Class II Landfill Permit Application

for

Fish Springs National Wildlife Refuge
U. S. Fish and Wildlife Service

for Submittal to

Utah Department of Environmental Quality

Prepared by

Intermountain Technical Solutions, Inc.
Utah: 801-882-8622 Colorado: 303-279-2010

UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY

DIVISION OF SOLID AND HAZARDOUS WASTE

APPLICATION FOR A PERMIT TO OPERATE A CLASS II LANDFILL

The applicant shall submit, in duplicate, an original permit application, a general report, and a technical report to:

Dennis R. Downs, Director
Division of Solid and Hazardous Waste
Utah Department of Environmental Quality
PO Box 144880
Salt Lake City, Utah 84114 - 4880

Permit #9707

PART I - GENERAL INFORMATION

1. Name of Facility Fish Springs National Wildlife Refuge (NWR)
2. Site Location West Boundary of Fish Springs Wildlife Refuge (F.S. Quadrangle S.W.)
3. Facility Owner U.S. Fish and Wildlife Service, Department of the Interior
4. Facility Operator -Same-
5. Contact Person Jay Banta

   Address U.S. Fish and Wildlife Service
   Fish Springs N.W.R.
   Box 568 Dugway, Utah 84022

   Telephone (801) 831-5353

6. Type of Application:

   ☒ Initial Application ☐ Permit Renewal

7. Property Ownership

   ☒ Presently owned by applicant

☐ To be purchased by applicant

☐ To be leased by applicant

Property owner (if different from applicant)

Name -Same-

Address _____

_____

Telephone _____

8. Certification of submitted information.

_____, _____
(Name of Official) (Title)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: Jay K. Bartlett Date 6-4-97

SUBSCRIBED AND SWORN to before This 4 day of June, 1997.

My commission expires on the 18 day of April, 1999.

Linda J Buell
Notary Public in and for

(SEAL) Tooele County, Utah.

Notary Public
LINDA F. BUELL
Dugway Proving Ground
Dugway, Utah 84022
My Commission Expires
April 18, 1999
State of Utah

FISH SPRINGS: PART II - GENERAL REPORT

INTRODUCTION:

GENERAL DESCRIPTION OF THE FACILITY: R315-310-3 (1)(b)

The Class II landfill facility is located within the legal boundaries of the Fish Springs National Wildlife Refuge, which is positioned in the western half of Juab County, Utah. The refuge encompasses 18,000 acres and consists of the wetlands areas, springs, access roads, a refuge headquarters (offices, residences, garage and shop, gravel pit, landing strip, a well and parking areas), a small picnic area and the existing Class II landfill. Accessible by rough gravel road, the refuge is in an extremely remote area of the West Desert, bordered by the Dugway and Thomas Ranges of the Drum Mountains on the eastern edge and the Fish Spring Range on the west. The primary purpose of the refuge, established in 1959, is for the oversight, tracking , census, and wintering of all types of waterfowl and shore birds. The refuge headquarters Class II landfill is positioned along the western boundary of the Federally-owned land and serves about 15 employees in the summer months and about 9 in the winter, as well as trash collected from public trash cans at various points on the refuge. The landfill has served this size of populace since the 1960's and continues to do so at present.

LEGAL DESCRIPTION/OWNERSHIP/LATITUDE & LONGITUDE/LAND USE & ZONING: R315-310-3 (1) (c)

The refuge, including the headquarters facility and appurtenances, is located on federal land, managed by the U.S. Department of the Interior, U. S. Fish and Wildlife Service (FWS). The refuge headquarters is at ~~longitude~~ latitude 39 degrees 51 minutes 1 second and ~~latitude~~ longitude 113 degrees 24 minutes and 1 second. The target portion of the application is positioned within township 11 south, range 14 west and section 23 of the Fish Springs Southwest Quadrangle (Utah) Juab County. **Figures 1 and 2**, included behind the Technical Report Section of this permit application, are maps that illustrate the location and layout features of the Fish Springs National Wildlife Refuge, and the attendant solid waste management unit (class II landfill).

SITE CAPACITY

It is estimated that 1,452 cubic yards of waste has been disposed in the landfill. Under current disposal methods, an additional 21,647 cubic yards of waste may be disposed at the site. Therefore, the total site capacity is estimated to be approximately 23,100 cubic yards.

TYPES OF WASTE AND AREA SERVED: R315-310-3 (1) (d)

The solid waste management unit located at the refuge headquarters has been in operation since 1960 and is solely in existence to serve the needs of the refuge, refuge headquarters and the visiting public on a day use basis. The peak summer population of the Fish and Wildlife Service staff (employees) is approximately fifteen (15) and occasional visitors. The winter employee census hovers around nine or ten (9/10) with even fewer visitors during this time. No other towns or residences use the refuge landfill. The typical waste types disposed within this small unit consist of: household garbage, some office paper and trash, occasional packaging materials from vehicle maintenance activities, "brush", empty paint cans, shop trash and picnic refuse. In addition, small household batteries and light bulbs have been managed in these landfill cells as "household trash".

PLAN OF OPERATION; R315-302-3 (1) (e)

INTENDED SCHEDULE OF CONSTRUCTION: R315-302-2 (2)(a)

The manner of construction employed by the refuge management since 1960 involves the utilization of a bulldozer with a wide blade traversing the desired "cut" area to an approximate width of ~ 15 feet and a sloping length of ~ 36 -38 feet. The resultant "trench" is excavated to a total depth from the surrounding ground surface contour of 4 feet. The first trench, opened in 1960, has been totally filled with the site-generated solid waste and has an earthen cover of materials obtained from the immediate area. The second trench, which is in operation at present and commenced accepting waste in the early to mid-1980's, has approximately two (2) feet of "freeboard" capacity remaining. In anticipation of Trench #2 's capacity being met in the near future, Trench #3 has been excavated to the west of #2 and does not contain any waste. This third trench was excavated in 1995 and is slightly longer (total length about 60 feet) than trenches #1 and #2. The total perimeter dimensions of the three (3) trenches in existence has been measured to be approximately 70 feet x 60 feet. Excavated soil has been stockpiled adjacent to the trenches to provide cover soil and final cover material.

DESCRIPTION OF ON-SITE WASTE HANDLING PROCEDURES AND WASTE VOLUME RECORDS:
R315-302-2 (2) (b) and R315-302-3 (1) (f)

The routine procedure for the collection, transportation and disposal of the solid wastes generated from the refuge operation is described as follows: Once per week of operation, a FWS designated employee collects the solid waste stored in various containers located primarily in the headquarters compound, and places the garbage/trash in a service vehicle (typically, this will be a pickup truck). The FWS employee, who has been properly trained in landfill restrictions, inspects the collected wastes for undesirable or unacceptable items and removes the items as appropriate (for other management options), transports the "load" to the Class II landfill trench area, and completes the **"Waste Load Acceptance Form", (included as Attachment A)**. The form requests the "transporter" to record an estimated volume of the waste load, in the uncompacted state, and give an observed physical description of the load contents. The "operator" then completes the balance of the form, and proceeds to unload the contents within the trench. The operator then either compacts the load further within the trench, or if compaction is not necessary, retrieves the nearby stockpiled soil and places approximately 6" of cover on the recent trench addition.

INSPECTIONS AND MONITORING; RECORDS OF OBSERVED/ TESTING RESULTS:

R315-302-2 (2) (c) and R315-310-3 (1) (g)

As discussed above during the Waste Load Acceptance process, each load is visually inspected for unacceptable items or waste types. This initial review is the most effective manner of restricting and regulating the receipt of waste into the trenches. In addition, the FWS management incorporates a quarterly inspection of the trench(es), and the related appurtenances such as the landfill disposal area security fencing, gate(s), lock(s), boundary markers, run-on/run-off control structures, roadways and soil cover material. This inspection will be performed by personnel trained and qualified to evaluate the condition/status of the inspected items compared to the Class II Permit conditions and requirements and record those observed conditions on the **"Class II Landfill Weekly & Quarterly Inspection Log", (Typical form included as Attachment B)**. The "Log" contains a section devoted to items or actions to be taken to correct an observed apparent or likely deficiency, in addition to the suggested timing of actions or repairs. The log also includes information such as date and time of the inspection, printed name and handwritten signature of the inspector, as well as a listing of items to be observed/or measured, when monitoring. Monitoring for organic vapors/gases generated from the placement of solid organic waste into an anaerobic environment will be conducted on a quarterly basis. An organic vapor analyzer (OVA), or a similar organic gas monitoring instrument, will be utilized to monitor the air directly at the perimeter of the "active" unit(s). This measurement will be acquired during a period of calm winds to be most effective and representative of the cell's gas generation (typically, methane gas). The results of the gas

monitoring of the Class II Units will be recorded on the **"Quarterly Gas Monitoring Log" (Attachment C)**, as well as any measures that are taken to decrease levels of gas release (i.e. the addition of a larger quantity of soil materials for waste cover).

CONTINGENCY PLAN FOR FIRE/EXPLOSION OR LANDFILL UNIT RELEASE:
(R315-302-2 (2)(d) and R315-302-2 (2)(f).

Fire prevention and control is the primary consideration in the trench(es) while the unit(s) are in operation, in an effort to minimize the risk of Aerial brush fires that could potentially impact the refuge and refuge headquarters operation. The disposal of organic waste materials within the trench provides the "fuel" for ignition, if the waste was not provided with a soil cover. The practice of immediately covering the recently placed waste load with the excavated soil (from the nearby excavated soil stockpile) substantially reduces this risk of exposing the organic fuel to an ignition source. However, if a fire does occur within the solid waste disposal area, the refuge personnel are equipped to address incipient-stage fires through the use of portable fire extinguishers and the available heavy earthmoving equipment. Hand shovels and other implements are also available in controlling/eliminating the hazard. Available water is located approximately 3,000 to 4,000 feet east of the waste management area. Should the need arise, the refuge headquarters is equipped with a 250 gallon capacity "slip-in" pump and hose fire-fighting system. This equipment is designed specifically for brush fire-fighting and is located in the back of a dedicated pickup truck during the "fire season" (March-November). The 250 gallon capacity tank can be quickly refilled 3,000 to 4,000 feet to the east at any of the natural pools. A full-time telephone system, capable of alerting other response authorities at Dugway Proving Grounds and other locations such as Wendover, Utah/Nevada, Tooele, Stockton, and Rush Valley may also be employed. The Bureau of Land

Management (BLM), is capable of responding to a fire in the refuge area with an array of four-wheel drive fire-fighting vehicles and aircraft, if necessary.

Explosions due to the disposal of waste materials capable of detonation, are not a concern since all waste loads are inspected for unacceptable articles/waste streams at the point of pickup and at the working "face" of the active trench. Explosive gases (generated from the decay of organic wastes) are not likely to accumulate in concentrations sufficient to create an explosive atmosphere. The small quantities of landfilled waste are covered with soil upon placement. The methane off gassing will be monitored by the refuge with the Quarterly Gas Monitoring Program.

The Emergency Plan contains the FWS staff procedures implemented in the event of a fire or explosion emanating from the **"Emergency Plan" (Attachment D).**

The relatively small magnitude of the active waste disposal trench operation, in conjunction with the extremely low precipitation rate (an average of less than 9 inches/year) and high evapo-transpiration rate (over 46 inches/year), as well as the absorption of any liquids within the waste/soil mixture, are the factors that comprise the negligible risk in any failure of a "run-off" collection system at the perimeter of an active trench. Since the rainfall is so low in the region , any rain that does fall into the trench, evaporates very quickly. The available open trench area is quite small and does not lend itself to measurable "exposure". At the same time, any snowfall within the trench is

either melted quickly and absorbed within the soil/waste matrix or sublimes in the dry atmosphere. Coupled with the excavated soils located upgradient of the trenches relative to the direction of any possible precipitation sheet flow, the run-off of any precipitation that has come into direct contact with the trench contents, is extremely remote. Additionally, the possibility of undesirable contaminants leaching into the native soil and groundwater are minimal due to the net negative precipitation rate of approximately 40 inches per year.

PROCEDURES FOR EXCLUDING UNACCEPTABLE WASTE FROM ON-SITE DISPOSAL: R315-302-2 (2) (h).

The refuge staff is trained to recognize waste materials that are unacceptable for solid waste disposal in the landfill. This training consists of classroom and/or "hands-on" field experience with a trained operator. The waste "streams" that are generated by the operation of the refuge are finite and routine. The waste recycling program at the refuge accounts for a selected portion of the overall waste generated, and these items/types are diverted from the on-site waste disposal process. Waste vehicle oils and automotive batteries are typical of the wastes that are sent off-site to authorized recyclers. The inspection of each load at the collection point greatly enhances the effectiveness of the waste recycling effort. Household wastes generated from the day-to-day operation of the refuge are minute in quantity and handled in a manner consistent with Federal and State regulations. Asbestos and mercury-containing items are not handled at the refuge. Waste liquids, containerized in above-household quantities and size, are also prohibited from trench disposal.

PROCEDURES FOR CONTROLLING DISEASE VECTORS: R315-302-2 (2) (i)) & DUST CONTROL: (R315-303-5 (2) (a)

The solid waste disposal practice of applying a soil cover to the off-loaded waste in a timely manner (typically the same day) is the most efficient method of eliminating/controlling any possible disease vectors (i.e. rats, mice, birds, insects, etc.) from admittance into the active trench. Should it be necessary to dispose of dead animals within the trench, the carcass will be covered with six (6) inches of soil to prevent odors and the propagation/harborage of rodents and insects (as required in Utah R 315-315-6). Currently, the refuge collects the solid waste from collection points at the refuge headquarters and other containers placed in locations convenient to the general public on a weekly basis and promptly places the solid waste loads within the trench. Per the "Daily Cover" requirement outlined in Utah R315-303-5 (4), the permittee will place a 6 inch minimum soil cover on the load when the trench has received a single load, or in the case of multiple loads, at the end of the operating day. This method has shown to be effective in the reduction of the possibility of blowing litter, fires, odor, or vectors. The refuge will continue to minimize the area of disturbed soils within the solid waste management area in order to maintain as much vegetation as possible, minimizing the generation of dust from loose soils. Traffic within the landfill unit is not expected to be frequent (~ 1-2 vehicles per week). Resultant road dust is expected to be negligible.

ALTERNATIVE WASTE HANDLING (BACK-UP) PLAN: R 315-302-2 (2) (j)

Due to the extremely limited scope of the Class II landfill operation and the very small solid waste volumes historically received and expected in the future, the permittee does not anticipate insufficient capacity or interruption of landfill operations. Sufficient "backup" equipment is located on-site in the event of any equipment breakdown. The infrequent rate of waste delivery to the trench from the refuge operations gives the refuge ample opportunity to manage the generated waste on-site in the Class II landfill.

GENERAL TRAINING AND SAFETY PLAN: R 315-302-(2) (m)

The Solid Waste Management Area operator (and alternate(s)) are trained in the requirements of the Utah Solid Waste Facility Regulations for the operation of a Class II Solid Waste Landfill and the identification of acceptable and unacceptable waste materials to be disposed on-site. These operators are made aware of the responsibilities outlined in the solid waste permit (when issued as "final") and also the requirements enumerated in Utah R 315-303-2, (for facility operations prior to the issuance of a final permit). Specifically, the solid waste operator will accept no hazardous wastes or wastes containing PCB's; meet the standards for landfill maintenance and operation R 315-303-5; provide adequate fire protection; maintain records for the number of waste vehicle(s) and the volume/weight of load(s) disposed; document the receipt of any "special waste" R 315-301-2 (70) ; and, by March 1st of each year, prepare and submit an annual report for the previous year's activities.

Training in the completion of the applicable operation forms is provided to personnel at the refuge who have been designated as responsible for the operation/maintenance of the waste management unit. All training will be conducted and recorded using the applicable form **"Training Documentation Form for Fish Springs " (Attachment E),** or alternate forms approved for use by the refuge manager. Training records will be kept at the refuge headquarters or other location(s) off-site, as approved by the Executive Secretary.

RECYCLING PROGRAM; R 315-303-5 (6)

Fish Springs National Wildlife Refuge currently recycles materials providing there exists a recycling outlet for the specific type of waste material. The refuge collects and recycles the following items/types of wastes:

- Paper items including: computer paper, newsprint, magazines and corrugated material
- Aluminum articles (cans, etc.)
- Clear glass containers
- Plastics bearing the labeling of #1, #2, and # 6
- Steel items
- Automobile batteries (for exchange at Dealer/Vendors)
- Used vehicle oil (transferred to a local permitted waste oil burner)

The refuge intends to maintain the current recycling effort in order to minimize the quantity of waste destined for on-site burial within the Class II landfill trench(es). Available markets could dictate the fate of some of these selected materials.

SECURITY PROVISIONS FOR THE SOLID WASTE MANAGEMENT AREA; R315-302-2(2)(N) & R 315-303-4 (6)

The refuge is extremely remote from Public use; however, visitors do appear at the refuge headquarters area from time to time, usually in the summer months. The western and southern boundaries of the refuge are fenced to protect the refuge from the intrusion of sheep, grazing in the vicinity. This fencing is constructed with "hog-wire" woven material on the bottom half topped by 2 strands of barbed wire. This existing fencing also isolates the refuge headquarters from most traffic. The Solid Waste Management Area is located nearly ½ mile into an area that is closed to all public access, and will be further isolated from any possible foot traffic by the construction of a barbed-wire fence, with a "stretch-gate" equipped with lock to allow only FWS vehicular access. The boundary of the area will also be adequately marked with "Warning" signs to alert any pedestrian(s) of the restricted status of the waste management area beyond the signs/markers. A sign will also be erected which identifies the name of the facility, the "hours" of typical operation, any unacceptable waste materials, and an emergency telephone number in case a situation arises at the management area. All access to the Waste Management Unit is controlled by the locked vehicle "stretch" gate.

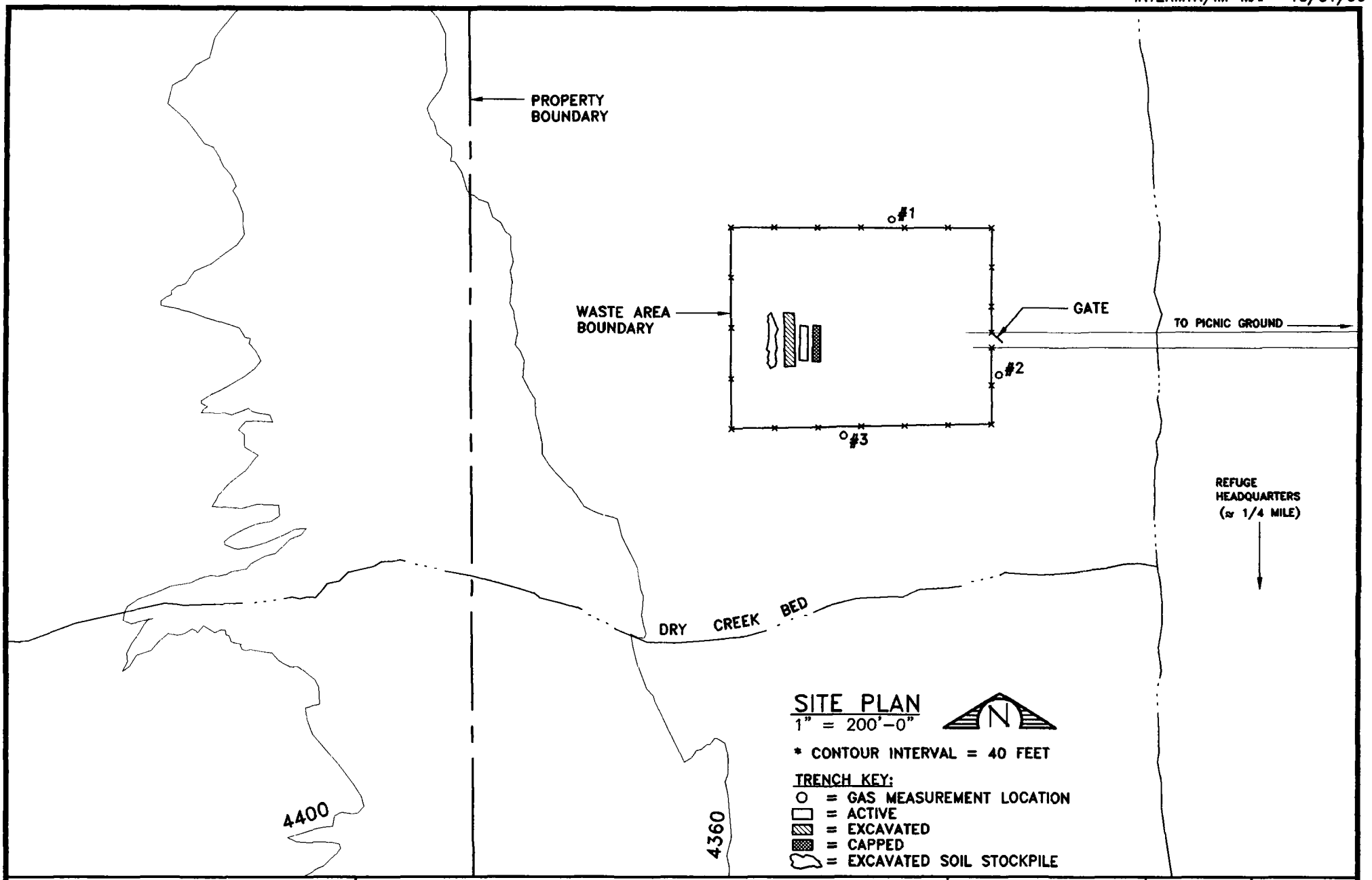
FISH SPRINGS : PART III - TECHNICAL REPORT

MAPS OF VICINITY AND WASTE MANAGEMENT AREA; R 315-310-4 (2) (a) (i,ii)

A topographic map that shows the boundaries of the waste management area, the designated gas monitoring points, and the borrow and fill areas is included ,as **Figure 1**. In addition, a U.S. Geological Survey map (7.5 minute series), is labeled **Figure 2**, and is modified to show the waste facility boundary, the property boundary, any surface water drainage channels, existing utilities and structures (within a quarter mile), and the direction of the prevailing winds.

FIGURE 1

TOPOGRAPHIC MAP: SOLID WASTE DISPOSAL AREA



SITE PLAN
1" = 200'-0"

* CONTOUR INTERVAL = 40 FEET

TRENCH KEY:
- ○ = GAS MEASUREMENT LOCATION
- □ = ACTIVE
- ▨ = EXCAVATED
- ▩ = CAPPED
- = EXCAVATED SOIL STOCKPILE

INTERMOUNTAIN TECHNICAL SOLUTIONS INC.

TOPOGRAPHIC MAP – SOLID WASTE DISPOSAL AREA
US FISH & WILDLIFE
FISH SPRINGS REFUGE, CLASS II LANDFILL

Date: 10/23/97 | Check. By:
Drawn By: DLR

FIGURE 1

INTERMOUNTAIN TECHNICAL SOLUTIONS, INC.
P.O. Box 621909, Littleton, Colorado 80162
1746 Cole Blvd., Bldg. 21 – Suite 300
Golden, Colorado 80401
(303) 279-2010 Fax. (303) 279-2544

FIGURE 2

UNITED STATES GEOLOGICAL SURVEY

7.5 MINUTE MAP

GEOHYDROLOGICAL ASSESSMENT; R 315-310-4 (2) (b)

The size and extremely low capacity for solid waste disposal at the Fish Springs Wildlife Refuge Class II landfill is not considered a measurable threat to any local or regional groundwater systems. The disposal area has been in existence since the early 1960's and there has been no observed impact of the operation of these trenches on the groundwater quality. In comparing the intent of the State of Utah regulatory requirement of providing considerable geohydrological data and an assessment for much larger Class II solid waste landfill operations to the size and nature of the permittee's existing operation, under R 315-310-4 (b) (all), Fish Springs Wildlife Refuge offers the responses below:

The local and regional geology is primarily lake bed deposits of sandy gravels and silts to a depth of approximately thirty-five (35) feet below the ground surface (near the vicinity of the refuge headquarters). The refuge headquarters and Class II landfill are both at approximately 4,360 MSL elevation. A gravel borrow pit is located immediately south of the waste management area and the exposed sandy gravel is visible presently and reinforces the subsurface geology in the immediate area. In late 1993, Rust Environment and Infrastructure performed an environmental assessment of the refuge headquarters for an underground storage tank removal project. The assessment included soil borings which became groundwater monitoring wells (MW-1 through 3). These boring logs are included as **Attachment F**, and provide information relating to the soil profile and sediments identified by the Unified Soil Classification System (USCS) and ASTM Method D 2487-90. Hollow stem augers were utilized for drilling efforts and a split-spoon

sampler collected the undisturbed sediments. The majority of the sediments were classified as sandy and silty gravels (GP & GM) near the ground surface and a layer (3-5 feet thick) of silty clay and silt (ML & CL) was encountered at about 10 feet, whereas a three to five foot thick layer of clay and sandy clay (CL) was found at a depth of 35 feet. Groundwater was encountered at ~ 30 to 35 feet below the ground surface. It is very reasonable to expect that the solid waste disposal area, just north of the assessed area, possesses similar lithology, since the deposits are consistently demonstrated to be homogeneous. The direction of groundwater flow (as evidenced by the numerous springs in the area that feed the pools), is to the east.

The surface waters in the area are best described as the spring outlets that emanate from the hillsides surrounding the refuge and that feed the various pools that comprise the wetlands area. The solid waste management area has been in operation for the past 35 years. The rate of disposal into the trench(es) has diminished due to recycling practices. There has been no apparent impact to the groundwater from this operation and it is reasonable to believe there will be no releases of hazardous materials into the groundwater in the future.

ENGINEERING REPORT- PLANS, SPECIFICATIONS, AND CALCULATIONS:

LOCATION STANDARDS: R315-302-1 and R 315-310-4 (2) (c)

Per the Utah Regulations outlined in R 315-302-1 for the applicable standards to this Class II landfill facility, the Applicability section (R 315-302-1), identifies the types of facilities where the location criteria does not apply; specifically, an existing facility, if not otherwise noted. If the Class II would be considered " applicable", the area would be evaluated against the following:

1. LOCATION WITHIN 1,000 FEET OF:
   a) a national, state or county park/monument /or recreation area; designated wilderness or wilderness study areas; or wild and scenic river area;
   b) within an ecologically and scientifically natural area; including wildlife management areas and habitat for threatened or endangered species;
   c) within farmland classified or evaluated as "prime, unique, or of statewide importance;
   d) one-fourth of a mile of permanent dwellings and other incompatible structures such as churches and schools;
   e) one-fourth of a mile from historic structures or properties;
   f) ten thousand feet/five thousand feet from designated airport runways;
   g) archeological sites;
   h) in conflict with any land use plan or zoning requirement;

   (NOTE: NO CONDITIONS MET ON ABOVE).

2. GEOLOGY:

a) located in a subsidence area, dam failure flood area, underground mine, salt dome, salt bed or on structurally-compromising geologic features;

b) within 200 feet of a Holocene fault;

c) located in seismic impact zones;

d) located in an unstable area;

(NOTE: NO CONDITIONS MET ON ABOVE).

3. SURFACE WATER:

a) located on any public land being used by a public water supply system for a source of municipal drinking water;

b) located within a flood plain;

(NOTE: NO CONDITIONS MET ON ABOVE).

4. WETLANDS:

a) located in wetlands;

(NOTE: CONDITION MET).

5. GROUNDWATER:

a) not be located where the bottom of the lowest liner is less than five (5) feet from the historical high level of groundwater; (N/A)

b) not be located where the lowest level of waste must be at least ten (10) feet from the historical high level of groundwater;

c) (N/A);

d) not be located over a sole source aquifer;

e) not be located over groundwater classed as IB;

f) (N/A);

g) not be located in designated drinking water source protection area;

(NOTE: ALL CONDITIONS MET & THIS UNIT NOT REQUIRED TO MONITOR GROUNDWATER).

6. EXISTING FACILITY EXCEPTION:

(NOT APPLICABLE).

7. EXEMPTIONS:

(NOT SOUGHT)

FACILITY LIFE CALCULATION: R 315-310-4 (2) (c) (ii)

The Class II solid waste disposal facility is presently, and will continue to be, utilized for the management of the Fish Springs Wildlife Refuge-generated waste needs. The first trench employed by the refuge was constructed in 1960 and served the needs of the facility (without the benefit of recent waste recycling efforts) until the late 1980's. The second trench continued the acceptance of the refuge solid waste volumes and is currently active, with approximately one to two years of solid waste disposal capacity remaining. Trench # 3 is constructed and available to accept waste today. The waste management area possesses enough acreage to expand the disposal trenches well into the next Century. The unit is expected to reach final capacity between 5,150-5,250 cubic yards.

CELL DESIGN, COVER DESIGN, ELEVATION OF FINAL COVER, AND FILL METHODS:

R 315-310-3 (1) (b) & R 315-310-4 (2) (c) (iii); R 315-310-4 (2) (c) (iv)

The design of the landfill trenches follows closely to the concept conceived in the late 1950's of "cutting" a trench into the soil, approximately the width of a bulldozer blade, and as long as the operator felt practical or necessary for the anticipated needs. The excavated soils would be stockpiled adjacent to the trench for use as "daily" cover. The "fill methods" for waste materials employ the procedure of depositing the load within the trench and compacting , as necessary, and subsequently covering with the stockpiled soil. (A trench cross-section is included as **Figure 3**, showing the layering of lifts within the trench).

The equipment required for this type of disposal operation involves a bulldozer, or equivalent piece of heavy equipment, to excavate the trench(es), compact the waste materials, if necessary, and to apply the soil cover over the exposed waste load(s). A FWS (or refuge like trash) pickup truck, or equivalent, is also anticipated to be required for the collection of the weekly generation of solid waste and the transportation of collected recyclable waste materials to off-site vendors.

As stated earlier, the borrow source for the daily cover is located adjacent to the active trench, within the waste management area. Final cover for the current and future trenches will be engineered to meet the permeability requirements of 1 x 10 -5 cm/sec or less, and consist of about eighteen (18) inches of compacted soil, or equivalent, to prevent surface

water infiltration. The grade of the surface slope of the final cap will not be less than 2% and the final 6 inches of cap soil will be capable of sustaining vegetative growth.

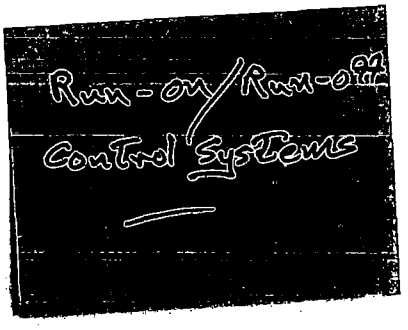
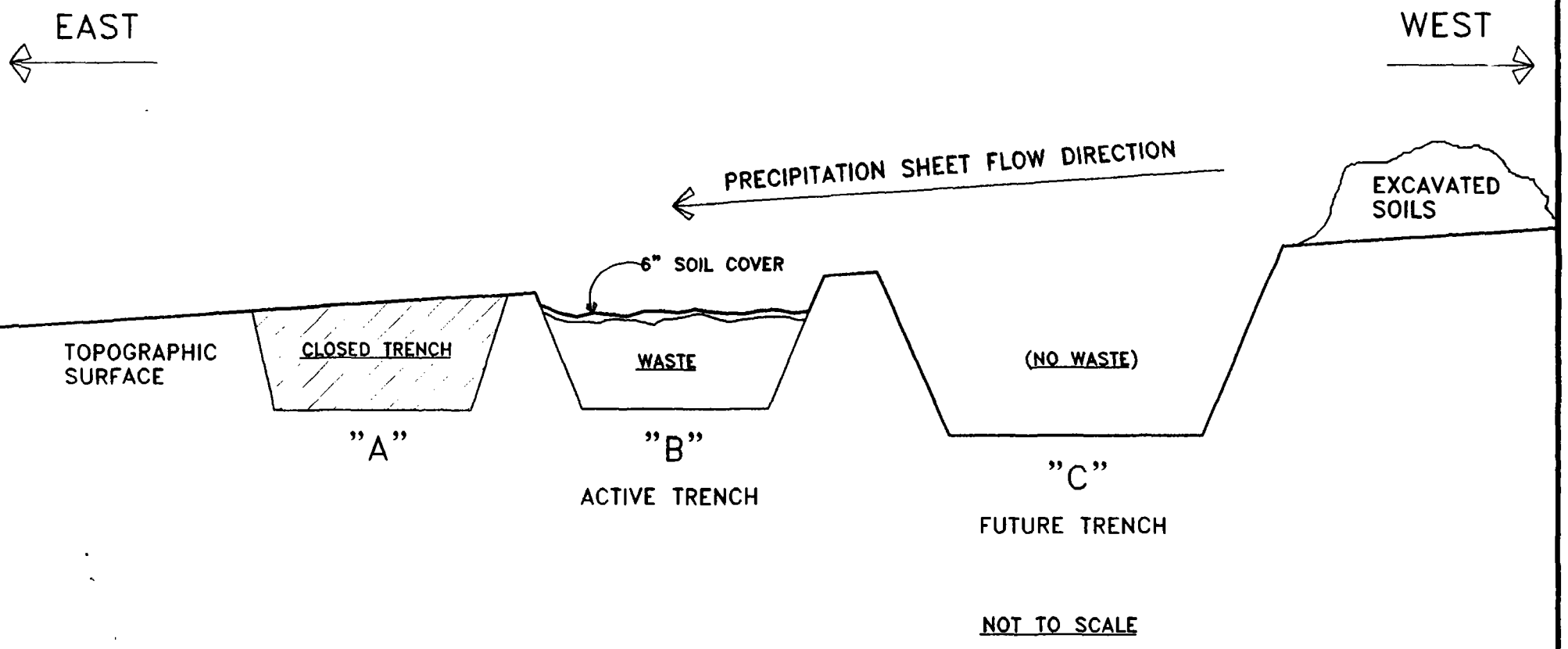


FIGURE 3

TRENCH CROSS - SECTION VIEW



INTERMOUNTAIN TECHNICAL SOLUTIONS INC.	TRENCH – CROSS SECTION VIEW US FISH & WILDLIFE FISH SPRINGS REFUGE, CLASS II LANDFILL	Date: 09/30/96 Drawn By: DLR	Check. By:	FIGURE 3

INTERMOUNTAIN TECHNICAL SOLUTIONS, INC.
P.O. Box 74068, Arvada, Colorado 80006-0608
1746 Cole Blvd., Bldg. 21 – Suite 300
Golden, Colorado 80401
(303) 279-2010 Fax. (303) 279-2544

DESIGN AND LOCATION OF RUN-ON & RUN-OFF CONTROL SYSTEMS: (R 315-310-4(2)(c)

The overall design of the run-on control system for the active trench within the solid waste management area will consist of a portion or all of the soils excavated from the construction of the trench itself and placed in an "upgradient" (higher) elevation than the trench . With the lack of any considerable amount of precipitation in the area (less than 9"/per year), coupled with the extremely high evapotranspiration rate (over 46 to 48 inches/year), the existence of any "sheet flow" of precipitation emanating from the small elevation gain West ("above") the open trench is remote. However, the stockpiled soils will be placed to the west side of each active trench in a manner that would direct any possible "run-on" from entering the trench. This diversion will ensure that the active (open) trench is protected from additional quantities of water coming in direct contact with waste placed inside the trench. Run-off is not calculated or expected to be generated at any time; therefore no run-off or leachate collection, treatment and disposal system is contemplated.

LANDFILL GAS MONITORING AND CONTROL PLAN: R 315-310-4 (2) (c) (vii)

On a Quarterly basis, the refuge will conduct a gas monitoring event at designated locations at the perimeter of the waste management area (facility property boundary). This procedure will consist of an operator, or designated and qualified alternate, obtaining measurements of trench-generated methane and/ or other potentially-explosive gases. As outlined in Utah R 315-303-4 (5) and R 315-303-4 (5), the permittee will obtain these measurements to demonstrate that the concentration(s) of any of these types of gases are not generated in excess of the lower explosivity limit at the property boundary or beyond. The locations will be utilized at each quarterly event for consistency of measurements.

The refuge requests that the collection and handling of any landfill gases not be required if the demonstration can be made that little or no landfill gases are produced or that if produced, that they will not support combustion.

The measurement of these gases will taken through the use of an appropriate and properly-calibrated instrument , capable of the reading the concentration(s) of the target gases required by the standard in R 315-303-3(2) (a), and the results recorded on the "Quarterly Gas Monitoring Event Log" (Attachment C).

If the concentration of these gases are ever detected in concentrations exceeding the standard, the permittee will take immediate action and necessary steps to ensure protection of human health, and within 60 days of detection, implement a remediation plan

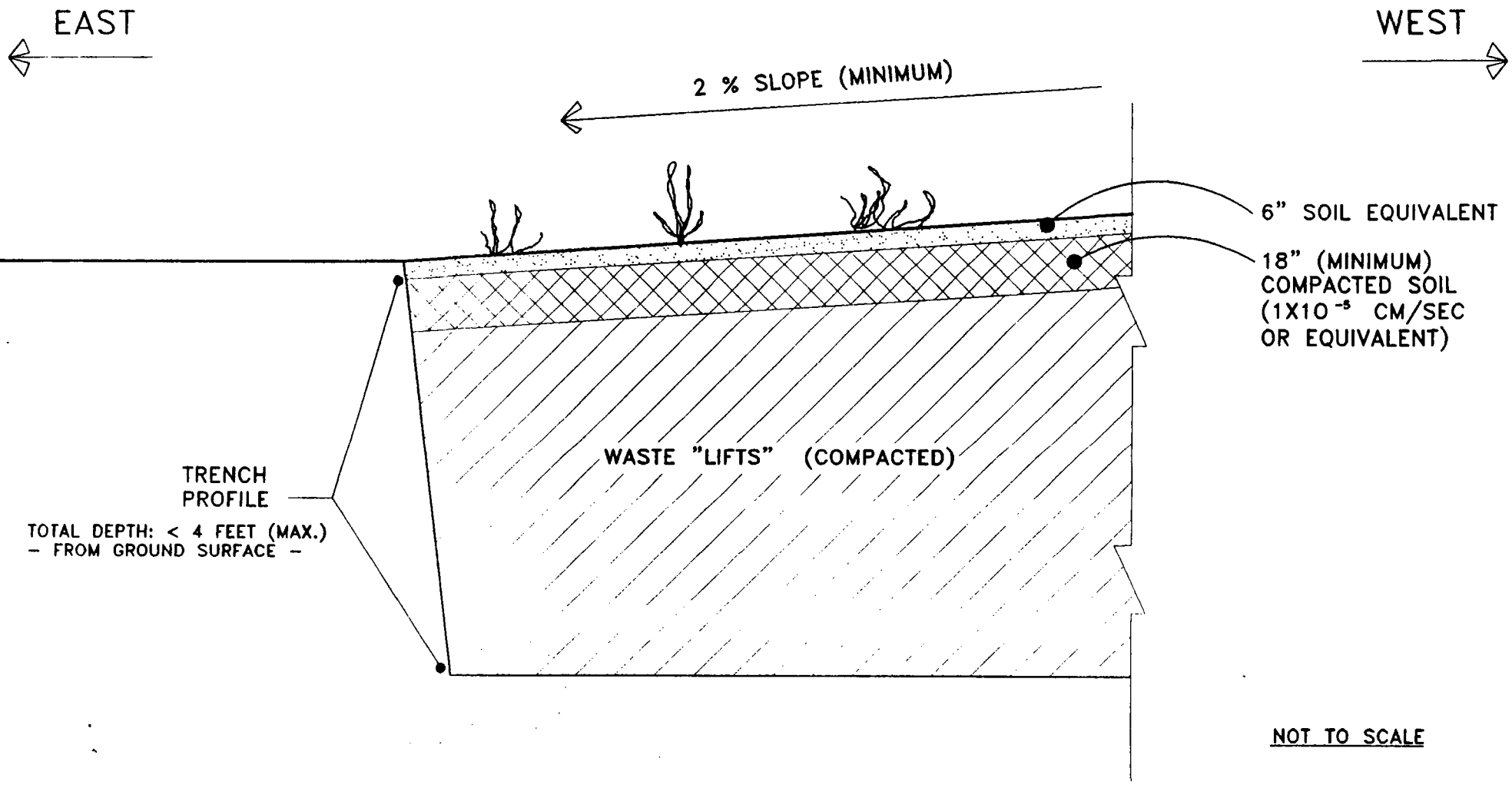
for the methane gas and notify the executive secretary of plan implementation.

CLOSURE PLAN: R 315-310-3 (1) (h), R 315-310-4 (2) (d) (I) , R 315-310- 4 (2) (c) (ii.) & R 315-310-4 (2) (d) (ii)

The closure components of each Class II solid waste disposal trench consist of the final application of solid waste and a compaction effort to ensure a firm base prior to the deployment of the required eighteen inches (18) of graded, compacted soil (or equivalent), with a permeability rate of 1 x 10 -5 cm/sec. , or less. The purpose of the final cap is to provide infiltration protection to the cell contents from liquid (precipitation) entry. Should significant quantities of these liquids come into contact with the waste materials disposed within the trench for any length of time, it is assumed that the generated "leachate" would contain dissolved residuals that could eventually impact the local groundwater aquifer. Therefore, a protective, final, closure cap of low permeability earthen material is desired to reduce the risk of this occurrence. The final cap surface will not be less than 2% in slope in order to promote any liquid drainage away from the center of the trench and out toward non-disposal areas. Final side slopes be constructed at less than the maximum slope value of 33%. The final cap component material will be a six (6) inch layer of soil material (or equivalent, suitable material), that is capable of sustaining vegetative growth. The cap will be seeded with selected plant varieties or forbes to minimize erosion. (Other suitable erosion layers may be requested for executive secretary approval, by the permittee at a later date). The closure cap cross-section is included as **Figure 4**.

FIGURE 4

TRENCH CLOSURE CAP DETAILS



INTERMOUNTAIN TECHNICAL SOLUTIONS INC.

TRENCH – CLOSURE CAP DETAIL (CROSS SECTION)
US FISH & WILDLIFE
FISH SPRINGS REFUGE, CLASS II LANDFILL

Date: 09/30/96 | Check. By:

Drawn By: DLR

FIGURE 4

INTERMOUNTAIN TECHNICAL SOLUTIONS, INC.
P.O. Box 74068, Arvada, Colorado 80006-0608
1746 Cole Blvd., Bldg. 21 – Suite 300
Golden, Colorado 80401
(303) 279-2010 Fax. (303) 279-2544

The final closure cap component description listed above, satisfies the Closure Performance Standard Requirement outlined in R 315-302-3(3) in ensuring that the closed unit requires little to no post-closure maintenance and it poses a minimum threat to human health and the environment.

The permittee will notify the executive secretary of the intent to close a particular unit (trench), at least sixty (60) days prior to the application of the first component of the final closure cap. The final capacity of the disposal area is estimated to be approximately 5,250 cubic yards. This number represents the presently constructed (closed, active and excavated) trenches at about 2,720 cubic yards, and projected adequate capacity well into the next Century.

POST-CLOSURE PLAN: R 315- 310-3 (1) (h) & R 315-310-4 (2) (e) (i.,ii,iii, & iv)

The post-closure plan for the closed solid waste disposal trenches (and the area , if and when the refuge is ever abandoned or closed in it's present-day use), is to provide oversight to the closed units on a given frequency (inspections) in order to ensure that the trench units and their respective caps have not been disturbed or the cap integrity compromised. The most likely scenario envisioned for the Fish Springs Wildlife Refuge is that the present-day management operation would continue well into the 21st Century with the staff size at the refuge about the same, and ultimately producing the same amount or less solid waste through recycling efforts. Given this assumption, the present and future trenches at this Class II Solid Waste Disposal facility will meet the needs of the staff and any occasional visitors, and Fish Springs Refuge staff will continue to be on-site and capable of monitoring the integrity of the present and future closed trenches. With on-site personnel, the incidence of any deleterious events/actions will be immediately observed or possibly prevented. For example, if burrowing rodents had targeted the closure cap on any one of the trenches, the operator, during his/her weekly load delivery events would notice the evidence of this new activity and would be able to take corrective action(s) to mitigate further damage, and repair the "breach".

Post-closure, can be viewed from two different scenarios. The first scenario involves sequential and orderly closure of each trench unit and subsequent inspection and corrective action taken, as necessary, for the closed unit. The second scenario involves the sudden, or immediate closure of all trench(es) because of a total manpower

abandonment of the refuge itself. In this case, the refuge (or the responsible federal entity assigned), will assume the post-closure duties for all of the trenches at the Class II Solid Waste Management Area. The first scenario is the most likely to occur.

Essentially, the post-closure care of the individual trenches involves the inspection, upkeep, and repair, as needed, of the closed trench units. As the closed trenches age, it is not expected that erosion, human disturbance, or the attraction of any burrowing rodents, would threaten the individual unit's cap integrity, and observance of the cap's condition would be the singlemost action item involved. The Record of Title to the property is not expected to change. The federal government will assume this responsibility. The land use or zoning restrictions are also expected to remain consistent with the present-day designations as the desert area has little chance of any significant development. The current facility contact individual representing the Department of the Interior, U. S. Fish and Wildlife Service is:

Mr. Jay Banta, Refuge Manager
Department of the Interior
U. S. Fish and Wildlife Service
Fish Springs NWR
P. O. Box 568
Dugway, Utah 84022
Telephone: (801) 831-5353.

FINANCIAL ASSURANCE: R 315-310-3 (1) (j)

The requirements of financial assurance are not applicable since this refuge is a federally owned installation and is exempt from this specific regulation.

ATTACHMENT A

WASTE LOAD ACCEPTANCE FORM

WASTE LOAD ACCEPTANCE FORM

FISH SPRINGS WILDLIFE REFUGE; CLASS II WASTE AREA

DATE OF COLLECTION: __________

OPERATOR NAME:__________________ **SIGNATURE:**__________________

(PLEASE DESCRIBE LOCATION)

PICKUP POINT:________________________________
OBSERVED CONTENTS: OK? / UNACCEPTABLE?
IF UNACCEPTABLE, REASON:________________________________

ACTION TAKEN:____

PICKUP POINT:____
OBSERVED CONTENTS: OK? / UNACCEPTABLE?
IF UNACCEPTABLE, REASON:________________________________

ACTION TAKEN:____

PICKUP POINT:____
OBSERVED CONTENTS: OK? / UNACCEPTABLE?
IF UNACCEPTABLE, REASON:________________________________

ACTION TAKEN:____

PICKUP POINT:____
OBSERVED CONTENTS: OK? / UNACCEPTABLE?
IF UNACCEPTABLE, REASON:________________________________

ACTION TAKEN:____

PICKUP POINT:____
OBSERVED CONTENTS: OK? / UNACCEPTABLE?
IF UNACCEPTABLE, REASON:________________________________

ACTION TAKEN:____
SUMMARY OF LOAD ACTIVITY (ALL LOAD CONTRIBUTIONS):
LOAD APPROVED FOR ON-SITE DISPOSAL (INITIAL):______________

FISH SPRINGS NATIONAL WILDLIFE REFUGE
DEPARTMENT OF THE INTERIOR
CLASS II SOLID WASTE LANDFILL

INSPECTION LOG TYPE: EACH WASTE LOAD

DATE OF INSPECTION: _____ TIME: _____ AM/PM

LOAD INSPECTION CHECKLIST

WASTE LOAD NUMBER:	LOAD INSPECTION ELEMENT	STATUS		IF UNACCEPTABLE, STATE REASONS AND CORRECTIVE ACTION TAKEN:
		ACCEPT	UNACCEPT	
	Evidence of unacceptable waste materials? (i.e.) auto batteries, asbestos, used oil (liquids-only), etc. at pickup point. Containers of liquids observed at pickup point? Recyclable material in pickup batch? Other evidence of materials not considered "household" waste? (solvents, tires, etc.)			

OPERATOR'S NAME _____ OPERATOR'S SIGNATURE _____

ATTACHMENT B

CLASS II LANDFILL
WEEKLY AND QUARTERLY INSPECTION LOG

INSPECTIONS

Inspection Forms are used to document the occurrence of an inspection, whether it was performed weekly, Quarterly, or on another specified frequency. An Inspection form must document the date, time of the inspection, name of the inspector (and the inspector's signature), the status of each inspected item, the inspector's notation of any item observed as " unacceptable", and the nature of any repair or response action taken as a result of the inspection.

All Inspection Forms (and any associated documents) will be incorporated into the Refuge's operating record files. These documents will be maintained at the facility for a minimum of three (3) years, or as formally-approved by the Executive Secretary of the Division of Solid and Hazardous Waste (State of Utah).

INSPECTION DOCUMENTATION PROCEDURES:
(WEEKLY OR QUARTERLY)

1. Fill in the date of inspection.

2. Print and sign your name.

3. Fill in the time of the inspection.

4. Inspect the item(s) as indicated on the applicable frequency form, observing the item(s) as stated in the "Inspection Element" column.

5. If the inspection item is acceptable, a check-mark or "X" in the "Accept" column is entered.

6. If the inspection item is unacceptable per the inspection element observed, a check-mark or "X" is placed in the "Unaccept" column, and the observation is described in the adjacent column.

7. The "Response Timing " block on the Form bottom requests the inspector to evaluate the timing of corrective action (repair or response action) to be taken to remedy the observed unacceptable entry.

8. An Inspection Form may be utilized by the inspector to document when and how the previously-documented unacceptable entry was corrected. This may take place any time after the original Inspection Form recorded a "deficiency".

9. All Inspection Forms are placed and stored in the Refuge's operating record files.

INSPECTION AREAS AND SCHEDULES:

I. SOLID WASTE MANAGEMENT AREA PERIMETER:

FENCE	WEEKLY	INSPECT FOR BREAKS OR DAMAGE. CHECK FOR SEVERE EROSION UNDER LINE
GATE & LOCK	WEEKLY	CLOSED AND LOCKED, WHEN AREA NOT IN USE
WARNING SIGNS	QUARTERLY	PRESENT AND LEGIBLE
AREA IDENTIFIER SIGN	QUARTERLY	PRESENT, LEGIBLE AND SEVERE DAMAGE

II. SOLID WASTE TRENCHES

RUN-ON DIVERSION BERMS	QUARTERLY	INTACT AND ABLE TO PERFORM AS DESIGNED POSITIONED FOR ACTIVE TRENCH PROTECTION
AVAILABLE SOIL COVER	QUARTERLY	PRESENT IN THE DISPOSAL AREA
WASTE COVER	WEEKLY	LOCATED ON WASTE IN ACTIVE TRENCH
ACCEPTABLE WASTE IN TRENCH	WEEKLY	(REFER TO LOAD LOG)
STANDING LIQUIDS	WEEKLY	UNUSUAL QUANTITIES IN TRENCH (UNEXPECTED)

LITTER(WIND-DISPERSED)	WEEKLY	EVIDENCE OF WINDBLOWN WASTE (OUTSIDE OF TRENCH)
TRENCH CONTENTS	WEEKLY	BURROWING OF TRENCH CONTENTS BY RODENTS OR VECTORS

III. FIRE-FIGHTING/ EMERGENCY EQUIPMENT:

FIRE EXTINGUISHERS (PORTABLE)	QUARTERLY	PRESENT AT ASSIGNED LOCATIONS
		CHARGED ?
250 GALLON SLIP-IN TANK / PUMP / HOSE	QUARTERLY	ON-SITE AND IN WORKING CONDITION
EARTHMOVING EQUIPMENT	QUARTERLY	AVAILABLE & OPERATIONAL
HAND TOOLS (SHOVELS,ETC.)	QUARTERLY	AVAILABLE
TELEPHONE SERVICE TO OUTSIDE ENTITIES	QUARTERLY	PRESENT ON-SITE & IN WORKING ORDER

IV. TRENCH GAS GENERATION / MEASUREMENT:

INSTRUMENT	QUARTERLY	AVAILABLE/ OPERABLE
		CALIBRATE
BACKGROUND AREA	QUARTERLY	CHOSEN "UPWIND" OF TRENCH AREA
MEASUREMENT AREAS (THREE PERIMETER SITES)	QUARTERLY	IDENTIFIED ON AREA MAP

		"SITE" IS CONSISTENT WITH PREVIOUS LOCATION WIND IS GENERALLY CALM
DOCUMENTATION	QUARTERLY	READINGS RECORDED ON FORMS

V. POST-CLOSURE TRENCHES:

CLOSURE CAPS (COMPONENTS)	QUARTERLY	EVIDENCE OF DISTURBED CAP COMPONENTS : HUMAN ACTIVITY : EROSION : BURROWING ANIMALS
	QUARTERLY	SLOPE MAINTAINED FOR SHEDDING RAINWATER

FISH SPRINGS NATIONAL WILDLIFE REFUGE
DEPARTMENT OF THE INTERIOR
CLASS II SOLID WASTE LANDFILL

TYPE:

INSPECTION REPORT

DATE OF INSPECTION: _____ TIME: _____ AM/PM PAGE ___ OF ___

EQUIPMENT/PROCESS UNIT NAME:

INSPECTION CHECKLIST

EQUIPMENT/STRUCTURE ITEM	INSPECTION ELEMENT	STATUS		IF UNACCEPTABLE STATE REASON(S):
		ACCEPT	UNACCEPT	

RESPONSE
TIMING: ( ) URGENT (WITHIN 24 HRS)
( ) ROUTINE (WITHIN WEEK)

INSPECTOR'S NAME

INSPECTOR'S SIGNATURE

FISH SPRINGS NATIONAL WILDLIFE REFUGE
DEPARTMENT OF THE INTERIOR
CLASS II SOLID WASTE LANDFILL

TYPE: Weekly

INSPECTION REPORT

DATE OF INSPECTION: _____ TIME: _____ AM/PM PAGE _1_ OF _1__

EQUIPMENT/PROCESS UNIT NAME: Solid Waste Disposal Trench (Active)

INSPECTION CHECKLIST

EQUIPMENT/STRUCTURE ITEM	INSPECTION ELEMENT	STATUS ACCEPT	STATUS UNACCEPT	IF UNACCEPTABLE STATE REASON(S):
Trench waste contents	"Acceptable" waste observed (during off-load) or any material visible in trench			
Trench interior	Burrowing of contents by rodents or other vectors evident?			
Waste cover	Adequate quantity on disposed waste loans?			
Standing liquids	Observed unusual quantities within trench (unexpected)?			
Litter (wind-dispersed)	Evidence of wind blown waste outside of trench? (i.e. ground covered, or fence strewn with litter)			

RESPONSE
TIMING: ( ) URGENT (WITHIN 24 HRS)
( ) ROUTINE (WITHIN WEEK)

INSPECTOR'S NAME _____ INSPECTOR'S SIGNATURE _____

FISH SPRINGS NATIONAL WILDLIFE REFUGE
DEPARTMENT OF THE INTERIOR
CLASS II SOLID WASTE LANDFILL

TYPE: Weekly

INSPECTION REPORT

DATE OF INSPECTION: _____ TIME: _____ AM/PM PAGE _1_ OF _1__

EQUIPMENT/PROCESS UNIT NAME: Solid Waste Management Area/Perimeter

INSPECTION CHECKLIST

EQUIPMENT/STRUCTURE ITEM	INSPECTION ELEMENT	STATUS		IF UNACCEPTABLE STATE REASON(S):
		ACCEPT	UNACCEPT	
Fence	Inspect for breaks or damage Check for severe erosion under fence line			
Gate and lock	Observe if closed and locked when area not in use.			

RESPONSE
TIMING: ( ) URGENT (WITHIN 24 HRS)
( ) ROUTINE (WITHIN WEEK)

INSPECTOR'S NAME _____ INSPECTOR'S SIGNATURE _____

FISH SPRINGS NATIONAL WILDLIFE REFUGE
DEPARTMENT OF THE INTERIOR
CLASS II SOLID WASTE LANDFILL

TYPE: Quarterly

INSPECTION REPORT

DATE OF INSPECTION: _____ TIME: _____ AM/PM PAGE _1_ OF _1__

EQUIPMENT/PROCESS UNIT NAME: Solid Waste Trench (Active)

INSPECTION CHECKLIST

EQUIPMENT/STRUCTURE ITEM	INSPECTION ELEMENT	STATUS		IF UNACCEPTABLE STATE REASON(S):
		ACCEPT	UNACCEPT	
Warning signs	Present and legible at all prescribed locations?			
"Area" identifier sign	Name of solid waste area listed			
	Name of operator and telephone number posted			
	Sign is present, legible and no indication of severe damage			

RESPONSE
TIMING: ( ) URGENT (WITHIN 24 HRS)
( ) ROUTINE (WITHIN WEEK)

INSPECTOR'S NAME

INSPECTOR'S SIGNATURE

FISH SPRINGS NATIONAL WILDLIFE REFUGE
DEPARTMENT OF THE INTERIOR
CLASS II SOLID WASTE LANDFILL

TYPE: Quarterly

INSPECTION REPORT

DATE OF INSPECTION: _____ TIME: _____ AM/PM PAGE _1_ OF _1__

EQUIPMENT/PROCESS UNIT NAME: Solid Waste Trench (Active)

INSPECTION CHECKLIST

EQUIPMENT/STRUCTURE ITEM	INSPECTION ELEMENT	STATUS		IF UNACCEPTABLE STATE REASON(S):
		ACCEPT	UNACCEPT	
Run-on diversion berms	Intact and able to perform as designed?			
	Positioned for "active" trench protection?			
Stockpiled soil for cover	Visible and quantity sufficient for routine covering of waste load(s)			

RESPONSE TIMING: ( ) URGENT (WITHIN 24 HRS)
( ) ROUTINE (WITHIN WEEK)

INSPECTOR'S NAME _____ INSPECTOR'S SIGNATURE _____

FISH SPRINGS NATIONAL WILDLIFE REFUGE
DEPARTMENT OF THE INTERIOR
CLASS II SOLID WASTE LANDFILL

TYPE: Quarterly

INSPECTION REPORT

DATE OF INSPECTION: _____ TIME: _____ AM/PM PAGE _1_ OF _1__

EQUIPMENT/PROCESS UNIT NAME: Fire Fighting/Emergency Equipment

INSPECTION CHECKLIST

EQUIPMENT/STRUCTURE ITEM	INSPECTION ELEMENT	STATUS		IF UNACCEPTABLE STATE REASON(S):
		ACCEPT	UNACCEPT	
Fire extinguishers (portable)	Present at assigned locations?			
	Adequate charge on units?			
250 gallon "slip-in" tank/pump/ hose	Located on-site?			
	All components in working condition?			
Earth moving equipment	Available on-site?			
	Operational?			
Hand tools	Available on-site?			
Telephone service to off-site entities	Present, undamaged and tested to work			

RESPONSE TIMING: ( ) URGENT (WITHIN 24 HRS)
( ) ROUTINE (WITHIN WEEK)

INSPECTOR'S NAME _____

INSPECTOR'S SIGNATURE _____

ATTACHMENT C

QUARTERLY GAS MEASUREMENT LOG

QUARTERLY GAS MEASUREMENT LOG
FISH SPRINGS NATIONAL WILDLIFE REFUGE

DATE: _____ QUARTER:_____ SAMPLER: _____

INSTRUMENT USED: _____ MODEL #: _____ SERIAL #:_____

CALIBRATION DATE: _____ GASES MEASURED (TYPE): _____

FIELD CONDITIONS : TEMPERATURE:_____ TIME OF DAY: _____ AM./ PM.

LOW ATMOSPHERIC CONDITION (OVERCAST, SUNNY, PART-CLOUDY):_____

WIND (SLIGHT, GUSTY, CONSTANT): _____ EST. SPEED : _____

LOCATION " A" MEASUREMENT: _____

LOCATION "B " MEASUREMENT : _____

LOCATION " C" MEASUREMENT : _____

BACKGROUND MEASUREMENT : _____

DESCRIBE BACKGROUND LOCATION: _____

(NOTE: THIS WILL BE VARIABLE DEPENDING UPON WIND DIRECTION & SPEED)

OTHER UNUSUAL SITE EVENTS OR OBSERVATIONS OF MEASUREMENT CRITERIA:

_____

_____

SIGNATURE OF SAMPLER: _____

NAME OF SAMPLER : _____

FISH SPRINGS NATIONAL WILDLIFE REFUGE
DEPARTMENT OF THE INTERIOR
CLASS II SOLID WASTE LANDFILL

TYPE: Quarterly

INSPECTION REPORT

DATE OF INSPECTION: _____ TIME: _____ AM/PM PAGE _1_ OF _1__

EQUIPMENT/PROCESS UNIT NAME: Trench Gas Generation/Measurement

INSPECTION CHECKLIST

EQUIPMENT/STRUCTURE ITEM	INSPECTION ELEMENT	STATUS		IF UNACCEPTABLE STATE REASON(S):
		ACCEPT	UNACCEPT	
Instrument for gas measurement	Available for quarterly readings?			
	Calibrated prior to "event"?			
Background area	Area chosen for event is "upwind" from trench area			
Measurement areas 3 (three)	All three areas same as stations identified on topo map?			
	Wind velocity considered "calm"?			
Documentation	Forms available and used?			

RESPONSE
TIMING: ( ) URGENT (WITHIN 24 HRS)
( ) ROUTINE (WITHIN WEEK)

INSPECTOR'S NAME _____

INSPECTOR'S SIGNATURE _____

ATTACHMENT D

EMERGENCY PLAN

EMERGENCY PLAN

FISH SPRINGS WILDLIFE REFUGE

CLASS II SOLID WASTE DISPOSAL AREA

I. INTRODUCTION:

The Fish Springs National Wildlife Refuge is a remote location, situated at the Western portion of Juab County, Utah approximately 35 miles from the Nevada border. The Class II landfill facility is located within the legal boundaries of the refuge, which encompasses approximately 18,000 acres. Rough gravel roads serve as access to the refuge and it's headquarters, between the Dugway and Thomas Ranges of the Drum Mountains. This High Desert location is a temporary/permanent residence to a vast selection of waterfowl and shorebirds, with the refuge fed via springs emanating from the adjacent Mountain Ranges. There are no residences (other than the refuge staff housing at the refuge headquarters) within a minimum of 25 miles from the refuge.

The solid waste disposed at the facility consists of household-generated refuse and office trash, non-hazardous maintenance shop waste, packaging materials and garbage from recreational campers.

II. ON-SITE RESPONSE CONTACTS:

The refuge designated emergency response contact is:

Mr. Jay Banta, Refuge Manager
U.S. Department of the Interior
U. S. Fish and Wildlife Service
Fish Springs NWR
P. O. Box 568
Dugway, Utah 84022

Telephone : (801) 831- 5353.

(Note: other individuals may be assigned to this contact position, as the refuge schedules dictate; the telephone number is for the refuge headquarters).

III. OFF-SITE RESPONSE ORGANIZATIONS:

The following entities may be called upon and utilized to assist the refuge in any emergency scenario, as required:

* Dugway Proving Grounds (Environmental Programs Office)	801-831-3743
* U.S. Forest Service (Fire Reporting)	801-524-5040
* Tooele County Fire Department	801-882-5600
* Wendover, Utah Fire Department	801-665-2345
* University of Utah Hospital ; Air Med Evac.	801-581-2991

* Juab County Public Safety	801-623-1349
* State of Utah Department of Emergency Management	801-538-3400

IV. WORST-CASE EMERGENCY SCENARIO:

The greatest emergency threat to human health and the environment at the solid waste management area (and the refuge headquarters overall) is the brush fire potential during certain periods of the year (typically, March through November). This period of drought-like conditions would normally place the facility amidst vegetation that has a very high "fire potential" and the history of the high desert has demonstrated the likelihood of this danger. However, the areas immediately surrounding the headquarters and solid waste disposal area are sparsely vegetated with more highly combustible varieties (i.e. cheatgrass). A significant fire in the surrounding desert scrublands is unlikely except under rare circumstances involving a combination of above-average Spring precipitation and extreme wind conditions.

However, with the solid waste disposal trenches located on-site, it is also possible that the trench contents could ignite, with the flames spreading to vegetation in the area. The unvegetated area directly adjacent to the trenches and the soil cover stockpiles would

inhibit the spread of an incipient stage fire, and with the practice of soil cover applied to the waste load(s) as they are placed, the risks of a fire generated from the solid waste area is further reduced. If a fire is present within the solid waste management trenches (and is evaluated by the refuge staff to be "incipient stage", the staff will attempt to smother the fire using a combination of available resources such as portable fire extinguishers, hand tools (shovels, rakes, etc.), earthmoving equipment, the 250 gallon "slip-in" system, or other means. Should all attempts at this corrective action fail to contain the blaze or, the fire is discovered to be out-of-control and unmanageable (in or outside the refuge), the emergency contact organizations will be dispatched for help. In no instance will protection of physical structures/assets be placed higher than regard for human safety.

If injuries do occur on-site, first aid may be applied, the patient transported to the nearest (if possible) hospital/medical center, or if serious and life-threatening, Air Med Evac called upon for quick and direct flight to medical attention.

V. TRAINING OF REFUGE STAFF ; PREVENTION & RESPONSE:

The refuge staff is trained (classroom or other) in the prevention of hazards inherent to the solid waste management operation, use of site emergency equipment, and the operation of heavy earthmoving equipment. Implementation of the permit plans and procedures will

provide a great deal of safety and environmental protection, as well as a hygienic workplace (vector control) to protect human health. Response procedures are regular topics of discussion among the refuge staff members in formal and informal settings.

VI. NOTIFICATION OF AUTHORITIES; POST-EMERGENCY EVALUATION:

The refuge staff will notify the applicable authorities of a major emergency event, as necessary and required by the permit and other governing licenses. The event will be reported, as required and evaluated "post-emergency", for possible methods and options available to the refuge that, if implemented (and possible), the emergency situation would have been avoided, reduced in severity, or eliminated altogether. Other responding or related organizations may also be invited to participate in this exercise in providing professional opinions based upon their experiences.

ATTACHMENT E

TRAINING DOCUMENTATION FORM FOR FISH SPRINGS

SUGGESTED TRAINING:

* IDENTIFICATION OF ACCEPTABLE AND UNACCEPTABLE WASTE MATERIALS.
* INDUSTRIAL HYGIENE.
* PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT.
* HEAVY EQUIPMENT OPERATIONS.
* EMERGENCY PLAN.
* CLASS II SOLID WASTE DISPOSAL PERMIT CONDITIONS.
* DOCUMENTATION AND FILING PROCEDURES.
* COMBUSTIBLE GAS MEASUREMENT INSTRUMENT OPERATIONS & CALIBRATION.
* OTHER TOPICS, AS NEEDED.

TRAINING DOCUMENTATION FOR FISH SPRINGS NATIONAL WILDLIFE REFUGE, CLASS II SOLID WASTE AREA

DATE OF TRAINING :_____ TYPE OF TRAINING: _____
(Classroom or Hands-on)

INSTRUCTOR:_____

SUBJECT OF TRAINING MODULE: _____

PASS / FAIL TRAINING MODULE STATUS FOR PARTICIPANT: _____

NAME OF TRAINING PARTICIPANT: _____

SIGNATURE OF PARTICIPANT : _____

ATTACHMENT F

MONITORING WELLS - BORING LOGS

(MW-1 , MW-2 , MW-3)

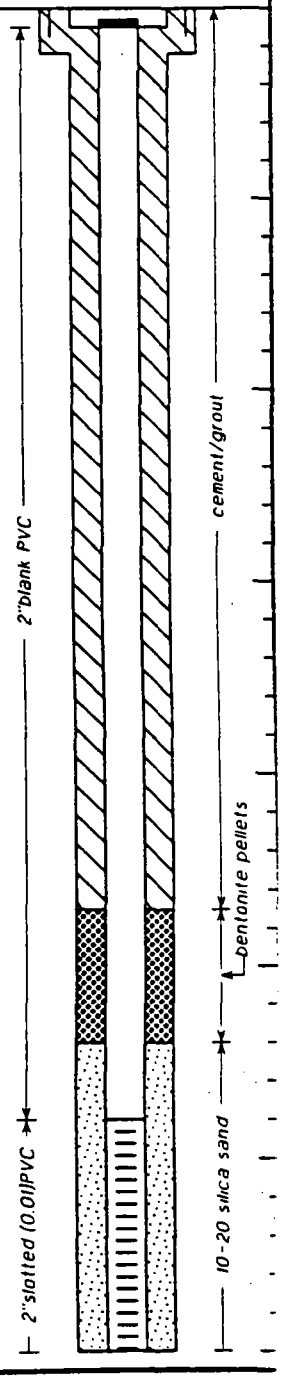
RUST Environment & Infrastructure
535 East 4500 South Salt Lake City, UT

Log of Monitoring Well MW-1

PROJECT: *Fish Springs*	LOCATION: *Juab County, Utah*
PROJECT NO.: *86784.000*	SURFACE ELEVATION: *~98.9 ft. (100.00 ft. Site Datum)*
DATE STARTED: *08-02-93*	INITIAL WATER LEVEL: *~33 ft. (below ground surface)*
DATE FINISHED: *08-02-93*	STATIC WATER LEVEL: *32.64 ft. (below top of casing)*
DRILLING METHOD: *8 in. Hollow Stem Auger*	TOTAL DEPTH: *42.0 Feet*
DRILLING COMPANY: *Shapiro Drilling Services*	GEOLOGIST: *P. Fote*

DEPTH feet	DRIVEN (ft.)	RECOVERY (%)	PID (ppm) VALUES	PID (ppm) PROFILE 0–100	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
0–5	2.0	50	0			GM	SILTY GRAVEL – brown, dry
						SP	SAND – Trace silt, medium grained, brown dry
5–10	2.0	50	0			GM	SILTY GRAVEL – brown, medium dry
10–15	2.0	50	0			CL	CLAY – brown, medium dry
						GP	SANDY GRAVEL – grey, dry
15–20	2.0	75	0				
20–25	2.0	75	0				
25–30	2.0	50	0				SANDY GRAVEL – brown, slightly moist
30–35	2.0	100	0				
						CL	

WELL DIAGRAM



RUST Environment & Infrastructure
535 East 4500 South Salt Lake City, UT

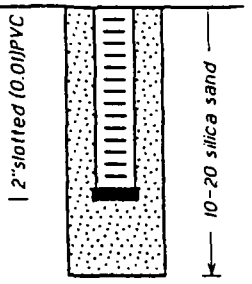
Log of Monitoring Well MW-1

PROJECT: *Fish Springs*

LOCATION: *Juab County, Utah*

DEPTH feet	DRIVEN (ft.)	RECOVERY (%)	PID (ppm) VALUES	PID (ppm) PROFILE 0 100	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
40	2.0	100	0			CL	CLAY – changing to sandy silt, brown, sightly moist
						CL ML	
	2.0	100	0			GP	SANDY GRAVEL – brown, saturated
							TOTAL DEPTH = 42 feet
45							
50							
55							
60							
65							
70							
75							

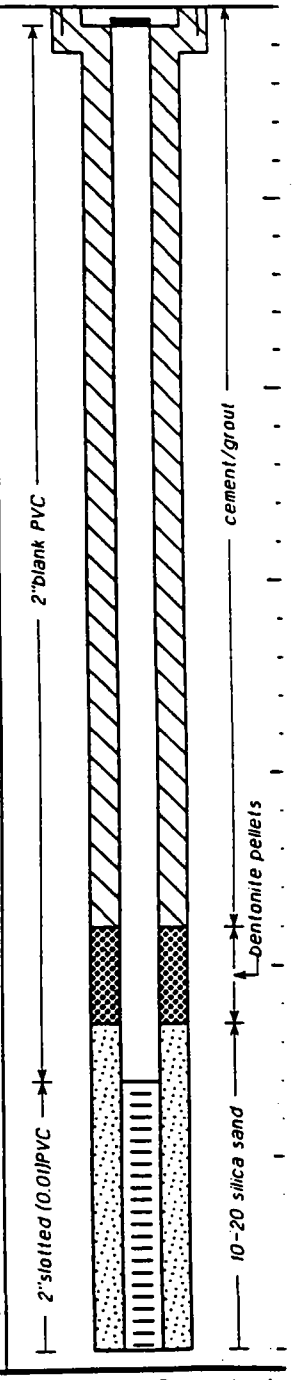
WELL DIAGRAM



RUST Environment & Infrastructure 535 East 4500 South Salt Lake City, UT	Log of Monitoring Well MW-2
PROJECT: *Fish Springs*	LOCATION: *Juab County, Utah*
PROJECT NO.: *86784.000*	SURFACE ELEVATION: *~98 ft. (100.00 ft. Site Datum)*
DATE STARTED: *08-03-93*	INITIAL WATER LEVEL: *~35 ft. (below ground surface)*
DATE FINISHED: *08-03-93*	STATIC WATER LEVEL: *31.98 ft. (below top of casing)*
DRILLING METHOD: *8 in. Hollow Stem Auger*	TOTAL DEPTH: *40.0 Feet*
DRILLING COMPANY: *Shapiro Drilling Services*	GEOLOGIST: *P. Fote*

DEPTH feet	DRIVEN (FT.)	RECOVERY (%)	PID (ppm) VALUES	PID (ppm) PROFILE 0–100	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
5	2.0	50	0			GP	SANDY GRAVEL - brown, dry
10	2.0	100	0			ML	SILT - light brown/white, slightly moist
						GP	SANDY GRAVEL - brown, dry
15	2.0	100	0				SANDY GRAVEL - grey/brown, dry
20							
25	2.0	50	0				SANDY GRAVEL - brown, dry
30	2.0	75	0				
35						CL	CLAY - tan, saturated

WELL DIAGRAM



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535 East 4500 South Salt Lake City, UT

Log of Monitoring Well MW-2

PROJECT: *Fish Springs*

LOCATION: *Juab County, Utah*

DEPTH feet	DRIVEN (FT.)	RECOVERY (%)	PID (ppm) VALUES	PID (ppm) PROFILE 0–100	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
	2.0	100	0			CL		2"slotted (0.01)PVC; 10-20 silica sand
						GP	SANDY GRAVEL – brown, saturated	
40							TOTAL DEPTH = 40 feet	
45								
50								
55								
60								
65								
70								
75								

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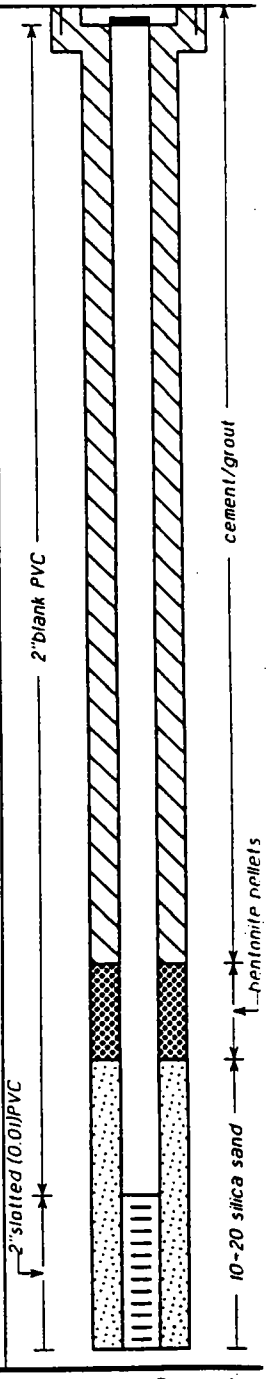
Log of Monitoring Well MW-3

PROJECT: *Fish Springs*	LOCATION: *Juab County, Utah*
PROJECT NO.: *86784.000*	SURFACE ELEVATION: *~101.5 ft. (100.00 ft. Site Datum)*
DATE STARTED: *08-03-93*	INITIAL WATER LEVEL: *~36 ft. (below ground surface)*
DATE FINISHED: *08-03-93*	STATIC WATER LEVEL: *35.24 ft. (below top of casing)*
DRILLING METHOD: *8 in. Hollow Stem Auger*	TOTAL DEPTH: *41.5 Feet*
DRILLING COMPANY: *Shapiro Drilling Services*	GEOLOGIST: *P. Fote*

DEPTH feet	DRIVEN (FT.)	RECOVERY (%)	PID (ppm) VALUES	PID (ppm) PROFILE 0–100	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
5	2.0	75	0			GP	SANDY GRAVEL – brown, dry
10	2.0	100	0			ML	SILT – tan, moist
15	2.0	100	0			GP	SANDY GRAVEL – brown
20							SANDY GRAVEL – brown, dry
25	2.0	75	0				
30	2.0	75	0				SANDY GRAVEL – trace of clay, brown, moist
35						CL	CLAY – light brown, very moist

WELL DIAGRAM



RUST Environment & Infrastructure
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Log of Monitoring Well MW-3

PROJECT: *Fish Springs*

LOCATION: *Juab County, Utah*

DEPTH feet	DRIVEN (FT.)	RECOVERY (%)	PID (ppm) VALUES	PID (ppm) PROFILE 0–100	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
40	2.0	100	0			CL	SANDY CLAY – brown saturated	2"slotted (0.01)PVC; 10-20 silica sand
						GP	SANDY GRAVEL – brown, saturated	
							TOTAL DEPTH = 41.5 feet	
45								
50								
55								
60								
65								
70								
75								

ATTACHMENT G

POST- CLOSURE INSPECTION LOG

FISH SPRINGS NATIONAL WILDLIFE REFUGE
DEPARTMENT OF THE INTERIOR
CLASS II SOLID WASTE LANDFILL

TYPE: Quarterly

INSPECTION REPORT

DATE OF INSPECTION: _____ TIME: _____ AM/PM PAGE ___ OF ___

EQUIPMENT/PROCESS UNIT NAME: Post-Closure Trenches

INSPECTION CHECKLIST

EQUIPMENT/STRUCTURE ITEM	INSPECTION ELEMENT	STATUS		IF UNACCEPTABLE STATE REASON(S):
		ACCEPT	UNACCEPT	
Closed trench cap components	Any evidence of "disturbed" components: :Human activity? :Erosion? :Burrowing animals? Slope of cap maintained >2% for shedding of rain-water?			

RESPONSE
TIMING: ( ) URGENT (WITHIN 24 HRS)
( ) ROUTINE (WITHIN WEEK)

INSPECTOR'S NAME _____

INSPECTOR'S SIGNATURE _____