1990. The current CSI operations located at 41800 E. 88th Ave. in Adams County commenced in 1989 pursuant to a Certificate of Designation (CD) approved by the Adams County Board of County Commissioners (ACBCC). Condition #6 of the corresponding Resolution states that the CD will expire on August 14, 2014. However, since the CD will expire before the facility life is expired, Adams County Zoning Regulations 4.570 in effect at the time the CD was issued and approved by the ACBCC, provided for an extension of the Certificate of Designation upon submission of a written request at least six (6) months prior to the termination date.

In 1996, the ACBCC approved a CD amendment approving certain components, which enhanced facility services and operations. Some of these components included:

- Redesign and upgrade of the disposal cells
- Construction and operation of a treatment facility to biologically remediate soils
- Allow disposal of municipal solid waste
- Update the Design and Operations Plan to conform with updated Federal, State and local regulations

During CSI's 2014 application to extend the 1996 CD, the ACBCC approved the following:

- CSI's future plans for a facility to enhance services to the oil and gas producing industry with the addition of treatment/processing equipment for recycling/beneficial reuse of energy production wastes. The ACBCC approval required that CSI provide a detailed design and operations plan of the equipment and facility modifications to the CDPHE and Adams County for review and approval. Final plans for this facility have not been completed as of the date of this CD request.
- Extension of the hours that the facility may accept waste to 7 a.m. to 7 p.m. Monday through Friday and 7:00 a.m. to 1:00 p.m. on Saturdays.

CSI desires to continue providing Adams County and the surrounding areas with environmentally sound waste disposal options to the industrial community while providing economic benefits including revenue brought into Adams County and employment opportunities for local residents created by CSI.

Accordingly, this submittal which is an update to the December 2013 Engineering Design and Operations (EDOP) Summary that was submitted with CSI's 2014 CD renewal application, requests the following:

- Renewal of the Certificate of Designation in accordance with applicable Adams County zoning regulations to replace the expiring Certificate of Designation issued in January 2016;
- Extending Saturday waste acceptance hours currently 7:00 a.m. to 1:00 p.m., to 7:00 a.m. to 7:00 p.m.
- Redesignating Cell 25 from a Municipal Solid Waste (MSW) disposal cell to an Industrial Solid Waste (ISW) disposal; and,
- Update waste acceptance criteria to match what CDPHE has approved for CSI.

The basis and support of this application is further discussed below.

1.1 Purpose

In 2016 the ACBCC issued a CD (case # EXG2014-00001) to continue construction and operations at the CSI facility. The 2016 CD expires on June 29, 2025, and CSI is submitting this Engineering Design and Operations Plan (EDOP) Summary as part of its application to renew the CD. The CSI facility complies with applicable regulatory requirements and all operations currently conducted at the facility have been previously approved by the Colorado Department of Public Health and Environment (CDPHE) and Adams County. Per agreement with the Adams County Department of Planning and Development, the submittal of this summary document satisfies the condition for Adams County to consider renewal of CSI Facility's CD.

This document presents a summary of site characteristics, design, monitoring, operations, closure, and post-closure plans for the existing CSI disposal site located in Adams County, Colorado. This document summarizes the facility information included in two Design and Operations Plans (D&O Plans) that have received approval from the Colorado Department of Public Health and Environment (CDPHE) and Adams County and is submitted as a mechanism to support a renewal of the facility's CD.

This Summary provides a written overview of the design and operational methods used by CSI in meeting applicable County and State requirements including the Colorado Regulation Pertaining to Solid Waste Disposal Sites and Facilities 6 CCR 1007-2, Part 1 as amended, hereinafter referred to as the "Regulations" or "State Regulations", and applicable Adams County regulations, ordinances, and conditions of approval. It makes extensive reference to the two approved D&O Plans, 2013 EDOP Summary, and facility plans and modifications that were subsequently approved.

Three modifications are proposed to the operations conducted at the facility:

1. Extending the operating hours to allow acceptance and disposal of waste on Saturdays from 7:00 a.m. to 7:00 p.m., consistent with the approved Monday through Friday operations.
2. Redesignating Cell 25 from an MSW disposal Cell to a ISW disposal cell consistent with the rest of the disposal cells at the facility, with the exception of the asbestos disposal cell. This redesignation will eliminate the potential for blowing litter as well as landfill gas generation resulting from decomposition of the MSW.
3. Allowing acceptance of technologically enhanced radioactive materials (TENORM) at levels below the Administrative Release levels in accordance with the Colorado Department of Public Health and Environment (CDPHE) Radiation Control Division Part 20 Regulation and approved by CDPHE for this facility.

Although not a modification to the EDOP and CD, CSI no longer accepts waste for treatment in the Prepared Bed Bio-Treatment (PBBT) units and is in the processing of preparing the two PBBT units for final closure. CSI will develop a closure plan and design under separate cover not associated with this application for submittal to the CDPHE and Adams County for approval prior to implementing closure activities.

CSI is an asset to Adams County and has been an involved partner with the County and surrounding community. It provides employment opportunities and safe and secure disposal options for waste generated by successful businesses both within and outside of the County, and as an environmentally responsible company is proposing to further its environmental stewardship goals by offering waste treatment and beneficial reuse operations to the energy producing industry. CSI has been an involved community partner and a portion of the CSI revenues helps Adams County improve infrastructure within the County and implement environmental oversight and management programs to assist in protection of human health and the environment. CSI's business practices and operations compliment the goals and practices of the Adams County Sustainability Management Plan of reducing waste through recycling and beneficial reuse, protecting health and the environment, and water conservation.

The renewal of the CD for the facility is warranted based on CSI's safe and responsible operating record, history of environmental compliance, and the demonstrated benefits to Adams County, its residents, and businesses.

With the exception of the three proposed changes discussed above, all of the site information included in this Summary has previously been approved by both the CDPHE and Adams County through approval of the two previous D&O Plans, 2013 EDOP Summary, and subsequent approvals.

1.2 Regulatory Background

CSI was issued a Certificate of Designation (CD), # 86-88-CD dated December 20, 1989 from the Adams County Board of County Commissioners in a Resolution dated August 14, 1989. The

supporting document for the CD was entitled *Conservation Services Incorporated, Design and Operations Plan, Volumes 1 and 2 (Industrial Compliance, October 4, 1991)*, referred to herein as the 1991 D&O Plan, and was a revision of the original D&O Plan to incorporate conditions and stipulations of the CD and additional items resulting from observations and regulatory issues after the first year of operations. Subsequent to the issuance of the CD, site civil improvements and cell construction commenced, and the site opened for receipt of waste on December 22, 1989. Through this CD, the facility was permitted to accept non-hazardous liquid and solid waste including friable and non-friable asbestos and various other types of non-hazardous industrial wastes.

In August 1995, the Adams County Board of County Commissioners approved an amendment to the CD to expand the site acreage from approximately 238 acres to approximately 383 acres. Other components under this amendment included the construction and operation of sludge and soils treatment facility to bioremediate soils, sludge and other materials amenable to this type of prepared bed bio-treatment (PBBT) and a revision to the current acceptable waste streams to allow the disposal of municipal solid waste (MSW) and construction and demolition waste in Cell #25 that has not yet been constructed. The supporting document for this CD amendment is entitled *Conservation Services Incorporated, Bennett, Colorado, Facility Expansion Revised Design and Operations Plans (Industrial Compliance/Terranext, February 5, 1996)* and notated "per Adams County Commissioners Resolution of August 23, 1995 Certificate of Designation #86-88-CD[A]", referred to herein as the 1996 D&O Plan. As information, the 1996 D&O Plan has been provided as part of this renewal application under separate cover.

CSI merged with USA Waste Services in 1997. Subsequently in 1998, Waste Management, Inc. merged with USA Waste Services. Each merger was achieved through a stock acquisition and did not result in a change of ownership. CSI continues to own and operate the facility as a wholly owned subsidiary of Waste Management of Colorado, Inc.

1.3 Site Description

CSI owns approximately 383 acres in Section 25, Township 2 South, Range 64 West, which are covered under a CD for management of solid waste. The site is located at Schumaker Road and East 88th Avenue (Irondale Road) in unincorporated Adams County, approximately 7 miles north of the town of Bennett, Colorado and 9 miles north-northeast of Watkins, Colorado. The Site Location Map (Figure 1) illustrates the location of this facility within the State of Colorado and the vicinity relative to the Denver metropolitan area. The property is owned by Conservation Services, Inc. and has the following address:

Physical and Mailing Address:

41800 E. 88th Ave.
Bennett, CO 80102
(303) 644-4335 phone
(303) 644-4306 fax

A Title Commitment, legal description of the property and easements, Rights-of Way, and encumbrances is provided in Appendix A.

CSI is currently authorized to accept liquid, non-putrescible solid wastes, and solid non-hazardous waste. No regulated hazardous wastes, regulated radioactive wastes, or regulated polychlorinated biphenyls (PCBs) are accepted for disposal by the facility. Any vehicle observed hauling wastes unacceptable by regulation to the facility will not be allowed to dispose of such wastes at the site and will be informed to dispose of them at an appropriately permitted facility. The occurrence will be documented, placed into the operating record and appropriate agencies notified, as necessary.

The facility has implemented an approved hazardous waste exclusion program and is further described in the 1996 revised Design and Operations Plan, supplemented by other documents such as the *Revised Handling and Disposal Plan for Pharmaceuticals* (October 2011, revised December 2011). The purpose of the program is to provide a plan to identify and screen wastes, which may be regulated hazardous waste, regulated radioactive wastes, or regulated PCB wastes.

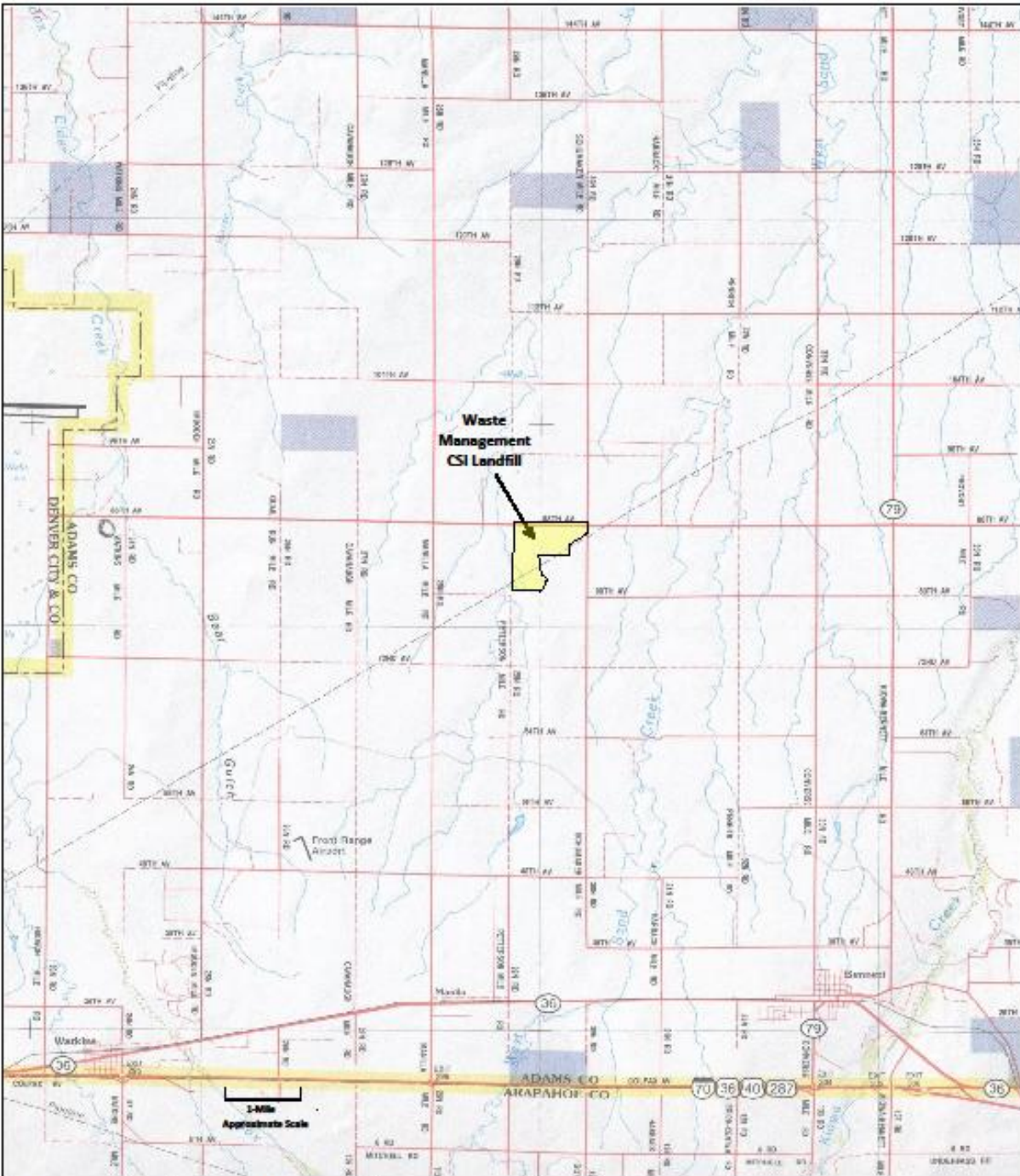
Currently permitted processes include solidification of liquid wastes, burial of solidified liquids and solid wastes in lined disposal cells, management of wastewater sludges and other qualified wastes in engineered biotreatment beds, evaporative treatment of leachate generated on-site and for use as an evaporative impoundment for commercial disposal of liquids, a tank farm for processing of liquids, and treatment facility for recycling/beneficial reuse of energy production wastes. To date CSI has not constructed the evaporative impoundment or the treatment facility.

Approximately 167 acres of the 383 acres owned by CSI has been designed to accept waste in discrete and separate disposal cells, including an approximate 10.16 acre cell previously designated for municipal solid waste and an approximate 5.05-acre asbestos cell. Non-hazardous, non-putrescible solid wastes are disposed of in composite-lined disposal cells referred to as Industrial Solid Waste (ISW) cells. Approximately 44 acres currently contain waste in disposal Cells #1, #2, #3, #19/20, the currently active Cell 18/21/22/23, and a portion of the asbestos cell. Cells #1, #2, and #3 are filled with waste to approximately the pre-existing ground surface, and covered with an approved low permeability compacted clay cap. Prepared Bed Bio-Treatment (PBBT) operations are conducted on top of Cells #1 and #2, and a liquid waste storage tank farm is present on top of Cell #3; however the PBBT operations have been discontinued and the PBBT beds will be closed. Cell #19/20 has been filled with waste to the permitted elevations and has been closed and revegetated with an approved Alternative Final Cover (AFC) system that uses water balance principals to limit infiltration of precipitation into the waste mass.

The site is bounded on the north by a fence line along 88th Avenue, Schumaker Road on the east property boundary with a fence on the east side of the active operations area, and open farmland to the west and south.

The CSI service area generally consists of the greater Denver Metropolitan area including Adams, Arapahoe, Denver, Douglas, Elbert, and portions of Jefferson County, although historically wastes generated from other regions have also been accepted. Major transportation routes to the site include

I-70, E. 88th Avenue (Irondale Road), 120th Avenue, Imboden Road, I-76, Bromley Lane, and Highway 79 (Figure 1).



Proj: CSI CD renewal
 Date: November 2013
 File: Figure 1

Drawn by: MAM
 Reviewed by: MAM



AMERICAN ENVIRONMENTAL CONSULTING, LLC

**FIGURE 1
 LOCATION MAP
 CSI DISPOSAL FACILITY**

1.4 Subtitle D Location Restrictions

An evaluation of the ability of the CSI facility to meet each of the nine siting criteria described in Section 3.1 "Location Restrictions and Site Standards" of the State Regulations was included in Section 3.0 of the 1996 D&O Plan and is maintained in the site operating record. The evaluation demonstrated that the facility complies with all of the siting criteria and there are no known conditions that have changed since that time. The 1996 demonstration is summarized below.

1.4.1 Airports

The site boundary is outside the zone of influence of the Denver International Airport. The site is located within 5 miles of the ultimate design of the Front Range Airport, but outside of the airport influence zone. The Front Range Airport and the Federal Aviation Administration (FAA) were notified in writing during development of the 1996 expansion. The Director of the Front Range Airport (FRA) visited the site during the 1996 expansion proposal, at which time the plans presented in 1996 D&O Plan were discussed. The FRA did not voice any concerns regarding these plans. The revised CSI facility is not located within 5,000 feet of any airports servicing piston type aircraft or within 10,000 feet of any airport servicing turbojet aircraft and no new structures or increases to the approved disposal cell heights are proposed for this CD extension request.

1.4.2 Wetlands

No changes to the previously approved areas for disposal are proposed herein. There are no wetlands within the areas designated for disposal or operational activities. Prior to using the borrow areas to the southwest of the disposal and operations area, wetland potential will be investigated, and appropriate approvals obtained as necessary as it has been designated as riparian habitat.

1.4.3 Faults

The site boundary is not located within 200 feet of any fault experiencing displacement in Holocene time. The nearest reported fault is the Rocky Mountain Arsenal Fault located approximately 15 miles to the west.

1.4.4 Seismic Impact Zones

The United State Geologic Survey (USGS) Open-file Report 82-1033 was reviewed to determine if the site is in a seismic impact zone as defined in the current Regulations. The report indicates that the maximum horizontal acceleration expected at the site, with a 90 percent probability of not being exceeded in 250 years, is approximately 0.07g. Therefore, the site is not located in the defined seismic impact zone.

1.4.5 Unstable Areas

Based on site reconnaissance and document reviews, there is no evidence of unstable areas, geologic hazards or unstable human-made features on the site. All current and future slopes constructed at the site will be at grades that are inherently stable.

1.4.6 Topography

Site topography is more fully discussed in Section 3.2 of the 1996 D&O Plan. The pre-development area covered under the CD varies in elevation from approximately 5298 to 5548 feet above mean sea level. The site is relatively flat with gentle rolling hills in the surrounding area. A landscaping berm on the northern boundary of the facility provides visual screening as well as some protection from northerly winds.

1.4.7 Floodplains

A 100-year, 24-hour flood plain and a narrower Floodway along the channel within the Flood Plain on the unnamed tributary to Lost Sand Creek bordering the site on the west was estimated by Wright Water Engineers (Denver, Colorado) in a study completed in December 1999. Filling within the flood plain is allowed given certain modifications as stipulated in the Floodplain Use Permit (September 7, 2000) to prevent floodwaters from contacting waste. Following modifications made during cell construction, no filling will take place in the floodplain. The approved 1996 D&O reflects the approved cell designs and shows the disposal cells in relationship to the defined Floodway.

1.4.8 Design Standards

The site design and its conformance to Section 3.2 of the Regulations are discussed in detail within Section 6.0 of the 1996 D&O Plan and summarized in Section 6.0 of this summary.

1.4.9 Surface Water/Groundwater

No waste will be placed below or into surface or ground water. The facility disposal areas are specifically designed to remain outside the limits of any surface water and above ground water. Additional precautions to minimize surface runoff from precipitation events will be taken and include berms and ditches as necessary.

1.5 Permitted Wells Within Two Miles of Site

Table 4-3 of the 1996 D&O Plan includes a list of the registered groundwater wells within a two-mile radius of the CSI facility obtained from the records available with the Colorado Division of Water Resources, State Engineer's office.

2.0 SITE CHARACTERISTICS

2.1 Site Topography

The existing topography of the site as of March 15, 2023 is presented on the attached Site Development Map. The pre-development site topography can be referenced in the 1991 D&O Plan. The site is located in a gently sloping agricultural area that drains away from a mild north-south striking topographical high in the southern portion of the operations area.

The undisturbed portions of the property slope generally less than 1 percent in the area that is to be used for filling. In the northeastern section of the facility, the topography becomes flat with slopes less than 0.5 percent. The general overland flow direction is west to east, east of the topographical drainage divide, and east to west, west of the divide. Overland flow in the facility operations area flows north to a permitted storm water detention pond.

The original topography has been modified according to the approved plans and grades of the permitted CSI facility. The proposed final grades of the CSI facility generally maintain the pre-development drainage patterns and are presented in the 1996 D&O Plan.

2.2 Surface Water Drainage

The regional and local surface water flow patterns in the vicinity of the CSI facility have not been altered since the 1996 D&O Plan with the exception of continued disposal cell development. The nearest perennial bodies of surface water do not appear to have changed since 1996 and appear to be small reservoirs approximately 4 miles south and 6 miles east of the CSI site. Neither reservoir is downstream of the site. The nearest downstream perennial body of water is the South Platte River, located approximately 40 miles north of the site.

On-site overland flow is to ephemeral channels that are part of two larger ephemeral drainage courses or tributaries to Lost Sand Creek. Lost Sand Creek, an ephemeral stream course located approximately 1.5 miles east of the site, flows in a general northerly direction to the South Platte River or, possibly, Empire Reservoir.

Two relatively large watersheds reach a confluence point near the southwest corner of the site property limits. The resultant (western) main drainage course traverses the southwestern portion of the CSI site (the potential borrow area) and exits the CSI site boundary south (upstream) of the disposal area limits, flows north, then intersects with a small drainage course emerging from the eastern third of the site. The drainage course proceeds north under East 88th Avenue via a concrete underpass toward Lost Sand Creek. A lesser watershed and (eastern) main drainage course proceeds north and then diagonally northeast through the southern portion of the site. Section 6.4 contains descriptions of current and interim site drainage conditions and control measures.

No significant channelization or vegetation exists in the disposal or operations areas that would suggest any substantial volumes of water flowing through the site. The majority of the property,

with the exception of low lying areas in the floodway to the west of the site, is currently farmed and water moves in the form of shallow sheet flow.

2.3 Climatology

The climatology information presented in the 1991 D&O Plan was obtained from records compiled by the National Oceanic and Atmospheric Administration (NOAA) and is typical of the Denver Metropolitan region, which is most representative of the CSI facility. The climate information provided in the 1991 D&O Plan was obtained from records for a 30-year period and presumably has not changed substantially since 1991. The climate is characterized by relative humidity, light to moderate winds, mild temperatures, and light precipitation. The prevailing winds at the site are from the south with maximum winds generally from the west or northwest.

For this summary document, the climatology information was updated for the period 1995 through 2012 using information obtained from the Western Regional Climate Center at the Denver International Airport. For this time period, the average annual total precipitation is 13.98 inches that includes the moisture from an average annual snowfall of 43.7 inches. The month with the highest average precipitation over this time period is July with 2.38 inches of moisture and the lowest average precipitation is January with 0.30 inches. The average annual maximum temperature was 64.7 F° and the average annual minimum temperature was 36.8 F°. The month with the highest average temperature for this period was July at 90.0 F° and the month with the lowest average temperature was December at 17.8 F°.

3.0 GEOLOGY

The regional and site geology and hydrogeology of the CSI facility are described in detail in previous hydrogeologic site characterization reports. The most pertinent geologic and hydrogeologic investigations conducted at the site are detailed in the following reports.

- 1) Conservation Services Incorporated Design and Operations Plan, October 4, 1991.
- 2) Conservation Services Incorporated, Bennett Colorado, Facility Expansion, Revised Design and Operations Plan, February 5, 1996.
- 3) Groundwater Data Review and the Exceedances at Well MW-101, Alternative Source Demonstration Report (6 CCR 1007-2, B4(c)(3) and 40 CFR 258.54) USA Waste CSI Bennett Facility, June 19, 1998.
- 4) Monitoring And Reporting Program, CSI Bennett Landfill (BE&K/Terranext, November 8, 1999) and the most recent updated Monitoring and Reporting Plan, Conservation Services, Inc. (CSI) Landfill (AquAeTer, September 2009).

For detailed information on the geology and hydrogeology of the CSI site the aforementioned reports should be consulted. The information provided in those reports is summarized herein.

3.1 Regional Geology

CSI is located within the Lost Creek groundwater basin, which is part of the larger Denver structural basin which extends from Colorado into eastern Wyoming, western Nebraska, and Kansas. The Denver Basin trends north-south, is asymmetrical and has a gently dipping east flank. The basin was formed during the late Cretaceous and early Tertiary time. During its formation, the basin was the site of fluvial deposition of sediments eroded from the mountains to the west. The sedimentary rock sequence which underlies the site is more than 10,700 feet thick.

The regional dip of the sedimentary units beneath the site is west towards the structural axis of the Denver Basin (35 miles west), at approximately 1 degree. The formation of primary interest to the CSI facility is the Tertiary-Cretaceous Denver Formation. The thickness of the Denver Formation across the Denver Basin ranges from 200 to 1,000 feet. The Denver Formation forms the near-surface bedrock beneath the area. The lithology of this formation is variable, consisting of continental-type deposits characterized by interbedded shale, claystone, siltstone, and sandstone.

3.2 Site Geology

The Denver Formation was the only bedrock unit encountered during the site-specific drilling program for the original site characterization to depths of 100 feet below ground surface. The lithology encountered at the site consisted primarily of claystone with discontinuous lenses of moderately cemented to unconsolidated silt and sand and moderately to poorly cemented sandstone, typical of the Denver Formation described regionally.

Claystone is the dominant bedrock material at the site. The claystone bedrock was encountered in the majority of the soil borings. The depth to the claystone bedrock ranged from 1 to 43 feet. The claystone varied from light brown (weathered to slightly weathered zone) at the bedrock surface to olive, green-gray to gray (unweathered zone) with depth. The claystone was generally dry to slightly moist with medium to high plasticity. Iron oxide staining was observed in all of the soil borings. Gypsiferous infilling was also observed in fractures in the claystone bedrock. The claystone contains discontinuous interbedded lenses of sand, sandstone, siltstone, shale, and lignite.

Lenses of silt and sand are intercalated within the predominant claystone in the central portion of the site. These lenses generally contained light to yellow brown to light gray silty, fine sand. The lenses range in thickness from less than a few inches to approximately 15 feet. The thickest silt and sand intervals occurred in the central portion of the site. In many cases, the silt and sand lenses within the claystone unit were saturated. These silt and sand layers are laterally and vertically discontinuous and difficult to correlate across the site. In general, the first groundwater encountered beneath the site is present in these units.

Thin lenticular bodies of slight-to-moderately-cemented silty, fine-grained sandstone occur in the uncemented to poorly cemented sands of the Denver Formation in the eastern portion of the site. The sandstone ranges in thickness from approximately 6-inches to 13 feet, and generally contains some silt. The color ranges from light to dark brown. All moderately cemented sandstone lenses encountered were unsaturated.

The unconsolidated materials encountered above the bedrock during the drilling program can be classified into three categories: silty-sandy clay; silty sand; and gravel. The finer grain silts, sand, and clay are generally eolian in origin. Each of these materials is discussed below.

A light to dark brown silty, very-fine sandy clay was encountered in the majority of the soil borings completed at the site. This deposit varies in thickness from 2 to 40 feet. The thickest deposits generally occur throughout the central and northwestern portion of the site. This material was classified by visual field inspection according to United Soil Classification System (USCS) as CL/ML/SC. The field moisture contents ranged from dry to medium moist and the consistency ranged from medium stiff to very stiff.

A light-yellow-brown to light-gray silty, very-fine sand with varying amounts of clay was encountered in soil borings completed in the eastern portion of the site. This deposit is discontinuous and occurs immediately above, below, or interbedded within the silty-sandy clay. The silty sand deposits vary in thickness between 1 and 19 feet. The thickest deposits generally occur in the eastern portion of the site and in the drainage along the western boundary. This material was classified in the field as SC/SM. The field moisture content ranged from dry to wet with a consistency ranging from medium dense to dense.

Lenticular gravel deposits ranging in thickness of up to 1-foot were identified along the western portion of the site. The gravels were encountered at depths ranging from 8 to 17-feet. These deposits are believed to be associated with a poorly developed north-south trending ephemeral stream channel.

This ephemeral stream channel is generally comprised of reworked surficial materials. These gravels are generally interbedded with, or immediately overlying, a silty-sandy clay material. The gravel material was classified in the field as SM/GP. Groundwater is present in these unconsolidated and discontinuous gravels.

4.0 HYDROGEOLOGY

The regional and site hydrogeology of the CSI property is described in detail in the documents listed in the first portion of Section 3.0. Those documents should be consulted for more detail of the regional and site hydrogeology. A summary of the regional and site hydrogeology are presented in this section.

4.1 Regional Hydrogeology

The site is located in the southern portion of the Lost Creek Groundwater Basin, which includes approximately 420 square miles in eastern Weld County, central Adams County, and northern Arapahoe County. The important water-bearing geologic members in the Lost Creek Groundwater Basin include the Lost Creek Alluvium and sands of the Laramie-Fox Hills Aquifer. Three major ground-water aquifer units are present beneath the CSI landfill site; the Laramie-Fox Hills, the Arapahoe, and the Denver aquifers. The water-bearing zones in the Arapahoe and Denver Formations are erratic and limited in lateral and vertical extent and are not considered significant water supply sources within the Lost Creek Groundwater Basin; however, the Denver Aquifer is discussed here as it is the uppermost regional aquifer in the vicinity of the site (Robson and Romero, 1981).

The water bearing strata are described as irregular lenses of interbedded sandstone and siltstone that are hydraulically separated by thick sequences of claystone. Robson and Romero (1981) show the potentiometric surface elevation to be approximately 5250 feet, with groundwater flow to the north. Wells in the Denver Aquifer generally yield very low water volumes that range from 0.05 to 1.0 gallons per minute per foot of drawdown.

The Denver Aquifer provides water of acceptable chemical quality, although it is not as good as water derived from the deeper Arapahoe or Laramie-Fox Hills aquifers. The water is classified as either sodium sulfate-or sodium bicarbonate type.

4.2 Site Hydrogeology

Groundwater occurrence beneath the CSI site can be most appropriately discussed in terms of zones. For descriptive purposes of this document, groundwater is present in four different zones beneath the CSI Bennett Landfill. Each of these zones is briefly described below.

Zone 1: Zone 1 groundwater occurs in unconfined and confined conditions in laterally discontinuous silt and sand lenses within the claystone bedrock of the Denver Formation. This is the uppermost ground water encountered beneath the majority of the permitted fill area at the site ranging from 24 to 69-feet deep.

Zone 2: Zone 2 groundwater occurs in unconfined conditions in poorly-cemented to unconsolidated sandstones of the Denver Formation. This groundwater zone represents the uppermost groundwater beneath the eastern portion of the site ranging from 55 to 60-feet deep.

Zone 3: Zone 3 groundwater occurs in unconsolidated alluvium (Lost Creek Alluvium) along the western portion of the site. The shallow alluvial aquifer appears to be limited to the western boundary of the site and the eastern limit of alluvial ground water approximates the western border of the disposal area footprint.

Zone 4: Groundwater in this zone occurs in isolated, unconsolidated surface eolian deposits overlying the claystone bedrock of the Denver formation. This zone represents the highest water table elevations measured at the site and was only detected in areas outside of the limit of waste.

4.3 Hydrological Summary and Conceptual Model

The site is underlain by the Denver Formation. Bedrock beneath the site consists of: 1) Claystone with intercalated, discontinuous siltstone and fine-grained sandstone lenses and 2) Poorly-cemented to unconsolidated sandstone. Surficial deposits overlying the bedrock units consist of: 1) Sand and gravelly sand alluvium in the western portion of the site and, 2) Eolian deposits of silt, sand, and clay in the central and eastern portion of the site.

Groundwater is present to some degree in all of the surficial and bedrock units. Groundwater is present in the claystone bedrock in the intercalated, discontinuous siltstone and fine-grained sandstone lenses (Zone 1 Groundwater) and in the poorly cemented to unconsolidated sandstone (Zone 2 Groundwater). Groundwater is present in surficial materials in the alluvium to the west (Zone 3 Groundwater) and in isolated, perched zones in the eolian deposits (Zone 4 Groundwater).

The saturated zones are recharged primarily by direct infiltration of precipitation and, in the case of the alluvial groundwater zone (Zone 3), intermittent surface water flow. Groundwater does not discharge to surface water in the vicinity of the site; however, surface water discharges from the Denver Formation have been documented in regional studies.

The claystone bedrock surface creates a bedrock ridge through the central portion of the site. The flanks of this central bedrock high dip steeply to the east and west suggesting that Zone 1 groundwater could flow along the top of the bedrock surface into the saturated zones to the east (Zone 2) and west (Zone 3). Groundwater in the saturated alluvial materials (Zone 3) flows to the north; and groundwater in Zone 2 flows primarily eastward. Groundwater in Zone 1 has a northerly regional flow direction.

4.4 Groundwater Quality

4.4.1 Regional Groundwater Quality

The Denver Aquifer provides water of acceptable chemical quality, although it is not as good as water derived from the Arapahoe or Laramie-Fox Hills aquifers. The water is classified as either sodium sulfate or sodium bicarbonate type.

4.4.2 Local Groundwater Quality

Groundwater monitoring associated with the operation of CSI has been performed since 1989. Results of the monitoring show that groundwater quality has not been impacted by any operations associated with CSI. CSI groundwater level and groundwater quality information has been reported in the site's detection monitoring reports and submitted to the CDPHE and Adams County.

Background water quality has been established and documented in the site's detection monitoring reports, and statistical analyses of the groundwater have been conducted since 1994. No future impacts to the existing surface and groundwater quality are expected to occur from the site activities based on over 20 years of monitoring data during site operations and the engineering design features that are used.

5.0 FACILITY CONFIGURATION

5.1 Support Facilities and Site Access

The support facilities at CSI, which are located near the north central portion of the site, include the following: the landfill office, the maintenance shop and truck wash area, the equipment building, the solidification agent (typically kiln dust or coal fly ash) storage building with an attached maintenance shed, mixing basin area, and the above ground fuel tanks and vault. Other support facilities include the liquid waste/secondary PBBT liquid storage tank area located on covered Cell 3 and the PBBT primary leachate collection tanks located near Cells 1 and 2. The main access to the site is currently from East 88th Avenue (Irondale Road). CSI may move portions of the operations nearer to operating cell areas in the future. Permitting requirements for access off Schumaker Road will be determined as necessary.

A traffic study in support of the 2015 renewal of the Certificate of Designation was conducted and submitted to Adams County in a report dated May 29, 2014. That traffic study and report concluded that “All movements at the intersections analyzed are expected to operate at LOS (level of service) “B” or better during both morning and afternoon peak-hours through 2035 and that the “The impact of the Waste Management CSI site can be accommodated by the existing road-way network.” The traffic study reported that an average of 42 truck trips per weekday were generated at the time the study was prepared. Since the traffic study was conducted, site-generated truck volumes have decreased in 2023 typically averaging less than 25 truck trips per day, precluding necessity for a new traffic study. As information, the May 29, 2014 traffic study has been provided as part of this renewal application under separate cover.

One mixing basin (Basin A) is currently used for solidification of liquids arriving at the facility for disposal. The mixing basin is concrete lined with steel construction with a liquid collection system consisting of a sloped under-drain and collection sumps. Surrounding the basin is a concrete apron that is sloped toward the basin. The walls of the basin extend above grade and have weep holes immediately above the apron level to allow any spills on the apron to flow, or be washed into, the basin. A second mixing basin (Basin B) has been approved for construction but not yet built. Mixing basin B will be constructed as operationally necessary. The location of Mixing Basin B is shown in the 1991 D&O Plan and designed identical to Mixing Basin A. The actual location for Basin B may vary from the location shown in the D&O Plan.

An additional basin is planned to support the treatment and beneficial reuse operations to serve the energy production industry. This basin is planned to be adjacent to, and north of, Cell 19/20, which has had final cover installed and has been revegetated. The approximate location of the operation and basin is shown on the attached drawings. This basin will be used to receive and treat waste liquids generated from industrial energy production operations. The design of this basin will be similar to the approved mixing basins but modified slightly from the approved mixing basin design to accommodate these operations. In conformance with the approved design, it will be constructed with a concrete floor and sidewalls and leak detection system with leak detection sumps. More information on this operation is included in the Energy Services Management Plan in Appendix

C, which was also included in the 2013 EDOP Summary and submitted in the application for the CD issued in 2016. A detailed design of the basin will be prepared and submitted to Adams County and the CDPHE prior to construction.

The solidification agent storage area is a three-sided, roofed building located approximately 100 feet west of the existing mixing basin. Currently, coal fly ash or cement kiln dust are used as solidification agents, but other agents may be used in the future. The building provides protection for the solidification agent from precipitation and wind. It is open at the front to allow access with heavy equipment.

The existing mixing basin apron is used as the primary drum storage area. The apron is designed to contain any releases or precipitation and to drain directly onto the mixing basin through the weep holes. Precipitation or released liquids which collect in the mixing basin will be solidified. In the event a drum (or drums) is spilled in an area outside of the mixing basin apron or other contained storage pad, procedures identified in the site's Spill Prevention Control and Countermeasure (SPCC) Plan and Storm Water Management Plan (SWMP) will be followed.

The tank farm located on the top of the Cell 3 cover is used primarily to temporarily store waste liquids. These metal tanks are equipped with glass inner liners and rest on feet above ground allowing them to be visually inspected for leaks. Visual inspection of this tank farm is included in CSI's daily maintenance and inspection checklist.

5.2 Disposal Area Layout

The layout of both existing disposal cells and future disposal cells of the facility is shown on the Site Development Map and represents no changes from the disposal area layout approved in the 1996 D&O Plan. Consistent with the Regulations and current procedures, record drawings will be completed upon completion of each phase of construction to show actual site development.

Within the permitted boundary 12 individual and distinct disposal cells have been designed, including 11 cells for ISW including Cell 25 that was previously designated for MSW, and one cell for asbestos. Each cell is separated from the adjacent cells by at least 20 feet to provide space for the final cover system of each individual cell, access roads, and surface water control. Each cell is designed with its own liner and leachate collection system, with the exception of the asbestos disposal cell that does not require a leachate collection since asbestos is not a potential groundwater contaminant. Detailed designs for the excavation and final cover for each individual disposal cell are provided in the attached drawings entitled *Permitted Base Grades* (showing the excavation plan for the disposal cells) and *Permitted Final Grades* (showing the final topography following closure of the disposal cells), and were previously approved by the CDPHE and Adams County.

5.3 Anticipated Service Life

Due to of the sporadic nature of waste volumes CSI receives, a site life is difficult to estimate. Capacity determinations, however, are available and can be used to periodically estimate the rate of filling at the site.

The total estimated waste capacity (including any daily/intermediate cover) available for each of the two types of waste cells at the site following redesignation of the MSW cell is estimated as follows:

ISW cells	10,183,000 cubic yards
Asbestos cell	314,724 cubic yards

ISW Cells 1, 2, 3, and 19/20 have been filled to capacity and Cells 18/21/22/23 and the asbestos cell have been partially filled as of the date of this summary. CSI conducts regular topographic mapping of the facility in order to track waste volumes, capacity consumed, and remaining capacity. Using the most recent site survey which was conducted on March 15, 2023, CSI estimates a total remaining capacity of 7,824,000 cubic yards. Based on the remaining capacity and projected future waste volumes CSI estimates 75 to 100 years of remaining site life.

5.4 Soil Balance

Approximately 3,132,000 cubic yards of soil are available from all future cell excavations and stockpiles. Approximately 1,193,000 cubic yards of soil are required for the remaining site development including the final cover (404,000 cubic yards), clay liner (390,000 cubic yards), and backfill/berms (399,000 cubic yards). Accordingly, the facility has sufficient soil for full development of the facility with an approximate surplus of 1,939,000 cubic yards.

5.5 Waste Characteristics

CSI currently accepts non-hazardous, non-putrescible solid wastes in liquid and solid form. No regulated hazardous wastes, regulated radioactive wastes, or wastes containing regulated concentrations of polychlorinated biphenyls (PCB) are accepted by the facility. CSI has implemented a hazardous waste exclusion program that is incorporated into its waste identification plan described in the 1996 D&O Plan. Subsequent to approval of the existing approved plan, CSI developed a Handling and Disposal Plan for Pharmaceuticals that received approval from the CDPHE (December 19, 2011) and Adams County through approval by the TCHD (December 19, 2011).

CSI also conducts asbestos disposal operations for the management of friable and non-friable asbestos-contaminated wastes in a monofill currently located in the north central portion of the facility. The asbestos disposal operation meets the current requirements of Section 5 “Asbestos Waste Management” of the Regulations.

For any volume of wastes accepted from CERCLA, SARA, RCRA Subtitle D cleanup sites, and for volumes of other waste streams anticipated to exceed 10,000 cubic yards from one site to be disposed of in 60 days or less, the appropriate regulatory agencies shall be notified of the type of waste, screening, handling and acceptance procedures being utilized, the anticipated date the project might proceed and end, and the anticipated haul routes.

With approval of this application, CSI will also accept technologically enhanced radioactive materials (TENORM) at levels below the Administrative Release levels in accordance with the Colorado Department of Public Health and Environment (CDPHE) Radiation Control Division Part 20 Regulation and approved by CDPHE for this facility.

6.0 ENGINEERING DESIGN

The 1991 and 1996 D&O Plans provide detailed engineering design and documentation demonstrating compliance with all applicable rules and regulations promulgated by the State of Colorado, and Federal and local governments. The basic design and environmental protective features at the CSI facility have not been changed since approval of the 1996 D&O Plan and continue to comply with applicable Regulations and regulatory requirements. The following sections summarize the major design components of the approved facility configuration for the ISW and MSW cells including:

6.1 Buffer Area

The landfill footprint was designed with a minimum setback distance of 100 feet from the north property boundary, 40 feet along the east property boundary, and 60 feet along the south property boundary. Incorporated in this buffer area are landscaping zones, permanent perimeter drainage structures for the control of stormwater run-on and runoff, perimeter access roads and environmental monitoring systems for groundwater and surface water. In addition, the buffer area includes a 70-foot wide Colorado Interstate Gas Company easement, which extends along the southern portion of the property. The solids management operation is located so as not to encroach on the existing buffer areas.

6.2 Disposal Area Layout and Status

Detailed designs for all disposal cells including 11 separate and distinct cells for disposal of ISW, and the asbestos cell have received approval and no changes to the design are proposed in this summary. The location of each disposal cell is shown on the attached drawings. The ISW cells (including the former MSW cell provides approximately 129.2 acres of disposal footprint. The asbestos cell footprint is slightly over 5 acres.

Cells 1, 2, 3, and 19/20 have been filled to capacity and Cell 18/21/22/23 is currently active. PBBT operations were previously conducted on top of Cells 1 and 2, a tank farm for PBBT process water is located on top of Cell 3, and Cell 19/20 has been closed and revegetated. In addition to the ISW cells, a disposal cell designated for asbestos waste is currently active.

The approved disposal area design incorporates a surface water drainage evaluation (included in Appendix B) conducted in compliance with the Regulations to control surface water runoff and runoff. Temporary controls structures are used as necessary within and around active disposal cells.

6.3 Engineered Containment Systems

Environmental containment and leachate removal systems have been engineered, approved, and constructed for the ISW, asbestos, and MSW cells. These containment and removal systems are summarized below.

6.3.1 Base and Sideslope Liner System

The ISW and former MSW cells have been designed with a composite liner system consisting of a two-foot minimum thickness low-permeability soil liner overlain by a 60-mil High Density Polyethylene (HDPE) membrane for the landfill base and sideslopes. The soil liner thickness in the sump areas is increased to three feet. The soil liner portion of the liner system is constructed from on-site cohesive soils, moisture-conditioned and compacted to a two-foot thickness with a maximum design hydraulic conductivity (permeability) of 1×10^{-7} cm/sec.

Because asbestos is not considered a groundwater contaminant, only the base of the asbestos cell is lined. The liner system consists of a minimum two-foot thick clay compacted to a maximum permeability of 1×10^{-7} cm/sec. It is placed, compacted, and tested in the same manner as the clay liner in the ISW cells.

6.3.2 Leachate Collection and Removal System

The leachate collection and removal system (LCRS) for the ISW and the former MSW disposal cells (no leachate collection system is required for the asbestos cell) has been designed to convey leachate from the most distant point of the leachate collection system to the leachate removal point (sump) in less than twelve (12) months. Components of the collection and removal system consist of a continuous 6-inch thick drainage layer over the floor area (or equivalent alternative material with minimum permeability of 1×10^{-1} cm/sec) and a leachate collection and removal sump in each cell. The 1996 D&O Plan includes provisions for a leachate collection piping system in the base of the cell leading to the sump. This piping system was constructed in Cells 1, 2, 3, and 19/20, but was eliminated with approval from the CDPHE and Adams County prior to construction of Phase 3 in Cell 18/21/22/23.

An inclined leachate riser pipe is designed in each sump and extends from the base of the sump to above the ground surface to provide access for removal of leachate collected in the sump.

6.3.3 Daily/Intermediate Cover Material

Soil cover or alternative daily cover (ADC) will be placed on ISW materials that may be combustible but difficult to ignite such as railroad ties at a minimum of one time per week. Daily cover will be applied to more easily combustible ISW materials such as used oil filters.

Uncontained asbestos materials will be covered immediately upon disposal with a minimum of nine-inches of soil or 18-inches of non-asbestos materials. Containerized asbestos materials will be covered within 24-hours of disposal, or 72-hours if contained in structurally rigid containers. Cover materials include soil, fabric, and other equivalent ADC materials with approval from the CDPHE and Adams County.

6.3.4 Final Cover System

The CSI facility has received approval to use an Alternative Final Cover (AFC) based on water balance principals. This AFC was approved subsequent to the 1996 D&O Plan. The final cover system approved in the 1996 D&O Plan was a four-foot thick soil system consisting of the following elements, from top down:

- A six (6)-inch vegetative growth layer of topsoil.
- An 18-inch miscellaneous soil layer as a rooting zone and protection for the underlying infiltration barrier layer.
- A minimum 24-inch thick infiltration barrier layer constructed from cohesive soils, moisture-conditioned and compacted to achieve a maximum permeability of 1×10^{-7} cm/sec.

In 2007, CSI received approval for an AFC as an option to the above final cover system based on a demonstration entitled *Updated Alternative Final Cover Demonstration* (AEC, April 25, 2007). The AFC components, from the top down consist of:

- A six (6)-inch vegetative growth layer of topsoil.
- An 18-inch moisture storage layer (20 inches on the slopes)

The final cover system over Cell 19/20 was the first final cover constructed at the site using the approved AFC, and CSI intends to include the same final cover system in a closure plan for the PBBT units.

6.3.5 Construction Quality Assurance

A Construction Quality Assurance (CQA) program has been implemented for construction of the composite liner, leachate control systems, and cover systems within CSI and is presented in the approved CSI Construction Quality Assurance and Specifications Plan (CQASP). The CQA program provides procedures for material selection and evaluation prior to construction; monitoring and testing during construction; and documentation/certification that construction is completed in conformance with the requirements of the D&O Plans.

6.4 Surface Water Management System

The 1996 D&O Plan contains detailed design for both temporary and permanent surface water control systems that are implemented as they become necessary. Surface water control structures are designed and constructed to manage surface water within the boundaries of the active cells, and outside of the active cells to route surface water around the active and closed disposal cells. The CSI Site Drainage Study from the approved 1996 EDOP is provided in Attachment B.

CSI is also permitted to discharge stormwater from the site under the Colorado Discharge Permit System (CDPS Permit #COR900405) and has constructed a controlled surface water discharge

pond on the north boundary of the site that uses various control methods including but not limited to vegetation, rip rap, straw bales and waddles and controlled discharge. A copy of the site-specific Storm Water Discharge Certification is included in Attachment B.

6.5 Evaporation Pond Configuration

CSI is permitted to construct and operate a modular Class I liquid evaporation pond for the purpose of evaporative treatment and storage of site-generated leachate and qualified liquid wastes. The pond has not been built as of the date of this summary. If built, the pond will incorporate a double liner and leak detection system located on top of Cell 3 as discussed in the 1996 D&O Plan. The 1996 D&O Plan contains additional information and requirements for construction and operation of the pond.

6.6 Mixing Basins

CSI has an existing mixing basin for solidification of liquid wastes, which was constructed upon opening of the facility and has been referred to in various documents as Mixing Basin A. Mixing Basin A was constructed in general accordance with the approved design discussed in the 1991 D&O Plan. It is constructed of concrete overlain with steel, with a divider wall along the short axis of the basin separating it into two separate basins for operational purposes. The mixing basin incorporates a monitoring/collection system beneath the basin consisting of an HDPE membrane overlain by sand and gravel drainage media. The monitoring/collection system is also split along the short axis to two separate monitoring points located on the north and south ends of the mixing basin. Each end has a vertical monitoring pipe which is accessible to liquid collection instruments and pumps. The basin is surrounded by a concrete apron which is sloped toward the basin. The basin walls extend above the ground surface where weep holes are drilled to allow any liquids spilled on the apron to flow back into the basin. A second mixing basin was designed and approved through the 1991 D&O Plan but has not yet been constructed. The second mixing basin will be constructed similar to the first existing basin.

The 2013 EDOP Summary included a third basin to support the proposed treatment and beneficial re-use of liquid wastes generated by the energy production industry. The approximate location of this operation is shown on the attached Site Development Map, and a detailed design will be submitted to the CDPHE and Adams County for review prior to construction. Additional information on the design of this mixing basin and the liquid waste treatment operations is included with the Energy Services Management Plan for this operation and is included in this summary in Appendix C.

7.0 OPERATIONAL INFORMATION

7.1 Operating Hours

Under the current permit, waste may be accepted between 7:00 am to 7:00 p.m. Monday through Friday and 7:00 a.m. to 1:00 p.m. on Saturdays. With this submittal the facility proposes to extend the Saturday operating hours to 7:00 a.m. to 7:00 p.m. to align with the approved Monday through Friday hours. Processing of waste and conducting other operations within the CSI facility may extend beyond these hours as needed.

7.2 Facility Management & Personnel

The management assigned to the facility is responsible for the overall operation of the landfill. The positions and titles of personnel currently responsible for operating the landfill and having the authority to take corrective action in the event of noncompliance are included in Appendix D.

7.3 Facility Equipment

Current primary equipment for the facility, which may vary, is also included in Appendix D.

7.4 Site Security

The current facility operations and active disposal areas are currently enclosed in an eight foot chain link fence with a locked gate. The fence will be expanded in the future as necessary to encompass all future operation and active disposal areas. The gate is locked at all times when the facility is not in operation. The entire site perimeter, however, may not be fenced in order to allow the unused portions of the site to be farmed until needed for operations. CSI may also remove the fences from the closed portions of the site if they are no longer necessary.

7.5 Control of Nuisance Conditions

The nuisance conditions of concern at MSW landfills with putrescible wastes have not been encountered with the ISW waste streams managed at the CSI facility. Bird, insect, windblown debris and rodent problems have not been in evidence at the operations or disposal areas. Potential nuisance conditions which may be associated with ISW wastes and for the bio-treatment facility are primarily dust and odor. Descriptions of these and other nuisance control measures for the MSW and asbestos cells are described in detail in the 1996 D&O Plan and summarized below.

7.5.1 Control of Wind Blown Litter

MSW Disposal Operations

With the redesignation of the future MSW disposal cell to an ISW cell, there will be no windblown litter from MSW operations.

ISW Disposal Operations

No litter problems have been evident in the ISW cells, because of the nature of the waste. Waste streams of this type are not susceptible to wind migration.

Asbestos Disposal Operations

Asbestos waste will not be accepted unless packaging meets 40 CFR 61 requirements and applicable portions of Section 5 of the State Regulations. Asbestos materials containerized in something other than structurally rigid containers will be covered with a minimum of nine-inches of soil or 18-inches of non-asbestos materials within 24-hours of disposal and within 72-hours if in a structurally rigid container. Non-containerized asbestos containing materials will be covered upon placement. Asbestos unloading will be allowed only when sustained wind speeds do not exceed 20 mph and wind gusts do not exceed 30 mph.

7.5.2 Dust Control

CSI has a Construction Permit issued by the CDPHE Air Pollution Control Division (APCD) that established dust control requirements and emissions limitations and the facility will continue to operate under the requirements of this permit. Much of the access roads in the heavy traffic areas are asphalt paved or paved with recycled asphalt and CSI has a water truck used as needed to minimize dust generation on roads and other disturbed areas and may use other dust suppressants as well. Leachate or select liquid wastes may be used to control dust within the confines of the waste disposal areas. In accordance with the Regulations, soil stockpiles left undisturbed for more than a six month period will be revegetated if natural vegetation does not occur. CSI also re-vegetates large, disturbed areas that are no longer being used.

Solidification agents are contained in a three sided storage building to protect it from precipitation and prevailing winds. Agents may be delivered to the site and dumped directly into the mixing basin. Water is used as necessary to control blowing dust. Fugitive particulate emissions are controlled in accordance with the emission control plan approved by the Air Pollution Control Division.

7.5.3 Vectors (Birds, Insects, and Rodents) and Odors

Due to the nature of the ISW, asbestos, and PBBT wastes, vectors have not been a problem because there is no food source as is found in MSW facilities.

Nuisance odors have not been a frequent problem at the CSI facility. Prior to acceptance of any wastes at the facility, a profile including detailed information about the waste is reviewed. If the profile indicates the waste may contain a strong odor the waste is rejected. Liquids that may be odorous and can be managed effectively through solidification are immediately placed in the mixing basin for solidification, which generally reduces or eliminates the odor. If a particular waste exhibits a persistent odor following placement in the disposal cell it is covered with soil or additional non-odorous waste.

7.5.4 Noise Control

A noise monitoring and hearing conservation program has been implemented at CSI to protect the hearing of the employees and to ensure the facility is maintaining compliance with local noise ordinances. Noise surveys of operating equipment have been performed which determines if hearing protection should be worn by the equipment operator. The maximum permissible noise level will not exceed the industrial limit as measured according to Section 25-12-102 of the Colorado Revised Statutes.

7.5.5 Fire Protection and Control

CSI maintains a Fire Prevention and Emergency Response Plan to address details and provide guidance for facility fires and emergencies.

CSI is located within the Bennett Fire District. The Bennett Fire District is familiar with the operations and types of waste accepted at CSI and have been provided keys to access the facility in case of an emergency when no CSI employees are on site. Each piece of heavy equipment at the site is equipped with a fire extinguisher and additional fire extinguishers are placed at strategic locations across the site.

In order to reduce the chance of fire at the facility, cover will be placed on combustible ISW materials that are difficult to ignite, such as railroad ties, at a minimum of one time each week. Daily cover will be added to combustible ISW materials that are easily ignited, such as oil filters. With the use of daily and weekly cover at the facility, the potential for fire will be minimized. Cover materials include soil, remediated PBBT product, solidified material from the mixing basins, and other equivalent materials.

7.6 Record Keeping

A facility operating record has been developed for CSI and is maintained on-site in the gatehouse/office. The operating record includes records of the following:

- The approved Design and Operations Plans and other applicable Operational plans;
- Notifications, demonstrations, certifications, and plans required by the Regulations;
- Waiver documentation from the Regulations;
- Inspection records and agency approvals/correspondence;
- Incoming waste volumes and manifest log books;
- Environmental monitoring results;
- Construction as-built details;
- Personal Injury records
- Spills at the facility in excess of 50 gallons
- Variations from approved operations procedures;
- Safety Programs and Relevant Training procedures and records;

- Cost estimates or financial assurance documentation as required under Section 1.8 of the Regulations.

7.7 Leachate Management

Leachate at the site may be produced in the ISW disposal cells and may be managed in a number of different ways discussed in the 1996 D&O Plan including the following.

- Solidification and disposal
- Recirculation back into the waste
- Dust control within the confines of the waste disposal areas
- Placement in the leachate evaporation impoundment (once constructed)

7.8 Waste Placement

7.8.1 ISW Waste Placement

Each remaining ISW cell described in this plan revision will be filled in the same manner as that of the existing cells and described in the 1996 D&O Plan. ISW may be direct-hauled to the appropriate ISW disposal cell and off-loaded directly into the cell. Liquid ISW intended for disposal is off-loaded directly into the mixing basin where it is solidified with solidification agent, removed from the basin, and hauled to the active ISW cell.

7.9 Evaporation Pond Operations

The purpose of the evaporation pond is to store and evaporate liquid wastes collected from the site's leachate collection systems or other qualified liquids arriving at the facility for disposal. Sections 6.3 and 7.1.3 of the 1996 D&O Plan describes the evaporation pond design, operating standards, monitoring and record keeping, and closure and will be operated in compliance with Section 9 of the Regulations. As of the date of this summary, the evaporation pond has not been constructed.

7.10 Treatment Facility for Recycling/Beneficial Reuse of Energy Production Wastes

This operation, which has yet to be implemented, was included in the 2013 EDOP Summary, and is described herein in Appendix C, Energy Services Management Plan.

8.0 ENVIRONMENTAL MONITORING PROGRAMS

The environmental monitoring programs for groundwater, surface water, landfill gas, and leachate have been developed to conform with all applicable rules and regulations promulgated by the State of Colorado, and Federal and local governments, including the Regulations Pertaining to Solid Waste Disposal Sites and Facilities" (6 CCR 1007-2, Part 1). A summary of the currently approved environmental monitoring program is provided below.

8.1 Groundwater Monitoring

The groundwater monitoring program, including a certification by a qualified scientist is presented in the approved *Monitoring and Reporting Plan* for CSI, prepared by BE&K/Terranext of Lakewood, Colorado, dated November 8, 1999 and the most recently approved revision, *Monitoring and Reporting Plan, Conservation Services, Inc. (CSI) Landfill* prepared by AquAeTer and dated September 2009. The September 2009 revision to the groundwater monitoring plan was prepared and submitted for the stated purpose to keep the site monitoring program consistent with standard industry practice, while maintaining compliance with the Regulations. As is typical, the Monitoring and Reporting Plan may be revised in the future based on any changed conditions or regulations, when appropriate, but will not be implemented until approval from the CDPHE and Adams County has been received.

The groundwater detection monitoring network consists of nine wells, four of which are currently monitored, two existing wells in which monitoring has been temporarily suspended until development of Cell 25, and three future wells in which monitoring will commence following future site development.

A statistical monitoring report is prepared following each sampling event and submitted to the CDPHE and Adams County. If any issues arise, CSI follows the procedures and protocol included in the Monitoring and Reporting Plan in compliance with the Regulations.

8.2 Landfill Gas Monitoring and Control

Landfill gas monitoring will not be required given the inert nature of asbestos waste and ISW and that MSW will not be accepted.

8.3 Surface Water Monitoring

The CDPHE Water Quality Control Division has issued CSI a surface water discharge permit under Colorado Discharge Permit System (CDPS permit number COR900405). This permit allows CSI to discharge storm water from the facility. Surface water monitoring associated with surface water discharge (when it occurs), regular inspections, and reporting, are conducted in accordance with the requirements of the permit. The permit and corresponding monitoring and inspection results are placed into the facility Operating Record and submitted to the CDPHE Water Quality Control Division in accordance with permit conditions.

A copy of the site-specific Storm Water Discharge Certification is included in Attachment B.

8.4 Leachate Monitoring

Leachate at the CSI facility may originate from within the disposal cells. Each disposal cell includes a leachate collection and removal system that is monitored on a regular basis and analyzed two times per year. Leachate removed from a disposal cell may be handled in a number of ways that are discussed in the 1996 D&O Plan. Following installation of final cover over in any disposal cell, CSI may abandon the leachate removal system in that cell if no leachate is detected during a 10-year monitoring period following final cover installation.

9.0 CLOSURE AND POST-CLOSURE

9.1 Closure Notification and Certification Requirements

Notification and certification requirements for the closure of CSI will be conducted in compliance with the Regulations and will include the following:

- 60 days prior to closure of the facility, submit written notification to the Colorado Department of Public Health and the Environment (CDPHE) and Adams County that the landfill will be closing.
- 60 days prior to closure of the facility, notify the general public of the landfill closure by posting clearly visible signs at the site entrance.
- Enact precautions to prevent further use of the site for unauthorized disposal.
- Water pollution will not occur at or beyond the POC after closure.
- Nuisance conditions will not occur at or beyond the site boundary after closure.
- Initiate routine closure activities within 30 days of reaching final design grades unless an extension beyond 30 days is granted by the CDPHE.
- Complete closure within 180 days after closure initiation, or if necessary, obtain an extension from the CDPHE.
- Following closure, submit a report certified by a Colorado registered professional engineer to the CDPHE documenting that closure has been completed in accordance with the closure plan. Place a copy of the report in the facility operating record.
- Following closure, record a notation on the deed or other title instrument stating that the land was used as a landfill and that land use is restricted. Notify the CDPHE and Adams County Planning that the notation has been recorded and place a copy of the notation in the operating record.

9.2 Routine Site Closure

Construction of the final cover system over a disposal cell may be conducted concurrent with the progression of landfilling operations in other cells. Due to the small area of individual disposal cell designs and the nature of the ISW disposal operations, final cover is generally not installed until an entire cell has been filled to design grades. Installation of final cover is subject to Construction Quality Assurance in accordance with the CQASP and the Regulations.

In accordance with the Regulations, final closure activities will begin within 30 days of reaching the final design grades in a disposal cell unless an extended time period has been approved by the CDPHE. Once started, final cover installation must be completed within 180 days unless approval for an extension is granted by the CDPHE.

9.3 Closure Plan Elements

The 1996 D&O Plan describes the methods and procedures for closing the CSI landfill and facility areas consistent with the requirements of Section 3.5 of the Regulations. The plan describes the following:

- Structure removal;
- Final grading and storm water drainage plans;
- The final cover design (the AFC is described in the aforementioned Demonstration Report);
- The final cover material sources;
- Construction methods and quality assurance;
- Revegetation plans;
- The maximum extent of landfill area requiring closure during the facility's operating life;
- The closure and notification schedule;
- A closure cost estimate completed at that time.

9.4 Financial Assurance

Regulations require all solid waste disposal facilities to establish costs to conduct closure and post-closure care and maintenance activities and fund these activities through a specifically designated funding mechanism. CSI conducts updates to the financial assurance cost estimates and funds these estimates in accordance with the Regulations.