



State of Utah

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DIVISION OF SOLID AND  
HAZARDOUS WASTE  
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*Executive Secretary*

January 8, 2015

J.T. Martin, Owner  
Integrated Water Management  
P.O. Box 433  
Altamont, UT 84001

RE: Permit Modification Approval

Dear Mr. Martin:

The 30-day public comment period for the modification of the Integrated Water Management Class IIIb Oil and Gas Exploration and Production Waste landfill Permit began December 2, 2014 and ended January 2, 2014. No comments were received.

Enclosed is a copy of the modified permit (#392M1) and the updated Operations Plan detailing the use of the geotextile filter tubes.

If you have any questions, please contact Doug Taylor at (801) 536-0240.

Sincerely,

Scott T. Anderson, Director  
Division of Solid and Hazardous Waste

STA/DT/kl

Enclosures: Solid Waste Permit, Permit Application-General Report (DSHW-2015-001262)

c: Mike Vorkink, P.G., Senior Geologist, GeoStrata  
Joseph B. Shaffer, MA, MBA, EHS, Health Officer, Tri-County Health Department  
Darrin Brown, LEHS, Environmental Health Director, Tri-County Health Department  
Scott Hacking, P.E., District Engineer

**UTAH DIVISION OF SOLID AND HAZARDOUS WASTE  
SOLID WASTE PERMIT**

**Integrated Water Management  
CLASS IIIb Oil and Gas Exploration and Production Waste LANDFILL**

Pursuant to the provisions of the *Utah Solid and Hazardous Waste Act*, Title 19, Chapter 6, Part 1, Utah Code Annotated (Utah Code Ann.) (the Act) and the *Utah Solid Waste Permitting and Management Rules*, Utah Administrative Code R315-301 through 320 adopted thereunder, a Permit is issued to

Integrated Water Management  
(Permittee)

to own, construct, and operate the IWM Class IIIb Oil and Gas Exploration and Production Waste Landfill located in SE ¼ of SE ¼ of Section 30, Township 2 South, Range 4 West, Salt Lake Base and Meridian, Duchesne County, Utah as shown in the Permit Application that was determined complete on May 28, 2014 Document Number 2014-007789.

By acceptance of this Permit, the Permittee agrees to be subject to the requirements of R315-301 through 320 of the Utah Administrative Code, as set forth herein and the conditions set forth herein.

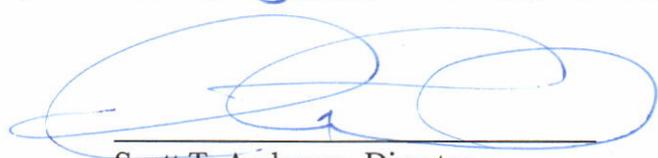
All references to R315-301 through 320 of the Utah Administrative Code are to regulations that are in effect on the date this Permit becomes effective.

This Permit shall become effective: July 28, 2014.

This Permit shall expire at midnight: July 28, 2024.

Closure Cost Revision Date: July 28, 2019.

Permit Modification signed this 8th day of January 2015.



Scott T. Anderson, Director  
Division of Solid and Hazardous Waste

## FACILITY OWNER/OPERATOR INFORMATION

LANDFILL NAME: IWM Class IIIb Oil and Gas Exploration and Production Waste Landfill

OWNER NAME: Integrated Water Management

OWNER ADDRESS: P.O. Box 433, Altamont, Utah 84001

OWNER PHONE NO.: 435-554-4646

OPERATOR NAME: Integrated Water Management

OPERATOR ADDRESS: P.O. Box 433, Altamont, Utah 84001

OPERATOR PHONE NO.: 435-554-4646

TYPE OF PERMIT: Class IIIb Oil and Gas Exploration and Production Waste Landfill

PERMIT NUMBER: 392M1

LOCATION: Landfill site is located in Township 2 South, Range 4 West, Section 30, SLMB, Duchesne County, Lat. 40° 16' 16.5", Long. 110° 22' 28.1"

FACILITY ADDRESS: P.O. Box 433, Altamont, Utah 84001. Eight (8) miles north of Duchesne, Utah on highway 87 and ½ mile east

PERMIT HISTORY: Signed July 28, 2014  
Permit Modification 1 signed January 8, 2015  
The Permit Modification, described in Section 3.2.5 and Appendix K, of the permit application allowing the use of geotextile tubes to dispose of Oil and Gas Exploration and Production Waste in the landfill.

## PERMIT REQUIREMENTS

The term "Permit" as used in this document is defined in R315-301-2(55) of the Utah Administrative Code. The title "Director" as used throughout this Permit refers to the Director of the Division of Solid and Hazardous Waste.

The IWM Class IIIb Oil and Gas Exploration and Production Waste Landfill Permit Application dated March 14, 2014, (DSHW-2014-007789) as deemed complete on the date shown on the

signature page of this Permit; and the Major Permit Modification dated November 12, 2014, (DSHW-2014-014810), is hereby incorporated by reference into this Class IIIb Landfill Permit and shall be referred to as the "Permit Application" throughout this Permit. The Permit Application is enforceable under R315-301-5(2) of the Utah Administrative Code. The Permit Application shall become part of the operating record of the Class IIIb Landfill. Where differences in wording exist between this Permit and the Permit Application, the wording of this Permit supersedes that of the Permit Application.

This Permit consists of the signature page, Facility Owner/Operator Information Section, Sections I through V and the Permit Application as defined above.

This Permit authorizes the Permittee to establish Class IIIb landfill cells on an 89.1-acre parcel identified in Appendix A of the Permit Application. The Permittee is authorized to construct a 4.7 acre Class IIIb landfill cell in Township 2 South, Range 4 West, Section 30, SLMB Duchesne County. The 4.7 acre Class IIIb landfill cell is at latitude 40° 16' 16.5", longitude 110° 22' 28.1", SLBM. The Permittee shall request modification of this permit to construct any additional cells.

Compliance with this Permit does not constitute a defense to actions brought under any other local, state, or federal laws. This Permit does not exempt the Permittee from obtaining any other local, state or federal permits or approvals required for the facility operation.

This Permit does not convey any property rights, other than the rights inherent in this Permit, in either real or personal property, or any exclusive privileges other than those inherent in this Permit. This Permit does not authorize any injury to private property or any invasion of personal rights, or any infringement of federal, state or local laws or regulations, including zoning ordinances.

The provisions of this Permit are severable. If any provision of this Permit is held invalid for any reason, the remaining provisions shall remain in full force and effect. If the application of any provision of this Permit to any circumstance is held invalid, its application to other circumstances shall not be affected.

By this Permit, the Permittee is subject to the following conditions.

## I. GENERAL COMPLIANCE RESPONSIBILITIES

### A. General Operation

The Permittee shall operate the Class IIIb Landfill in accordance with all applicable requirements of R315-304 of the Utah Administrative Code that are in effect as of the date of this Permit unless otherwise noted in this Permit. The Permittee agrees to be subject to the provisions of R315-304 of the Utah Administrative Code as set out in this Permit. Any permit noncompliance or noncompliance with any applicable portions of R315-301 through 320 of the Utah Administrative Code as set out in this Permit may constitute a violation of the

Permit or applicable rule and is grounds for appropriate enforcement action, permit revocation, modification, or denial of a permit renewal application.

**B. Noncompliance**

If monitoring, inspection, or testing indicates that any permit condition or any applicable rule under R315-301 through 320 of the Utah Administrative Code may be or is being violated, the Permittee shall promptly make corrections to the operation or other activities to bring the facility into compliance with all permit conditions or rules.

In the event of any noncompliance with any permit condition or violation of an applicable rule, the Permittee shall promptly take any feasible action reasonably necessary to correct the noncompliance or violation and mitigate any risk to the human health or the environment. Actions may include eliminating the activity causing the noncompliance or violation and containment of any waste or contamination using barriers or access restrictions, placing of warning signs, or permanently closing areas of the facility.

The Permittee shall document the noncompliance or violation in the operating record on the day the event occurred or the day it was discovered. The Permittee shall notify the Director by telephone within 24 hours, or the next business day following documentation of the event. The Permittee shall give written notice of the noncompliance or violation and measures taken to protect human health and the environment within seven days of Director notification.

Within thirty days of the documentation of the noncompliance, the Permittee shall submit to the Director a written description of the policies and procedures that have been or will be implemented to prevent the noncompliance or violation from recurring. Upon review of the submittal, the Director may require the Permittee to perform appropriate remedial measures, including development of a site remediation plan for approval by the Director.

In an enforcement action, the Permittee may not claim as a defense that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with R315-301 through 320 of the Utah Administrative Code and this Permit.

**C. Inspections and Inspection Access**

The Permittee is subject to R315-302-2(5) of the Utah Administrative Code and shall allow the Director or an authorized representative, or representatives from the TriCounty Health Department, to enter at reasonable times and:

1. Inspect the Class IIIb Landfill or other premises, practices or operations regulated or required under the terms and conditions of this Permit;

2. Have access to and copy any records required to be kept under the terms and conditions of this Permit;
3. Inspect any loads of waste, treatment facilities or processes, pollution management facilities or processes, or control facilities or processes required under this Permit; and
4. Create a record of any inspection by photographic, video, electronic, or any other reasonable means.

D. Prohibited Waste

1. All types of Solid Waste as defined by 19-6-102(19), Utah Code Annotated.
2. Hazardous waste as defined by R315-1 and R315-2, of the Utah Administrative Code;
3. PCBs as defined by UAC R315-301-2(53) of the Utah Administrative Code;
4. Household waste as defined by UAC R315-301-2(33) of the Utah Administrative Code;
5. Municipal waste as defined by UAC R315-301-2(47) of the Utah Administrative Code;
6. Commercial waste as defined by UAC R315-302-2(14) of the Utah Administrative Code.

Any prohibited waste disposed in the Class IIIb cell shall constitute a violation of this Permit, of Utah Code Ann. § 19-6-101 through 123 and of R315-301 through 320 of the Utah Administrative Code.

E. Acceptable Waste

The Permittee may accept any non-liquid exploration and production waste.

F. Revocation

This Permit is subject to revocation if the Permittee fails to comply with any condition of the Permit. The Director will notify the Permittee in writing prior to any proposed revocation and such action shall be subject to all applicable procedures established under R305-7 of the Utah Administrative Code and the Utah Administrative Procedures Act.

G. Attachment Incorporation

Attachments to the Permit Application are incorporated by reference into this Permit and are enforceable conditions of this Permit, as are documents incorporated by reference into the attachments. Language in this Permit supersedes any conflicting language in the attachments or documents incorporated into the attachments.

H. Ground Water Monitoring

The Permittee shall monitor the ground water underlying the Class IIIb landfill in accordance with the Ground Water Monitoring Plan, Part III, Section 2.2.6, Ground Water Monitoring Plan, (the Plan) contained in the Permit Application. If necessary, the Permittee may modify the Plan in accordance with R315-311 of the Utah Administrative Code.

II. DESIGN AND CONSTRUCTION

A. Design and Construction

The Permittee shall convert Pond Three with its existing liner system to the Class IIIb landfill cell. Any expansion of the Class IIIb landfill cell shall be done in accordance with the design outline submitted in the Permit Application and a detailed design submitted to and approved by the Director. Expansion of the Class IIIb landfill cell will require a modification to this Permit.

Final cover shall be constructed according to the design outline submitted as part of the Permit Application. The Permittee shall submit a detailed design to the Director for approval prior to any construction.

Construction of any additional Class IIIb landfill cells within the area covered by this permit will require approval by the Director of detailed designs and will require a modification to this Permit.

If ground water is encountered during excavation of the Class IIIb Landfill, the Director shall be notified immediately, and an alternative construction design developed and submitted for approval.

All engineering drawings submitted to the Director shall be stamped by a professional engineer with a current registration in Utah.

B. Run-On Control

The Permittee shall construct drainage channels and diversions as specified in the Permit Application and shall maintain them at all times to effectively prevent runoff from the surrounding area from entering the Class IIIb Landfill.

### III. LANDFILL OPERATION

#### A. Operations Plan

The Permittee shall keep the Operations Plan included in the Permit Application at the location designated in Part II, Section 3, and Appendix D of this Permit. The Permittee shall operate the Class IIIb Landfill in accordance with the operations plan. If necessary, the Permittee may modify the Operations Plan in accordance with R315-311 of the Utah Administrative Code. The Permittee shall note any modification to the Operations Plan in the daily operating record.

#### B. Security

The Permittee shall prohibit unauthorized entry to the facility. The Permittee shall:

1. Lock all facility gates and other access routes during the time the Class IIIb Landfill is closed.
2. Have at least one person employed by the Permittee at the Class IIIb Landfill during all hours that the Class IIIb Landfill is open.
3. Construct all fencing and any other access controls as shown in the Permit Application to prevent access by persons or livestock by other routes.

#### C. Training

The Permittee shall provide training for on-site personnel in landfill operation, including waste load inspection, hazardous waste identification, and personal safety and protection.

#### D. Burning of Waste

Open burning of waste is prohibited.

The Permittee shall extinguish all accidental fires as soon as reasonably possible.

#### E. Cover

The Permittee shall cover the waste as necessary to control fugitive dust.

The Permittee shall record in the daily operating record and the operator shall certify, at the end of each day of operation when waste and cover are placed, the amount and type of cover placed and the area receiving cover.

F. Waste Inspections

The Permittee shall visually inspect incoming waste loads to verify that no wastes other than those allowed by this Permit are disposed in the Class IIIb Landfill.

Any waste received at the Class IIIb Landfill found to be unacceptable for disposal at the Class IIIb Landfill shall be disposed at an approved waste management facility.

G. Self Inspections

The Permittee shall inspect the Class IIIb Landfill to prevent malfunctions and deterioration, operator errors, and discharges that may cause or lead to the release of wastes to the environment or create a threat to human health or the environment. The Permittee shall complete these general inspections no less than quarterly and shall cover the following areas: waste placement; fences and access controls; roads; run-on/run-off controls; ground water monitoring wells and records. The Permittee shall place a record of the inspections in the daily operating record. The Permittee shall correct the problems identified in the inspections in a timely manner and document the corrective actions in the daily operating record.

H. Recordkeeping

The Permittee shall maintain and keep on file at the IWM Offices at the facility, a daily operating record and other general records of the Class IIIb Landfill operation as required by R315-302-2(3) of the Utah Administrative Code. The Class IIIb Landfill operator, or other designated personnel, shall date and sign the daily operating record at the end of each operating day. The daily operating record shall contain the following:

1. Records related to the daily landfill operation or periodic events including:
  - a. The number of loads of waste and the weights or estimates of weights or volume of waste received each day of operation and recorded at the end of each operating day;
  - b. Documentation of noncompliance with the approved plan of operation;
  - c. Results of other monitoring required by this Permit;

- d. Records of all inspections conducted by the Permittee, results of the inspections, and corrective actions taken; and
- e. Records of employee training.
- f. A copy of this Permit, including the Permit Application;
- g. Results of inspections conducted by representatives of the Director of the Division of Solid and Hazardous Waste, and of representatives of the local Health Department, when forwarded to the Permittee; and
- h. Closure and Post-closure care plans.

I. Reporting

The Permittee shall prepare and submit to the Director an Annual Report as required by R315-302-2(4) of the Utah Administrative Code. The Annual Report shall contain the information required by and be on the form approved by the Director.

J. Roads

The Permittee shall improve and maintain all access roads within the facility that are used for transporting waste to the Class IIIb Landfill to assure safe and reliable all-weather access.

IV. CLOSURE REQUIREMENTS

A. Closure

Final cover of the Class IIIb Landfill shall be constructed in accordance with Appendix J of the Permit Application.

B. Title Recording

The Permittee shall record a notice with the Duchesne County Recorder as part of the record of title that the property has been used as a landfill in accordance with R315-302-2(6) of the Utah Administrative Code. The notice shall include waste disposal locations and types of waste disposed. The Permittee shall provide the Director a copy of the notice when recorded.

C. Post-Closure Care

The Permittee shall perform post-closure care after closure of the Class IIIb Landfill in accordance with the Post-Closure Care Plan described in Part III, Section 4.0 of the application. Post-closure care shall continue until all waste disposal sites at the Class IIIb Landfill have stabilized and the finding required by R315-302-3(7)(c) of the Utah Administrative Code is made.

D. Financial Assurance

The Permittee shall provide financial assurance for the cost estimates for closure and post-closure, as described in Part III, Section 5 and Appendix H of the Permit Application, for the Class IIIb Landfill that meets the requirements of R315-309 of the Utah Administrative Code and is approved the Director.

E. Financial Assurance Annual Update

The Permittee shall submit an annual revision of closure and post-closure costs for inflation and financial assurance funding as required by R315-309-2(2) of the Utah Administrative Code to the Director as part of the annual report.

F. Closure Cost and Post-Closure Cost Revision

The Permittee shall submit a complete revision of the closure and post-closure cost estimates by the Closure Cost Revision Date listed on the signature page of this Permit and any time the facility is expanded, any time a new cell is constructed, or any time a cell is expanded.

V. ADMINISTRATIVE REQUIREMENTS

A. Permit Modification

Modifications to this Permit may be made upon application by the Permittee or by the Director. The Permittee shall be given written notice of any permit modification initiated by the Director.

B. Permit Transfer

This Permit may be transferred to a new Permittee or new Permittees in accordance with R315-310-11 of the Utah Administrative Code.

C. Expansion

Any expansion of the Class IIIb Landfill facility beyond the property boundaries designated in the description in the Permit Application (89.1 acres) shall require submittal of a new permit application.

Any addition to the list of acceptable waste in Section I-B shall require a permit modification in accordance with R315-311 of the Utah Administrative Code.

**D. Expiration**

If the Permittee desires to continue operating the Class IIIb landfill after the expiration date of this Permit, the Permittee shall submit an application for permit renewal at least six months prior to the expiration date, as shown on the signature (cover) page of this Permit. If the Permittee submits a timely permit renewal application and the permit renewal is not complete by the expiration date, this Permit shall continue in force until a new permit is issued.

**E. Construction Approval and Request to Operate**

The Permittee shall meet each of the following conditions prior to receipt of waste:

1. The Permittee shall notify the Director that all the requirements of this Permit have been met and all required facilities, structures and accounts are in place.
2. The Permittee shall submit to the Director, for approval, documentation that all local zoning requirements and local government approvals have been obtained for operation of this Class IIIb Landfill prior to construction of any portion of the Class IIIb Landfill; including offices, fences, and gates.
3. The Permittee shall obtain written approval from the Director, prior to receipt of waste, stating that all information required by this section has been submitted and the information meets the requirements of this Permit and R315-301 through 320 of the Utah Administrative Code.

**PERMIT APPLICATION TO OPERATE AN E&P LANDFILL  
FOR  
INTEGRATED WATER MANAGEMENT  
DUCHESNE COUNTY, UTAH**

**PART II – GENERAL REPORT**

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## **1.0 FACILITY DESCRIPTION**

### **1.1 FACILITY GENERAL DESCRIPTION**

The Integrated Water Management (IWM) facility is located on 89.1 acres of land approximately 7 miles north of Duchesne City, just east of Highway 87. The area to be permitted is located in Section 30, Township 2 South, Range 4 West of the Uintah Special Base and Meridian in Duchesne County, Utah. The location of the facility in relation to surrounding areas is presented on Plate A-1 in Appendix A. The facility is currently being used to dispose of produced water from the oil and gas industry.

The IWM facility has 9 buildings that are actively being used to support the various waste disposal operations. These buildings consist of main office building, Driver Shack, Tank building, Water Well House, Injection Well House, Triplex building and three Workshops. On site there are also at least 26 oil and water transfer tanks used for processing the waste water. IWM also operates an E&P wastewater injection well located inside the Injection Well House. The injection well is used to dispose of wastewater approximately one (1) mile beneath the ground surface. On the northern part of IWM property is an approximately 3.6 acre landfarm. The landfarm is used to bio-remediate hydrocarbon contaminated solids. A map with each of these features identified and also other waste processing components is provided in Appendix A as plate A-8.

Plate A-1 identifies structures and drainages within one quarter mile of the facility and the westerly prevailing wind direction.

### **1.2 AREA SERVED**

IWM currently manages a produced water facility that accepts waste from clients throughout the Uintah Basin, Colorado and Wyoming. IWM plans to provide additional services to existing clients including RCRA exempt E&P wastes as defined by the Utah Division of Solid and Hazardous Waste (Division). Hereafter, RCRA exempt E&P waste will be referred to as E&P waste unless noted otherwise. As noted, the area to be served will generally be within the Uintah Basin, Colorado and Wyoming areas.

### **1.3 WASTE TYPES**

The facility will receive and treat RCRA exempt E&P waste. This waste includes but is not limited to E&P produced water, frac sands and drill cuttings, soils saturated with hydrocarbons and other E&P solid wastes. As required by the Division's standards for design the operator must minimize liquids admitted in to the landfill by prohibiting waste that contains free liquids (R315-303-3(1)). All of the waste will need to pass the paint filter test (EPA Method 9095B) to be accepted and deposited into the landfill.

### **1.4 FACILITY HOURS**

The IWM facility is an active water treatment facility that is manned 24 hours a day and 365 days a year. The proposed landfill will be available to accommodate waste from IWM clients/customers at their convenience.

### **1.5 LANDFILL EQUIPMENT**

The IWM facility currently has equipment to support the existing water disposal operation. This equipment includes a Komatsu 42N-54 backhoe/front loader, a Komatsu 37A-54-A110 skid steer, and a filter press. Additional mobile equipment will be acquired to facilitate the operation of the proposed E&P landfill, but no fixed equipment generating air emissions will be installed. This equipment may include a conveyor system to distribute and place the E&P waste across the landfill area.

### **1.6 LANDFILL PERSONNEL**

IWM facility is managed by Mr. Nate Robinson who has more than 10 years of experience managing waste disposal facilities. The IWM staff currently has more than 15 full time employees. The following table lists the current managing staff at the facility and how the additional landfill operating duties will be assigned. Other IWM employees assigned to work in the landfill portion of the IWM facility will receive direction from the managing staff.

<b>Employee Name</b>	<b>Current Title</b>	<b>Years of Experience</b>	<b>Current Duties</b>	<b>Landfill Duties</b>
JT Martin	Managing Director	2 years	Plans and directs all short and long term staffing and operations	Will assume same duties for Landfill
Nate Robinson	General Manager	10 years	Delegates, coordinates and organizes daily operations	Will assume same duties for Landfill
Robert Meeks	HS&E	4 years	Relief Management & Safety	Director of Landfill Safety
Collin Roach	Operator	3 Years	Landfarm Maintenance Manager	Landfill Maintenance Manager
Russell Sorensen	Operations Manager	6 Years	Landfarm Operation Manager , peak well services & cleanup crew supervisor	Landfill Operation Manager

### **1.7 NON COMMERCIAL EXCLUSION**

The proposed landfill will only accept RCRA exempt E&P waste as defined in Section 1.3 of this application. Discussions with the Division's personnel indicate that the facility will be considered a non-commercial facility if and only if E&P waste as defined in Section 1.3 of this document is accepted into the landfill. The operational plan will define quality control steps to ensure the acceptance of only approved E&P waste in order to meet the requirements of a non-commercial facility.

### **1.8 HISTORICAL PRESERVATION SURVEY**

GeoStrata conducted a review of the landfill construction site and prepared a letter for the State Historical Preservation Officer (SHPO). Based on our evaluation of the site and area of potential effects from the permitting of the new landfill, we found that the site has no historical properties or structures. We provided our findings to the SHPO and we received a response indicating that they concur with our determination. A copy of the letter from the SHPO is provided in this permit application in Appendix G.

## **1.9 LOCAL GOVERNMENT WITH JURISDICTION**

The local government with jurisdiction over the IWM facility is Duchesne County. The mailing address is provided below:

734 North Center Street  
PO Box 910  
Duchesne, Utah 84021

## 2.0 LEGAL DESCRIPTION

A legal description of the proposed landfill is provided below. IWM is the owner of this property and proof of this ownership is provided in Appendix F. Proof documents presented in the Appendix F include a Plat map, tax records and a warranty deed.

A PARCEL OF LAND LOCATED IN THE SOUTHEAST QUARTER OF SECTION 30, TOWNSHIP 2 SOUTH; RANGE 1 WEST, UINTAH SPECIAL BASE AND MERIDIAN. BETTER DESCRIBED AS, BEGINNING AT A POINT LOCATED NORTH 89°57'15" WEST 552.56 FEET AND NORTH 553.38 FEET FROM THE SOUTHEAST CORNER OF SAID SECTION 30; AND RUNNING THENCE NORTH 49°26'56" WEST 929.42 FEET; THENCE NORTH 40°33'04" EAST 219.94 FEET; THENCE SOUTH 49°26'56" EAST 929.42 FEET; THENCE SOUTH 40°33'04" 219.94 FEET TO THE POINT OF BEGINNING.

CONTAINS APPROXIMATELY 204,419 SQFT  
(Gilson Engineering)

## **3.0 OPERATIONS PLAN**

### **3.1 SCHEDULE OF CONSTRUCTION**

Prior to the IWM facility the subject site was originally constructed as a waste water disposal site in the 1980s. The original waste water disposal facility was closed in 1994. In 2010 the original facility ponds were completely removed and hauled away to clear the site for the construction of three new ponds currently used by IWM. The ponds were constructed and lined in 2010. IWM began accepting E&P wastewater in 2010.

Ponds 1-3 at the IWM facility have a 60 mil HDPE primary liner under laid with a 200 mil GEONET to facilitate the transmission of primary liner leaks to the leak detection sump (See Appendix F, D.101). A 40 mil HDPE secondary liner under lays the GEONET. Pond 3 of the IWM facility is the proposed location for the E&P landfill cell and has been operating as a wastewater evaporation pond since it was constructed. Pond 3 has been drained of all waste water and its current configuration will remain intact for us as the landfill cell. A set of plans for the landfill cell is provided in appendix F.

At the start of landfill operation IWM anticipates that approximately 5 truckloads of E&P waste will be transported to the facility per day. Each truck load will have a volume of approximately 15 cubic yards. IWM anticipates that some processing will be required to allow the imported waste to pass the paint filter test. At this time IWM is considering using several different techniques to condition waste to pass the paint filter test. Some of the techniques IWM plans to utilize include but are not limited to a filter press, mixing of the waste with sawdust, fly ash, native soils or other components. Waste acceptance procedures and quality control of waste being disposed in the landfill are outlined in sections 3.2.1 and 3.2.2 of this report. IWM also will utilize Alternative disposal methods including geo-fabric dewatering tubes to remove water from the waste. These procedures are outlined in section 3.2.5.

Once the final process is defined adjustments to the design life of the landfill will be made. At this point the life duration of the landfill is defined assuming that half of the waste arriving at the landfill will be mixed with native soil material and the remaining waste will be processed using other equipment (drying, filter press) and then placed directly into the landfill. Watery or other waste not meeting the paint filter test will be mixed with dry material to obtain appropriate unit moisture content. In order to obtain an

estimate for the mixing ratio, a preliminary waste assessment was conducted using samples of anticipated types of waste and native soils that, when mixed, will meet appropriate standards for landfill placement under this permit application. This assessment resulted that a mixing ratio of approximately 1.5 units (native soils) to 1.0 unit (waste) will produce the desired moisture. In other words for every 1 ton of waste there will be approximately 1.5 tons of native soils added to reach a moisture content that will pass the paint filter. Calculations used to estimate the mixing ratio are provided in appendix E as plate E-1 and E-2

Based on waste mixing assumptions described above and assuming waste will be accepted 5 days per week with a 10% annual growth rate over the life of the landfill, the projected life of the landfill is approximately 4 years (3 years & 9 months). However, the projected life may increase or decrease based on the type of processing and or mixing methods utilized. A copy of the spreadsheet used to calculate this estimated life is included in Appendix E. All of the assumptions presented in the previous paragraphs were used in the spreadsheet calculations.

### **3.2 DESCRIPTION OF WASTE HANDLING PROCEDURES**

The following section describes the general procedures that will be followed under this permit application for accepting, disposing, recording and excluding landfill waste at the IWM facility.

#### **3.2.1 General Procedures**

All waste will be hauled to the IWM facility using commercial or independently owned trucks. All trucks will enter at the main gate and check in with the landfill office. Every truck load of waste will be inspected prior to disposal and a paint filter test will be performed on each load of waste unless it obviously won't pass the paint filter test. Waste in this category may be processed first and will be tested previous to placement in the landfill. Waste needing additional processing to pass the paint filter test will be placed directly into a geotextile filter tube or in a temporary storage area for further processing. The liner material for the temporary storage area will be composed of either concrete, clay, HDPE liner or other impermeable material approved by the Division. This storage area will be constructed as a staging area that could also be used to mix or dry waste as needed. Plate A-9 shows the proposed location of the temporary storage tank where waste will be stored before processing. The tank will be approximately 36 x 140 x

2 ft and will be located on top of an existing HDPE liner and adjacent to the proposed landfill cell. The tank will be constructed out of 35 lb modular blocks each of which is approximately 4ft long 2ft high and 1ft wide. Previous to tank construction a layer of felt will be placed on top of the existing HDPE liner over the entire footprint of the temporary storage tank. Blocks will then be arranged in the shape of a rectangle approximately 36 ft x 140 ft. Adjacent blocks will be interlocked using 6 in PVC pins. To further stabilize the tank, cables attached to the top and bottom of the tank will stretch across to the top and bottom of the opposite side the tank. In addition HDPE blocks will be welded to the liner to prevent the base of the tank from moving. The modular tank will also be lined with a 40 mil liner to isolate waste. Photos in Appendix J show the blocks in various stages of construction. IWM will utilize different types of containment for waste contingent on pre-processing needs. Most waste arriving at the site and requiring additional processing before placement in the landfill will be held in temporary storage tanks. The storage tanks will feed directly into the filter press unit which will dewater the waste. Waste that will not go through the filter press will be placed in a storage area that will be constructed so as to ensure that the waste will be isolated from the underlying soils.

An additional paint filter test will be conducted on every 15 cubic yards of waste that requires processing prior to being transported into the landfill. Waste that fails the second paint filter test will remain in the temporary storage area and will be further processed by mixing with native soils. Paint filter test procedures are attached to this application in appendix D.

After passing the paint filter test waste will be placed in the landfill using a conveyor system. Waste will be placed in a uniform layer in the bottom of the landfill and compacted as described in section 3.2.3 Waste Disposal.

### **3.2.2 Waste Shipment Records**

The Landfill Manager will maintain and store waste shipment records as part of the daily records of disposal activities. Each truck load of E&P waste delivered to the IWM facility will have a waste shipment ticket completed. The waste shipment ticket will be completed by the truck driver and then verified by the landfill operating staff. An example of the waste shipment ticket is included in Appendix D. The waste shipment ticket will include the following data for record keeping:

- Date and time of arrival
- Load ID number

- Quantity in cubic yards and estimated tons based on unit weight
- Type of waste
- Origin and generator of waste
- Name of trucking company and truck number
- Truck drivers name and signature

### **3.2.3 Waste Disposal**

The E&P waste will be transported into the landfill cell by means of a conveyor system. Waste will be deposited at the bottom of the cell and will be placed in 1ft thick lifts. Lifts will be distributed by use of the Komatsu 37A-54-A110 skid steer and then wheel rolled with heavy compaction equipment. Waste will be wheel rolled to reach a firm and unyielding surface to maximize landfill capacity.

Waste deposited in the landfill will not come in contact with the HDPE liner. The HDPE liner will be armored from waste being transported into the landfill by placing a layer of durable material over the HDPE liner. Plate K-4 shows a diagram of how the armor material will be placed in order to protect the HDPE liner. The material to be used for armoring the liner will be constructed of materials durable enough to withstand impact of falling debris from the conveyor belts. A protective 12 inch layer of fill material will be in place between the waste and HDPE liner. The 12 inch fill layer will be placed on all surfaces of the HDPE liner. All equipment moving in or on the landfill will not have direct contact with the liner and will remain on the fill layer. The conveyor system will also include armoring the HDPE liner below the conveyor. Waste will also be placed in such a way as to avoid puncturing the liner during the compaction process.

### **3.2.4 Plans for Excluding Waste**

Non E&P waste and non RCRA exempt waste will not be accepted at the IWM landfill. In an effort to ensure that waste meets this requirement, all potential waste generators that wish to dispose waste at the IWM facility must first complete an initial waste profile assessment. This assessment will include completion of a waste characterization form and also providing samples for testing and assessment. This assessment will determine the acceptability of the waste that is generated to be disposed under this permit application.

Each waste generator will provide representative samples of each type of waste that the waste generator proposes to bring to IWM. IWM will test each sample to determine if the sample meets or can be processed to meet standards for landfill disposal. Generators will be required to complete a waste characterization form and provide a letter of certification for each type of waste showing that the waste meets requirements for landfill disposal. Generators will be required to characterize the waste from each of the various sources. Generators will also be required to inform IWM when waste composition changes and resubmit a waste characterization form with representative samples. An example of this form is provided at the end of this application in Appendix D.

### **3.2.5 Alternative Disposal Procedures**

In addition to the previous outlined procedures IWM will utilize other methods of waste disposal specifically designed for liquid based waste. These methods include dewatering waste by placing it in geotextile filter tubes. IWM anticipates that the majority of the E&P waste arriving at the facility will be drilling mud and liquid based drill cuttings. Geotextile filter tubes have been shown to be an effective method to dewater fine grained soils and other materials (See Fowler et al Appendix K). Fowler et al in a case study performed at a landfill in Kentucky showed that waste placed in the filter tubes could be dewatered sufficiently to pass the paint filter test after a seven (7) day residence. IWM will use the Geotextile tubes to contain, dewater, and stabilize E&P waste having high free moisture content. The following describes the procedures for handling this type of waste.

The geotextile tube will be placed in the bottom of the landfill directly on free draining substrate. IWM may use a variety of sizes of filter tubes that will fit in the bottom of the landfill. The geotextile mesh size will be smaller than the mesh size required for the paint filter test. The paint filter test requires a mesh number 60 (250 $\mu$ m). The geotextile filter tube mesh will be a number 70 (210 $\mu$ m) or smaller. The small mesh size will contain the fine grained material but allow water to escape through the filter tube. A specification sheet showing the material properties of the geotextile filter tube to be used by IWM is included in Appendix K.

Very wet E&P waste will arrive in tanker trucks and will then be pumped directly from the truck into either the filter tube or a temporary storage container. A manifold will be constructed to convey waste into any or all of the filter tubes for dewatering and storage. Any waste that is placed in temporary containment will then be gravity fed or pumped into the filter tube.

The bottom of the landfill cell is graded to both the north and east corners. Sump pumps will be placed in each corner and near the middle of the landfill cell. The sump pumps will be mobile and enable IWM personnel to drain water from isolated pockets that may accumulate around the filter tubes. The water will be pumped into the adjacent water evaporation pond and ultimately injected in to the IWM's disposal well located on the IWM facility

After a Geotextile tube is filled to capacity and free water is drained from the tube, the tube will remain in place for the entire life of the landfill. The landfill will be continually monitored for additional water that may escape from tubes, migrate from other portions of the landfill or accumulate from rain and snow. Such water will be removed and disposed into the evaporation ponds.

IWM may utilize a mixing facility to increase the water content of the waste streams that are too dry to be pumped into the tubes. This will be done in order to maximize the amount of waste that can be disposed into the geotextile filter tubes. Currently, waste that is too dry for disposal in the tubes, but too wet to be placed directly into the landfill is dried as previously described in section 3.2.1.

### **3.3 WASTE FACILITY INSPECTION AND MONITORING**

IWM personnel will inspect the facility to prevent malfunctions, deterioration, wear, operator errors, and discharges which may cause or lead to the release of wastes to the environment surrounding the facility or in other ways pose a regulated threat to human health. Facility inspections will be conducted weekly and will be recorded using the weekly inspection log. Some items will be monitored on a daily basis. An example of these inspection logs is provided in this permit application in Appendix D.

#### **3.3.1 Fugitive Dust Control**

As required in Utah Administrative Code R315-302-2(2)(g) IWM has prepared a plan for controlling fugitive dust as part of this permit application. As part of the daily operations of the IWM facility, fugitive dust will be monitored and controls will be put in place as deemed necessary by the Landfill Manager.

During the construction and operational phases of the landfill, sources of dust within the landfill cell will be identified by the Landfill Manager. These sources of dust will be controlled by watering and proper placement of waste in the landfill. IWM will have staff on site that are certified to monitor opacity and will periodically check the facility for dust control issues. When opacity of the dust exceeds 10% watering controls will be put in place.

The Landfill Manager will also monitor dust on all haul roads on IWM property. Haul roads leading from the main gate to the landfill cell are all unpaved. Proper maintenance of haul roads, speed limit controls and watering when dust opacity exceeds 10% will aid in reducing fugitive dust emissions.

### **3.3.2 Plan for Litter Control**

IWM does not anticipate accepting waste materials that will cause a wind-blown litter problem. IWM will complete a daily inspection of the landfill and surrounding area and identify any potential waste material that may escape the facility.

### **3.3.3 Contingency Plan for Fire or Explosion**

In the event of a fire or explosion at the IWM facility, the Landfill Manager will be notified. The Landfill Manager will then contact local emergency authorities to initiate an appropriate emergency response. A list of the local emergency responders is provided in Appendix D of this permit application.

### **3.3.4 Alternative Waste Handling Plan**

In the event of a landfill closure due to an emergency or repairs, IWM will make arrangements to have the waste transported to the Duchesne County Landfill located at 20550 W and 2000 S. The Duchesne County Landfill is approximately 0.5 miles south east of the IWM facility. This close proximity will allow a quick transition to the alternative facility if needed.

### **3.3.5 General Training Plan**

IWM currently has a training program that educates their employees on how to handle E&P waste and how to operate the existing components of the waste facility. As required in R315-302-2(2), each permitted landfill must have a detailed training program. Prior to working in the landfill portion of the IWM facility, all employees are required to complete the training program described below. This training program will consist of three parts including health and safety training, E&P waste handling, and landfill operations specific training. The training of each employee will be supervised and conducted by the IWM Operations Manager or manager's designate.

#### **Health and Safety Training:**

Prior to completing the IWM health and safety training portion of the education program, each employee will complete a 10 hour safety course provided by OSHA. In addition to the safety training provided by OSHA, IWM will educate the employees on the following safety procedures:

- Facility safety controls
- Emergency procedures and equipment
- Contingency plan procedures
- Fire prevention and control
- Spill prevention and control
- Proper safety equipment and personal protection equipment
- Waste loading and unloading procedures
- Waste disposal equipment handling procedures and safety
- H2S safety training
- Chemical Hazards

#### **E&P Waste Handling Training:**

The IWM operations manager will instruct all employees on proper handling of E&P waste based on current, published regulations pertaining to the facility. This training will cover RCRA exempt E&P, produced water and crude oil. This portion of the training will train employees in the following areas:

- Overview of E&P waste production and disposal
- Identification of E&P waste types
- Review of regulations relating to E&P waste
- Prohibited waste
- Proper handling and disposal of each waste type

- Proper recordkeeping of accepted waste

### **Landfill Operations Specific Training**

Employees that will be involved in any portion of the Landfill operations will receive landfill specific training. Each employee will also receive hands-on training from the Landfill Manager specific to the employee's assigned duties. This portion of the training will cover the following items:

- Overview of landfill design, construction and components
- Waste identification and characterization
- Documentation of accepted waste
- Landfill hazards and safety
- On-site waste transportation
- Waste loading and unloading procedures
- Waste sampling procedures
- Waste inspection, processing and testing procedures
- Recordkeeping
- Landfill inspection and general maintenance
- Emergency procedures and contingency plan
- Proper transportation and placement of waste in landfill
- Spill prevention and containment

All personnel working on the landfill will be required to participate in weekly safety meetings and morning tailgate safety meetings held on site at IWM. All employees are to read and review semiannually this landfill permit. Annual refresher training of the above mentioned training program will be conducted for all employees involved with the permitted landfill. Any new information relevant to the permitted landfill will also be covered in the annual refresher training. New employees assigned to work associated with the landfill will receive training during the first month of employment and will be trained by a supervisor who has completed the required training. Records of this training will be kept in the IWM database.

## **3.4 RECORD KEEPING**

During the operation of the landfill, the operator will maintain records of landfill activities as required by the division (315-302-2-(3)). These records will be stored electronically in the IWM database at their facility.

### **3.4.1 Daily Permanent Record**

The Landfill Manager will record the following data daily and maintain the data in a permanent file:

- Waste shipment records as described in section 3.2.2
- The estimated weight in tons and volume in cubic yards of E&P waste received for the day
- The estimated weight in tons and volume in cubic yards of E&P waste that required treatment prior to disposal in the landfill cell.
- The estimated weight in tons and volume in cubic yards of material added to treat the waste and the total weight and volume of treated waste
- Number of trucks off-loading to the Landfill
- Type of E&P waste received
- Paint filter test results
- Deviations from the UDSHW approve Operations Plan
- Staff training records
- Status of groundwater, leachate and gas monitoring
- A written summary of daily activities at the landfill site

### **3.4.2 Other Records**

The Landfill Manager will also include the following data in the permanent records:

- Design documentation of the placement or recirculation of leachate or natural gas condensate into the landfill
- Closure and post closure care plans and activities
- Cost estimates and financial assurance documentation
- Safety training and landfill specific training for all employees associated with the landfill



Large filter bags for dewatering of drilling mud



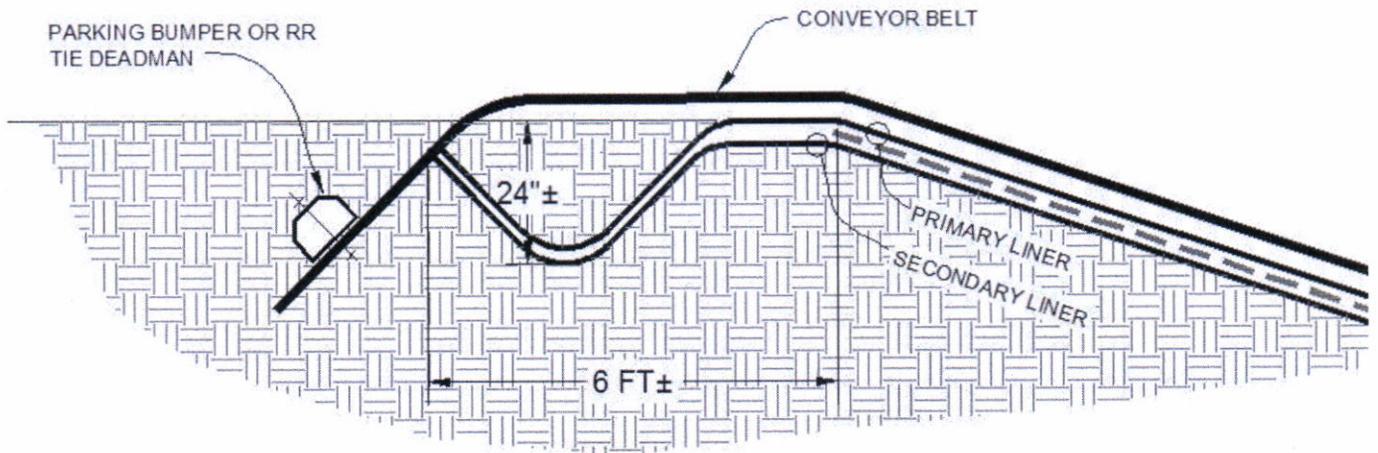
Small filter bags for test dewatering of drilling mud



Small filter bag opened after dewatering test



Small filter bag opened after dewatering test – material passes the paint filter test.



Liner protection for conveyor system