Updated Drinking Water Source Protection Plan
for
Moab City Wellfield

City of Moab
State of Utah Public Water System No. 10003

MWH
MONTGOMERY WATSON HARZA

April 2002

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EXECUTIVE SUMMARY

The original Drinking Water Source Protection Plan (Montgomery Watson, 2001) for Moab Wells Nos. 4, 5, 6, 7, and 10 (Moab Wellfield) was submitted to the Utah Division of Drinking Water (DDW) on January 26, 2001. The DDW issued a conditional concurrence for Moab Wells Nos. 4, 6, 7, and 10 on February 20, 2001. Moab Well No. 5 was not issued a concurrence because it was not inculded in the delineation report of the original DWSP (Montgomery Watson, 2001). The delineation report included in this updated DWSP includes Moab Well No.5. The two conditions for concurrence of the original DWSP (Montgomery Watson, 2001) are addressed below.

Condition No. 1 – Inventory of Potential Contamination Sources:

Response: The PCS inventory included in the original DWSP plan (Montgomery Watson, 2001) was meant to acknowledge the presence of various residential septic tanks, properties, and water wells located within the DWSP Zones. Prior experience with PCS inventories indicates that the simplest and most reasonable approach to addressing residential PCSs is not to list individual names and addresses but rather acknowledge that these PCSs are found within the DWSP zones, and have the public water system manage these PCSs through an education and information campaign using flyers and brochures. Listing of the individual names and addresses of the residents also may compromise personal privacy since the DWSP Plans are public information. Likewise, the listing will probably become quickly outdated given the current growth of the Moab area.

Condition No. 2 – Implementation Schedule:

Response: The implementation schedule in the original DWSP plan (Montgomery Watson, 2001) failed to list an implementation date for the adoption of the zoning ordinance. The implemenation scheule included herein as Table 7-1 lists the completion date for this management strategy.

This Updated Drinking Water Source Protection Plan follows guidance set forth in the *Standard Report Format for Updated Ground Water Source Protection Plans*, dated July 2001. Changes included in this updated DWSP Plan for the Moab Wellfield include: (1) revisions to the delineation report and location of the DWSP Zones; (2) the addition of six wells to the potential contamination source (PCS) inventory; (3) an updated implementation schedule reflecting completed and uncompleted management strategies; and (4) a public notification plan.

1.0 INTRODUCTION

1.1 SYSTEM INFORMATION

Water System Name:	***City of Moab***
System Number:	***10003***
System Address:	***City of Moab*** ***115 West 200 South*** **Moab, Utah 84532**
New or Existing System:	***Existing***
Public or Non-Public:	***Public***
Type of Public System:	***Community***

1.2 SOURCE INFORMATION

Source Name:	***Moab City Wells Nos. 4, 5, 6, 7, and 10 (Moab Wellfield)***
Proposed New or Existing Source:	***Existing***
Well, Spring, or Tunnel:	***Well***
Individual Source, Wellfield or Springfield:	***Wellfield***
Construction Date of Source:	***1961 (#4), 1962 (#5), 1969 (#6), 1972 (#7), 1976 (#10)***
Description of Location:	***SE Quarter of Section 15 and NE Quarter of Section 22, Township 26 South, Range 22 East (SLB&M)***

1.3 DESIGNATED PERSONS

The Designated Person for the water system is as follows:

Designated Person:	***Brent Williams, Public Works Director***
Address:	***City of Moab*** ***115 West 200 South*** ***Moab, Utah 84532***
Phone Number:	***(435) 259-7485***

2.0 DELINEATION REPORT

A map showing the location of the Moab City Wellfield and other area wells is shown in Figure 2-1.

2.1 GEOLOGIC DATA

No changes

2.2 WELL CONSTRUCTION DATA

No changes

2.3 AQUIFER DATA

2.3.1 Identification of Hydrogeologic Units

No changes

2.3.2 Aquifer Tests

No changes

2.3.3 Groundwater Flow Direction

Gravity is the driving force that moves groundwater through any flow system. Water enters the groundwater system at the highest point on its flow path and leaves by discharging to a surface water feature at a lower point. According to Sumsion (1971) and Blanchard (1990), water is recharged to the Navajo Sandstone aquifer by infiltration of precipitation in the mountains and highlands east and southeast of the Moab wellfield and also by infiltration of surface water along portions of Mill Creek. Water enters the aquifer via joints and fractures in the Navajo Sandstone and travels downgradient to the west and northwest toward the Moab wellfield.

The potentiometric surface map of Blanchard (1990) shows east-to-west groundwater movement in the immediate vicinity of the Moab wellfield. This direction of groundwater movement was used for the original DWSP for the Moab wellfield (Montgomery Watson, 2001). However, recent water level data reported by Sunrise Engineering (2001a, 2001b), reveals that the direction of hydraulic gradient in the Navajo Sandstone may be inclined from southeast to northwest (Figure 2-2). The delineation approach discussed here addresses the uncertainty of the direction of hydraulic gradient.

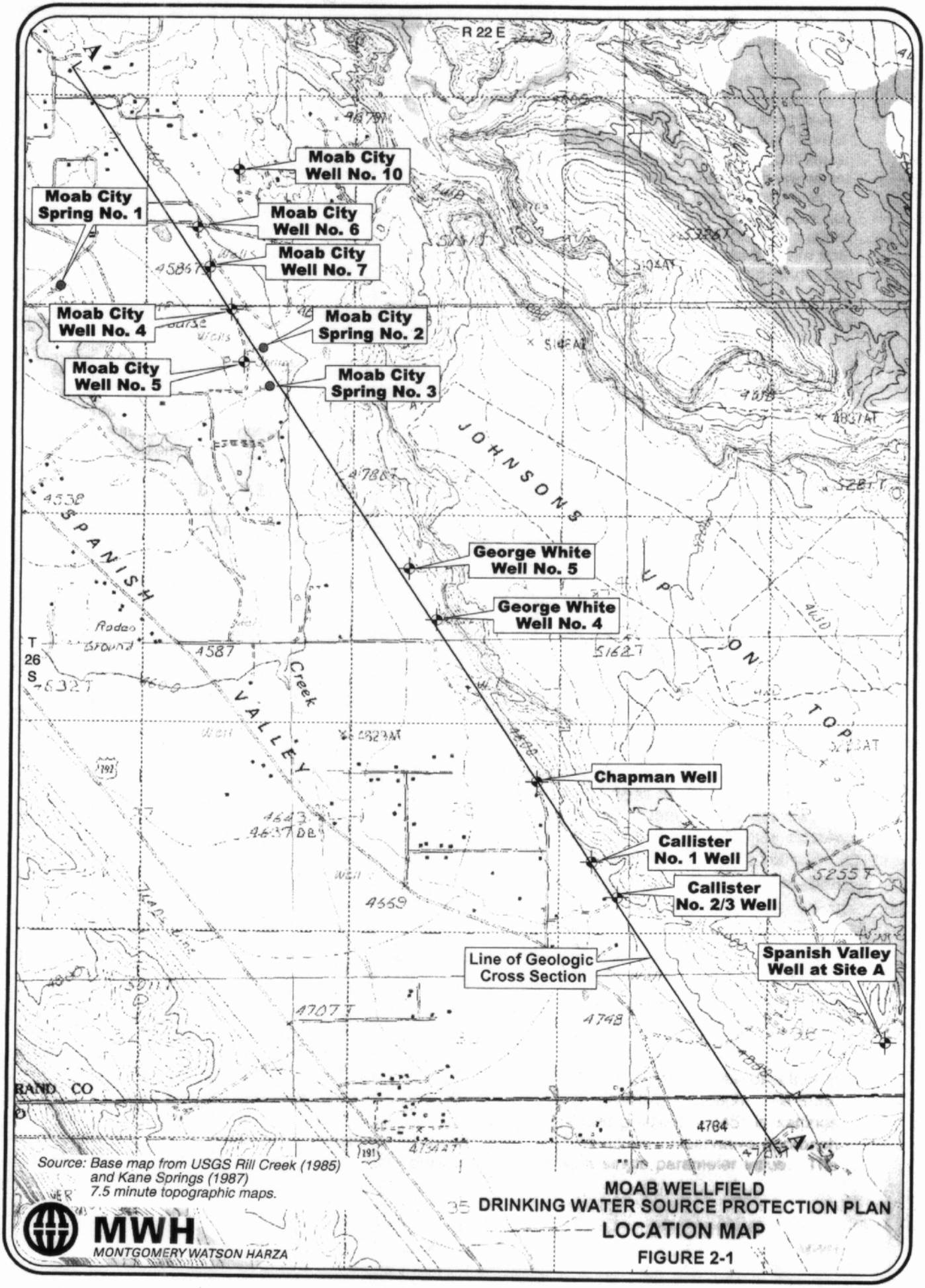
2.3.4 Transmissivity and Hydraulic Conductivity of Navajo Sandstone Aquifer

No changes

2.3.5 Anisotropic Permeability

According to Maslia and Randolph (1987), a porous medium is considered to be isotropic if all significant properties of the medium are uniform regardless of direction. If the properties vary with direction, the medium is considered anisotropic.

The Moab wellfield lies along the eastern flank of the northwest-plunging Moab Valley salt anticline (Sumsion, 1971). In this region, faulting and folding are intimately related because many of the folds are probably the result of fault propagation (Doelling and others, 2002). Therefore, the anisotropic permeability discussed here is applicable to the Moab wellfield. The average trend of the fractures as revealed on the geologic map of Doelling and others (2002) and aerial photos of Steiger and Susong (1997) is N45°W, parallel to the direction of regional groundwater movement (from the La Sal Mountains to the Colorado River).



Source: Base map from USGS Rill Creek (1985) and Kane Springs (1987) 7.5 minute topographic maps.

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MOAB WELLFIELD
DRINKING WATER SOURCE PROTECTION PLAN
LOCATION MAP
FIGURE 2-1

PROJECT NO. 1710426.022901.ai 04/14/02 SLC

Recent drilling in the area south of the Moab wellfield supports the conceptual model that the anisotropic permeability of the aquifer plays a critical role in determining not only regional groundwater movement, but also well yield. Two wells, the Chapman Well and the Spanish Valley Well at Site A (Spanish Valley Well), were recently drilled for Grand Water and Sewer Service Agency. Both wells were drilled into the Navajo Sandstone to depths of 240 and 700 feet, respectively (Sunrise Engineering, 2001a; 2001b). Both wells are located on the eastern margin of Spanish Valley southeast of the Moab wellfield. Although these wells are only separated by approximately one mile and produce from the same aquifer, the Chapman Well produces 1,000 gpm, whereas the Spanish Valley Well only produces 220 gpm (Sunrise Engineering, 2001a; 2001b). The variation in production values for the two wells suggests that wells such as the Chapman Well that are located adjacent to fractures yield more water than those wells that are not proximal to fractures. Based on the data discussed above, it is apparent that fractures provide an effective and efficient conduit for groundwater.

2.4 METHOD USED TO DELINEATE DWSP ZONES

The delineation method used to establish the original DWSP Zones for the Moab wellfield (Montgomery Watson, 2001) did not account for the role that anisotropic permeability has on groundwater movement. In light of recent data compiled by MWH and the City of Moab, the DWSP Zones for the Moab wellfield have been revised to reflect not only the anisotropic permeability, but also uncertainties in the direction of the hydraulic gradient.

2.4.1 Delineation of DWSP Zone One

Regulatory mandate defines Zone One as a fixed 100-foot radius around each wellhead.

2.4.2 Delineation of DWSP Zones Two, Three and Four

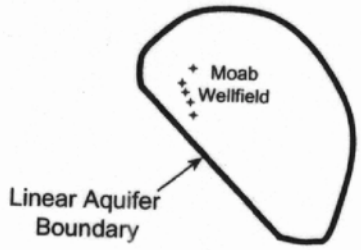
DWSP Zones Two, Three, and Four were determined using semi-analytical computer modeling combined with accounting for the anisotropic permeability of the aquifer. The steps used to determine the outlines of DWSP Zones Two, Three, and Four are shown in Figure 2-3 and the following discussion explains the delineation approach.

The initial method used to delineate the boundaries of DWSP Zones Two, Three, and Four was determined using the GPTRAC module of the EPA Wellhead Protection Area (WHPA) Model, Version 2.2, dated September 1993 (Blandford and others, 1993). The GPTRAC module was selected because of (1) the simplicity of the module; (2) the ability to simulate groundwater flow patterns when interfering, pumping wells are present; (3) the ability to delineate time-related capture zones for pumping wells; and (4) the ability to incorporate a barrier boundary associated with the western terminus of the Navajo Sandstone Aquifer where it is faulted against the Paradox Formation. Inputs used in the model closely parallel those used in the original DWSP (Montgomery Watson, 2001) and are summarized in Table 2-1. The graphical outputs can be found in Appendix A. Sensitivity of the predicted capture areas to the input parameters is summarized on a qualitative basis as shown in Table 2-2.

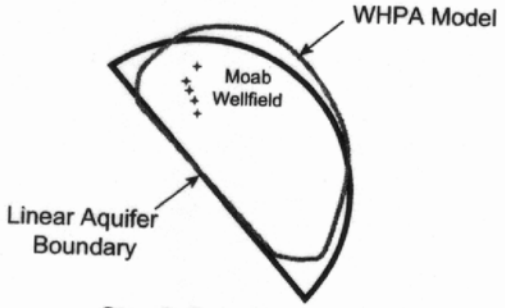
Once the protection areas were delineated using the WHPA model, the anisotropic permeability was incorporated. Jarvis (1986) and Kleinfelder (2000) found that anisotropic ratios ranged from 3:1 to 9:1 (length to breadth ratio) in similar fractured-rock aquifers in Wyoming and Utah. A conservative ratio of 3:1 was used for the Moab wellfield. In order to incorporate the anisotropy, a best fit half-circle was applied to each modeled DWSP Zone (Figure 2-3). The half-circle was then stretched to a half-ellipse with a 3:1 ratio while conserving the original area of the half-circle (Figure 2-3).

At the direction of Mark Jensen, DDW (personal communication, 2002), the uncertainty in the direction of the hydraulic gradient was addressed by using the State of Oregon (1996) modeling approach. The State of Oregon (1996) approach recommends varying the direction of hydraulic gradient +/- 45° in settings where the flow direction is known at a regional or reconnaissance level. This conservative approach results in DWSP Zones that are larger and more protective than using a single parameter value. The

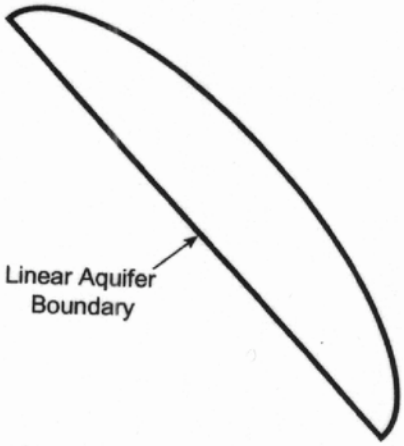
MOAB WELLFIELD
DRINKING WATER SOURCE PROTECTION PLAN
SUMMARY OF DELINEATION APPROACH
FIGURE 2-3



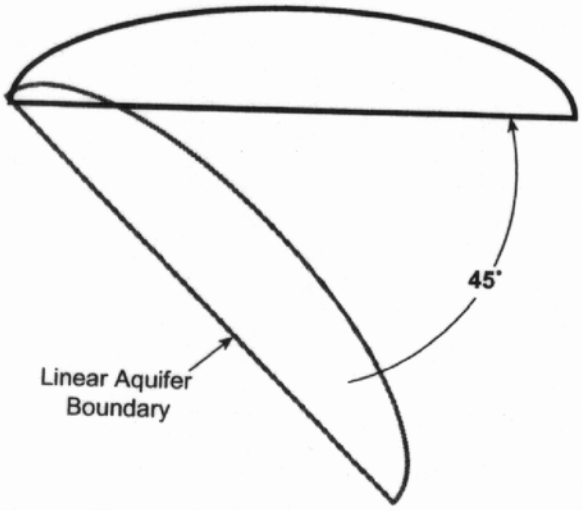
Step 1: WHPA modeling using parameters listed in Table 2-1.



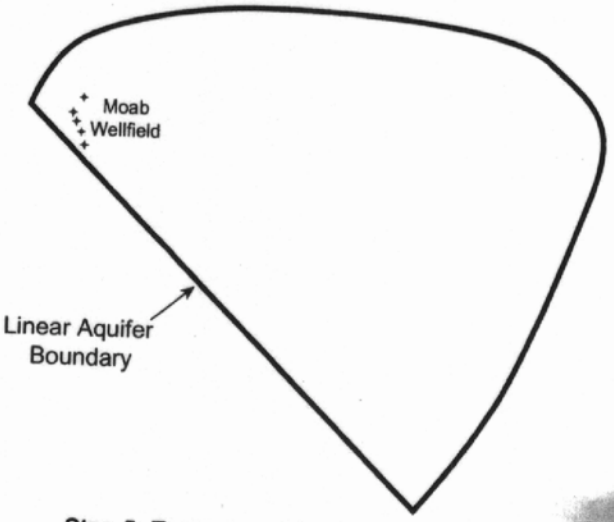
Step 2: Best fit semi-circle used to approximate WHPA modeled area.



Step 3: Best fit semi-circle stretched 3:1 (while conserving area) to form semi-ellipse.



Step 4: Semi-ellipse rotated 45° due to uncertainty in the direction of hydraulic gradient (Jensen, personal communication, 2002).



Step 5: Zones combined to form final DWSP Zones.

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2.5 MAP AND DESCRIPTIONS OF DWSP ZONES

The outlines of the amended Zone Two (250-day TOT), Zone Three (3-year TOT), and Zone Four (15-year TOT) DWSP areas for the Moab wellfield are superimposed on the *Rill Creek, Kane Springs, Warner Lake,* and *Mount Tukuhnikivatz* 7.5-Minute USGS topographic maps depicted on Figure 2-4. DWSP Zone One, a 100-foot radius around each wellhead, is not shown. The overall dimensions of DWSP Zones Two, Three, and Four are summarized in Table 2-3.

TABLE 2-3

DIMENSIONS OF DWSP ZONES

DWSP Zone	Northwest to Southeast Dimension (feet)	Northeast to Southwest Dimension (feet)
Zone Two 250-Day TOT	10,000	7,000
Zone Three 3-year TOT	17,000	12,000
Zone Four 15-year TOT	37,000	26,500

2.6 PROTECTED OR UNPROTECTED AQUIFER CLASSIFICATION

No changes

3.0 INVENTORY OF POTENTIAL CONTAMINATION SOURCES

3.1 LIST OF POTENTIAL CONTAMINATION SOURCES

City of Moab personnel conducted a site reconnaissance on April 17, 2002 to identify and confirm the locations of additional PCSs within the amended DWSP Zones. Six active wells were identified within the DWSP Zones as possible PCSs and are listed in Table 3-1.

TABLE 3-1

MOAB CITY WELLFIELD
LIST OF ADDITIONAL PCSs

Name of *Possible* PCS	Address of *Possible* PCS	Name, Address Phone No. of Contact Person
George White Well No. 4	North 330 feet, East 2280 feet from the Southwest Corner of Section 23, Township 26 South, Range 22 East, Salt Lake Base and Meridian	Dale Pierson Grand Water and Sewer Service Agency PO Box 1048 Moab, UT 84532 ph: (435) 259-8121
George White Well No. 5	North 1200 feet, West 680 feet from the Southern Quarter Corner of Section 23, Township 26 South, Range 22 East, Salt Lake Base and Meridian	Dale Pierson Grand Water and Sewer Service Agency PO Box 1048 Moab, UT 84532 ph: (435) 259-8121
Chapman Well	South 2100 feet, West 1480 feet from the Northeast Corner of Section 26, Township 26 South, Range 22 East, Salt Lake Base and Meridian	Dale Pierson Grand Water and Sewer Service Agency PO Box 1048 Moab, UT 84532 ph: (435) 259-8121
Spanish Valley Well at Site A	South 1060 feet, East 3970 feet from the Northwest Corner of Section 36, Township 26 South, Range 22 East, Salt Lake Base and Meridian	Dale Pierson Grand Water and Sewer Service Agency PO Box 1048 Moab, UT 84532 ph: (435) 259-8121
Callister Well No. 1	South 839 feet, West 611 feet from the Eastern Quarter Corner of Section 26, Township 26 South, Range 22 East, Salt Lake Base and Meridian	Louis and Ellen Callister Moab, UT 84532 ph: (435) 259-1664 ph: (435) 259-6983
Callister Well No. 2/3	North 1300 feet, West 280 feet from the Southeast Corner of Section 26, Township 26 South, Range 22 East, Salt Lake Base and Meridian	Louis and Ellen Callister Moab, UT 84532 ph: (435) 259-1664 ph: (435) 259-6983

3.2 IDENTIFICATION OF PCS HAZARDS

Identified activities and hazards associated with the additional PCSs found in the DWSP area for the Moab City Wellfield are listed in Table 3-2.

TABLE 3-2

MOAB CITY WELLFIELD
IDENTIFICATION OF PCS HAZARDS

Name of *Possible* PCS	Identified Activity	PCS No.[a] in DDW Guidance for Identified Activity	Identified Hazards [b]
George White Well No. 4	Active well	1	Conduit to groundwater
George White Well No. 5	Active well	1	Conduit to groundwater
Chapman Well	Active well	1	Conduit to groundwater
Spanish Valley Well at Site A	Active well	1	Conduit to groundwater
Callister Well No. 1	Active well	1	Conduit to groundwater
Callister Well No. 2/3	Active well	1	Conduit to groundwater

a = Chapter 5 of the October 1998 Source Protection User's Guide
b = chemical, biological, and radiological substances used, stored, manufactured, transported, and disposed at the PCS which could contaminate water

3.3 PRIORITIZED INVENTORY

The semi-quantitative approach to prioritizing the PCSs is explained in the original DWSP (Montgomery Watson, 2001). Table 3-3 lists the prioritization of the additional PCSs.

TABLE 3-3

PRIORITIZED LIST OF PCSs FOR
MOAB CITY WELLFIELD

Rank	Name of *Possible* PCS	Distance to well (34%)	Volume of hazard (33%)	Controls in Place: (33%)	Total Risk Points
1	George White Well No. 5	25	11	11	47
2	George White Well No. 4	25	11	11	47
3	Chapman Well	17	11	11	39
4	Callister Well No. 1	17	11	11	39
5	Callister Well No. 2/3	17	11	11	39
6	Spanish Valley Well at Site A	8	11	11	30

3.4 POTENTIAL CONTAMINATION SOURCE LOCATIONS

Figure 3-1 shows the location of the PCSs in relation to the Moab City Wellfield.

4.0 ASSESSMENT OF POTENTIAL CONTAMINATION SOURCE HAZARDS

TABLE 4-1

MOAB CITY WELLS NOS. 4, 5, 6, 7, AND 10
PCS HAZARD CONTROLS

Rank	Name of Actual PCS	Controls	Verification of Enforcement Agency or Contact	Control is Adequate or Not Adequate	Date to Reassess Hazard
1	George White Well No. 5	UAC R309-106-5(5)(g), Grouting Techniques and Requirements	Michael Georgeson Utah Division of Drinking Water Salt Lake City, UT ph: (801) 536-4197	Adequate	2007
2	George White Well No. 4	UAC R309-106-5(5)(g), Grouting Techniques and Requirements	Michael Georgeson Utah Division of Drinking Water Salt Lake City, UT ph: (801) 536-4197	Adequate	2007
3	Chapman Well	UAC R309-106-5(5)(g), Grouting Techniques and Requirements	Michael Georgeson Utah Division of Drinking Water Salt Lake City, UT ph: (801) 536-4197	Adequate	2007
4	Callister Well No. 1	UAC R309-106-5(5)(g), Grouting Techniques and Requirements	Michael Georgeson Utah Division of Drinking Water Salt Lake City, UT ph: (801) 536-4197	Adequate	2007
5	Callister Well No. 2/3	UAC R309-106-5(5)(g), Grouting Techniques and Requirements	Michael Georgeson Utah Division of Drinking Water Salt Lake City, UT ph: (801) 536-4197	Adequate	2007
6	Spanish Valley Well at Site A	UAC R309-106-5(5)(g), Grouting Techniques and Requirements	Michael Georgeson Utah Division of Drinking Water Salt Lake City, UT ph: (801) 536-4197	Adequate	2007

5.0 MANAGEMENT PROGRAM TO CONTROL EXISTING POTENTIAL CONTAMINATION SOURCES

No changes

6.0 MANAGEMENT PROGRAM FOR FUTURE POTENTIAL CONTAMINATION SOURCES

No changes

8.0 RESOURCE EVALUATION

No changes

9.0 RECORDKEEPING

As part of its management program, Moab City applied for and was granted Sole Source Aquifer Designation status for the Glen Canyon Aquifer System by the U.S. Environmental Protection Agency on January 7, 2002. The Federal Register listing is included in Appendix B. Additionally, Moab has passed a zoning ordinance that will closely regulate development and growth within the DWSP Zones for the Moab City Wellfield. This ordinance was passed on October 9, 2001 and a copy of the ordinance is included in Appendix C. Although Moab has yet to send a formal letter to the Moab City Golf Course, both parties are discussing ways to minimize the use of fertilizers and pesticides at the golf course.

10.0 CONTINGENCY PLAN

No changes

11.0 PUBLIC NOTIFICATION

A Public Notification Plan that includes source protection public notification for Moab's wellfield and springs will be included in the system's annual Consumer Confidence Reports. The Public Notification Plan will educate the users of the drinking water system about the source of their water and the importance of protecting their water. The Public Notification Plan will include the information presented below.

The City of Moab acquires drinking water from wells and springs located near the city. The water is stored in three formations (Navajo Sandstone, Kayenta Formation, and Wingate Sandstone) that constitute the Glen Canyon Aquifer System. Because the aquifer is typically exposed at the surface, it is considered unprotected from contamination. The general types of potential contamination sources that exist within the Drinking Water Source Protection Zones for Moab's wells and springs include landfills, golf courses, unimproved and improved roads, residential properties, and active and abandoned water wells. Most of these potential contamination sources are uncontrolled. Wells within the Moab wellfield were constructed in the 1960s and 1970s and several may lack a grout seal to prevent contamination. The springs used by Moab are generally well protected by the spring collection systems that are in place.

Based on the age of the wells, the lack of an adequate grout seal, and the types of potential contamination sources present, the Moab wellfield is considered highly susceptible to contamination. The springs used by Moab are considered moderately susceptible to contamination.

WAIVERS

No changes

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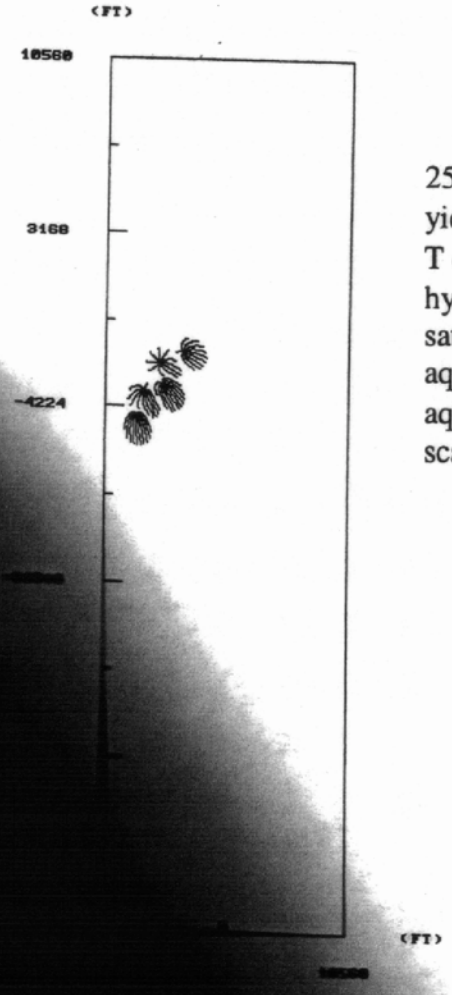
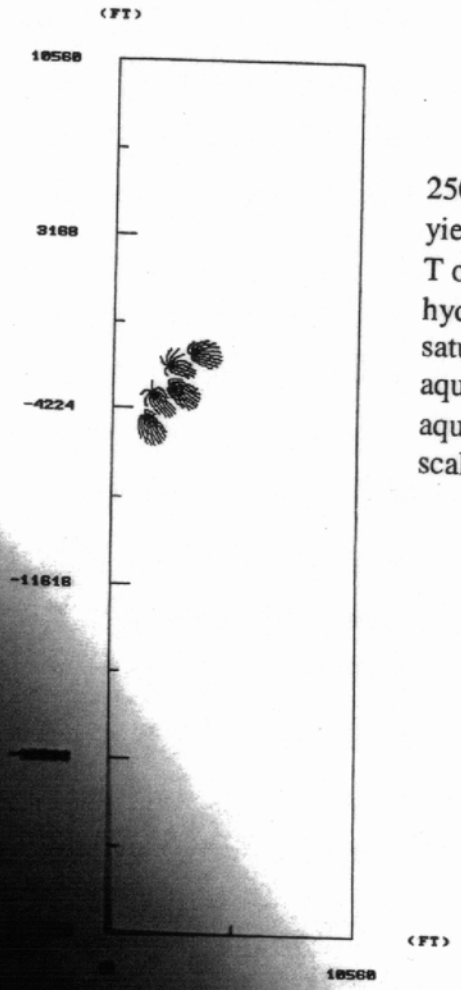
APPENDIX A

MODEL GENERATED PLOTS



Moab Wellfield
GPTRAC module

250 day TOT
yield of 365,750 $^{ft^3}/_{day}$ total (73,150 $^{ft^3}/_{day}$ for each well)
T of 3,750 $^{ft^2}/_{day}$ (highly fractured area)
hydraulic gradient of 0.0065 oriented N45°W (135°)
saturated thickness of 100 feet
aquifer porosity of 15%
aquifer boundary oriented at N45°W (135°)
scale of 1:100,000



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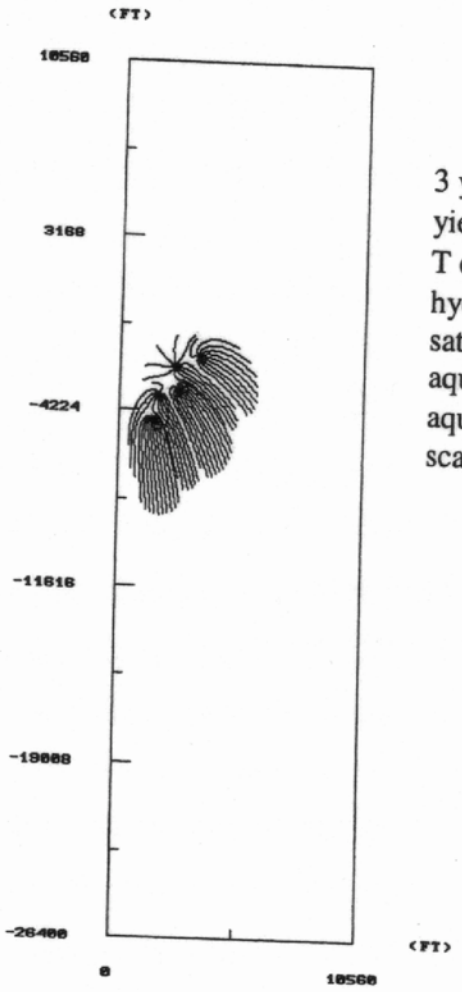

Moab Wellfield
GPTRAC module

3 year TOT
yield of 365,750 $^{ft^3}/_{day}$ total (73,150 $^{ft^3}/_{day}$ for each well)
T of 3,750 $^{ft^2}/_{day}$ (highly fractured area)
hydraulic gradient of 0.0065 oriented N45°W (135°)
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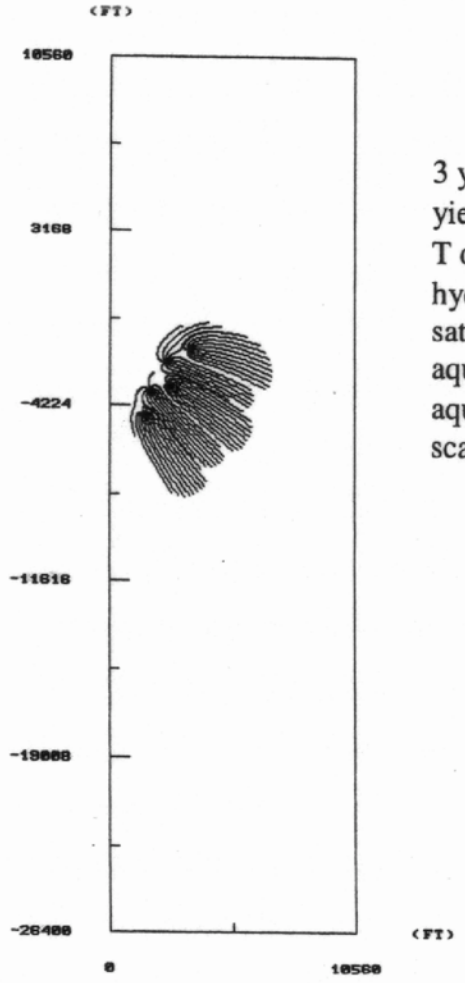

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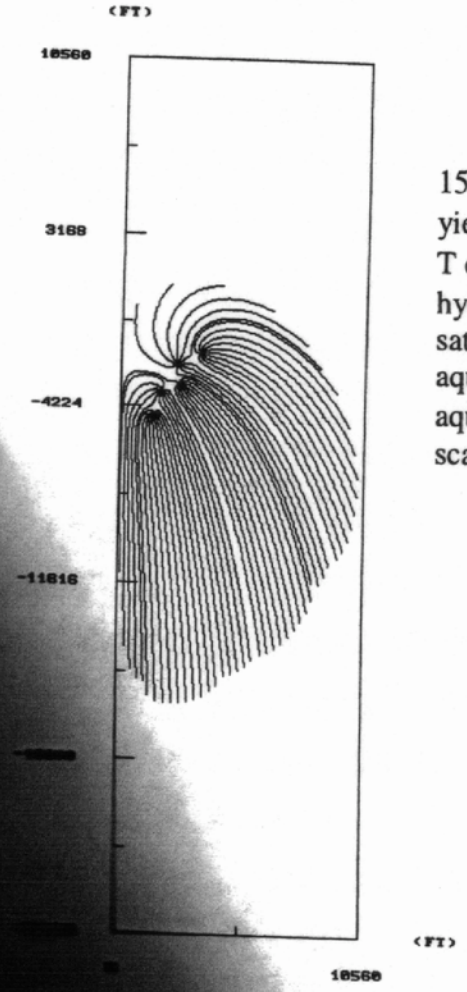
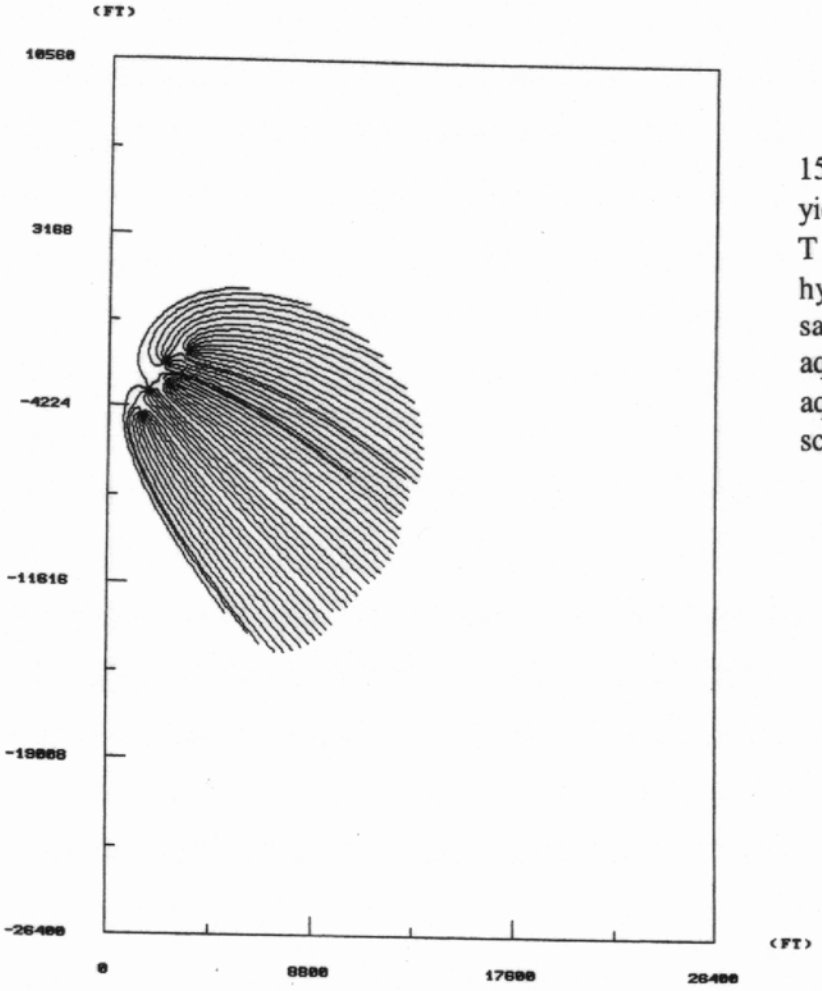


Moab Wellfield
GPTRAC module

15 year TOT
yield of 365,750 $^{ft^3}/_{day}$ total (73,150 $^{ft^3}/_{day}$ for each well)
T of 2,590 $^{ft^2}/_{day}$ (less fractured area)
hydraulic gradient of 0.0065 oriented N45°W (135°)
saturated thickness of 100 feet
aquifer porosity of 15%
aquifer boundary oriented at N45°W (135°)
scale of 1:100,000



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aquifer porosity of 15%
aquifer boundary oriented at N45°W (135°)
scale of 1:100,000

APPENDIX B

FEDERAL REGISTER LISTING FOR SOLE SOURCE AQUIFER DESIGNATION

be maintained on-site, or at an accessible designated location, and shall be provided, upon request, during regular business hours to representatives of the Texas Air Control Board or any air pollution control agency having jurisdiction.

According to TNRCC,

[it] agrees that a regulation limiting a site's potential to emit must be practically enforceable, but that certified registrations kept on site meet this requirement. The § 122.10 potential to emit definition specifies that "any certified registration or preconstruction authorization restricting emissions * * * shall be treated as part of its design if the limitation is enforceable by the EPA." The EPA, in 40 CFR 52.21(b)(17), defines federally enforceable as "all limitations and conditions which are enforceable by the administrator, including those * * * requirements within any applicable SIP." Since the commission submitted § 122.122 for incorporation into the SIP, the commission considers limits established under § 122.122 to be federally enforceable. Further, § 122.122 specifies that certain registration of emissions and records demonstrating compliance with the registration must be kept on-site, or at an accessible location, and shall, upon request, be provided to the commission or any air pollution control agency having jurisdiction. The commission does not believe that a certified registration of emissions must be submitted in order to be practically enforceable since the owner or operator must make the registration and any supporting documentation available during an inspection.

26 *TexReg* at 3761.

The TNRCC's approach to PTE limitations does not comply with the requirements of the Act. First, 30 TAC 122.122 is not part of the Texas SIP. The EPA has not approved 30 TAC 122.122, into the SIP. Therefore it is not federally enforceable.[16]

Even if the rule were federally enforceable, the rule must also be practically enforceable.[17] One of the requirements for practical enforceability is notice to the State.[18] Under 30 TAC 122.122, there is no requirement that the State be notified and the registrations are kept on site. Therefore, neither the public, TNRCC, or EPA know what the PTE limit is without going to the site. A facility could change its PTE limit several times without the public or TNRCC knowing about the change. Therefore, these limitations are not practically enforceable, and TNRCC must revise this regulation to make the regulation practically enforceable. The revised regulation must also be approved into the SIP before it, and the registrations, become federally enforceable.

III. Effect of Notice of Deficiency

Title V of the Act provides for the approval of state programs for the issuance of operating permits that incorporate the applicable requirements of the Act. To receive title V program approval, a state permitting authority must submit a program to EPA that meets certain minimum criteria, and EPA must disapprove a program that fails, or withdraw an approved program that subsequently fails, to meet these criteria. These criteria include requirements that the state permitting authority have authority to "assure compliance by all sources required to have a permit under this subchapter with each applicable standard, regulation or requirement under this chapter." CAA Section 502(b)(5)(A).

40 CFR 70.10(c)(1) provides that EPA may withdraw a part 70 program approval, in whole or in part, whenever the approved program no longer complies with the requirements of part 70. This section goes on to list a number of potential bases for program withdrawal, including the case where the permitting authority fails to promulgate or enact new authorities when necessary. 40 CFR 70.10(c)(1)(i)(A).

40 CFR 70.10(b) sets forth the procedures for program withdrawal, and requires as a prerequisite to withdrawal that the permitting authority be notified of any finding of deficiency by the Administrator and that the notice be published in the **Federal Register**. Today's notice satisfies this requirement and constitutes a finding of deficiency. If the permitting authority has not taken "significant action to assure adequate administration and enforcement of the program" within 90 days after publication of a notice of deficiency, EPA may take action under 40 CFR 70.10(b)(2). 40 CFR 70.10(b)(3) provides that, if a state has not corrected the deficiency within 18 months of the NOD, EPA will apply the sanctions under section 179(b) of the Act, in accordance with section 179(a) of the Act. Upon EPA action, the sanctions will go into effect unless the state has corrected the deficiencies identified in this notice within 18 months after signature of this notice.[19] 40 CFR 70.10(b)(4) provides that, if the state has not corrected the deficiency within 18 months after the date of finding of deficiency, EPA must promulgate, administer, and enforce a whole or partial program within 2 years of the date of the finding.

This document is not a proposal to withdraw Texas' title V program. Consistent with 40 CFR 70.10(b)(2), EPA will wait at least 90 days, at which point it will determine whether Texas has taken significant action to correct the deficiencies.

IV. Administrative Requirements

Under section 307(b)(1) of the Clean Air Act, petitions for judicial review of today's action may be filed in the United States Court of Appeals for the appropriate circuit by March 8, 2002.

Dated: December 20, 2001.

Gregg A. Cooke,

Regional Administrator, Region 6.

[FR Doc. 02–298 Filed 1–4–02; 8:45 am]

BILLING CODE 6560–50–P

[16] Texas' definition of "federally enforceable" in 30 TAC 101.1(31) also supports this conclusion. Federally enforceable is defined as "all limitations and conditions which are enforceable by the EPA administrator, including those requirements developed under 40 CFR parts 60 and 61, requirements within any applicable state implementation plan (SIP), any permit requirements established under 40 CFR 52.21 or under regulations approved pursuant to 40 CFR part 51, subpart I, including operating permits issued under the approved program that is incorporated into the SIP and that expressly requires adherence to any permit issued under such program."

[17] Seitz and Van Heuvelen, *Release of Interim Policy on Federal Enforceability of Limitations on Potential to Emit* (January 22, 1996), and Stein, *Guidance on Enforceability Requirements for Limiting Potential to Emit through SIP and § 112 Rules and General Permits* (January 25, 1995)

[18] Stein, *Guidance on Enforceability Requirements for Limits Potential to Emit through SIP and § 112 Rules and General Permits* at 6–8.

[19] The EPA is developing an Order of Sanctions rule to determine which sanction applies at the end of this 18 month period.

ENVIRONMENTAL PROTECTION AGENCY

[FRL–7126–4]

Sole Source Aquifer Determination for Glen Canyon Aquifer System, Moab, Utah

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of final determination.

SUMMARY: Pursuant to section 1424(e) of the Safe Drinking Water Act, the Acting Regional Administrator of the U.S. Environmental Protection Agency (EPA) in Region VIII has determined that the Glen Canyon Aquifer System at Moab, Utah and the immediately adjacent recharge area is the sole or principal source of drinking water for the area. The area is located in southeast Utah extending from the City of Moab, southeast, encompassing approximately 76,000 acres in Townships 25 through 28 South and Ranges 21 through 24 East

SLB&M. The area is irregularly shaped with maximum dimensions of about 22 miles from southeast to northwest and approximately 9 miles from southwest to northeast. The entire area is within Grand County, Utah. No viable alternative sources of drinking water with sufficient available supply exist within the area for which this application for sole source designation has been submitted. If this aquifer becomes contaminated, a significant hazard to public health would occur.

The boundaries of the designated area have been reviewed and approved by EPA. As a result of this action, federal financially assisted projects constructed in the approximately 119 square mile area mentioned above will be subject to EPA review to ensure that these projects are designed and constructed in a manner which does not create a significant hazard to public health. For the purposes of this designation the Aquifer Service Area and the Project Review Area are the same as the Designated Area.

DATES: This determination shall be promulgated for purposes of judicial review at 1:00 p.m. Mountain Standard Time on January 7, 2002.

ADDRESSEES: The data upon which these findings are based, and a map of the designated area are available to the public and may be inspected during normal business hours at the U.S. Environmental Protection Agency, Region VIII, 999 18th Street, Suite 300, Denver, CO 80202–2466 or the Moab City Library, 25 South 100 East, Moab Utah 84523.

FOR FURTHER INFORMATION CONTACT: William J. Monheiser, Regional Sole Source Aquifer Coordinator, Ground Water Program, 8P-W-GW, USEPA Region VIII, 999 18th Street, Suite 300, Denver, Colorado 80202–2466, Phone: 303.312.6271, Fax: 303.312.7084, E-mail: *monheiser.william@epa.gov*.

SUPPLEMENTARY INFORMATION: Notice is hereby given that, pursuant to section 1424(e) of the Safe Drinking Water Act, 42 U.S.C. 300f, 300h–3(e), Public Law 93–523 as amended, the Acting Regional Administrator of the U.S. Environmental Protection Agency, Region 8 has determined that the Glen Canyon Aquifer System is the sole or principal source of drinking water for the Moab area of southeast Utah described above. Pursuant to section 1424(e), federal financially assisted projects constructed anywhere in the Sole Source Aquifer area described above will be subject to EPA review.

I. Background

Section 1424(e) of the Safe Drinking Water Act states:

"If the Administrator determines, on his own initiative or upon petition, that an area has an aquifer which is the sole or principal drinking water source for the area and which, if contaminated, would create a significant hazard to public health, he shall publish notice of that determination in the **Federal Register**. After the publication of any such notice, no commitment for federal financial assistance (through a grant, contract, loan guarantee, or otherwise) may be entered into for any project which the Administrator determines may contaminate such aquifer through a recharge zone so as to create a significant hazard to public health, but a commitment for federal financial assistance may, if authorized under another provision of the law, be entered into to plan or design the project to assure that it will not so contaminate the aquifer."

Effective March 9, 1987, authority to make a Sole Source Aquifer Designation was delegated to the U.S. EPA Regional Administrators.

On May 7, 2001 a petition was received from the City of Moab, 115 West 200 South, Moab Utah 84532, requesting that EPA designate the ground water resources of the Glen Canyon Aquifer System near the City of Moab as a Sole Source Aquifer. In response to this petition, EPA published a notice of a Public Meeting in the Times-Independent, a newspaper of general circulation in the Moab area. This notice announced receipt of the petition and requested public comment in writing or oral comments at the public meeting held August 14, 2001 and for a 34 day comment period following the meeting. Comments received by mail, telephone, Fax and e-Mail were also accepted. The public comment period extended from August 14, 2001 to September 17, 2001.

Subsequently, EPA determined that the petition is both administratively and technically complete and adequate.

II. Basis for Determination

Among the factors considered by the Regional Administrator for designation of a Sole Source Aquifer under section 1424(e) are: (1) Whether the aquifer is the area's sole or principal source of drinking water, (2) if the designated area has been adequately delineated and, (3) whether contamination of the aquifer would create a significant hazard to public health.

On the basis of information available to EPA, the Regional Administrator has made the following findings of fact, which are the basis for this determination:

1. The Glen Canyon Aquifer System serves as the "sole source" of drinking water for approximately 6000 permanent residents within the City of Moab. Most domestic wells and stock wells in the area derive their water from the shallow valley fill aquifer and are not affected by this action. There is no unappropriated alternative drinking water source or combination of sources which could provide fifty percent or more of the drinking water to the designated area, nor is there any projected future alternative source capable of supplying the area's drinking water needs at an economical cost.

2. Although the Glen Canyon Aquifer System underlies much of southeast Utah, in the Moab area the aquifer is of very high quality, able to be used as a drinking water source with the minimal treatment required by the State of Utah. This constitutes a limited resource in this immediate area that if contaminated would create a significant hazard to public health and result in significant economic, social and environmental costs. Potential sources of contamination include: (1) Petroleum, mineral exploration, and geophysical drilling, (2) poorly designed development (3) accidental spills along roadways, (4) abandoned but unplugged petroleum, mineral and geophysical wells, tunnels and (5) non-sustainable agricultural and forestry practices.

3. The City of Moab's petition and supporting documentation have appropriately delineated the boundaries of the subject aquifer.

III. Description of the Petitioned Aquifer

The designated area of the Glen Canyon Aquifer System encompasses about 76,000 acres in an irregularly shape area approximately 22 miles long by 9 miles wide. Drinking water production is from one developed spring from the Wingate Sandstone and three developed springs and five drilled wells from the Navajo Sandstone. The lower Jurassic Wingate Sandstone, overlain by the lower Jurassic Kayenta Sandstone, overlain by the lower Jurassic Navajo Sandstone comprise the approximately 800 feet thick Glen Canyon Aquifer System. Water production is primarily due to fracture flow. Combined production of the water system can be greater than 4,775 gallons per minute with 3,000,000 gallons of storage. The boundaries of the aquifer were determined by hydrogeologic mapping, which is the area interpreted to contribute water to the springs and well. The aquifer is exposed at the surface within its service area and considered to be moderately to very vulnerable.

IV. Information Utilized in Determination

The information utilized in this determination includes the petition from the City of Moab, review of available literature, and the results of ground water investigations conducted by the State on the ground water resources of the area. These data are available to the public and may be inspected during normal business hours at EPA Region VIII, 999 18th Street, Suite 300, Denver, Colorado 80202–2466 or at the Moab City Library, 25 South 100 East, Moab, Utah, 84532.

V. Project Review

EPA, Region VIII, will work with the Federal Agencies that may, in the future, provide financial assistance to projects in the designated area. Interagency procedures will be developed in which EPA will be notified of proposed funding commitments for projects which could contaminate the aquifer. EPA will evaluate such projects and, where necessary, conduct an in-depth review, including soliciting public comments where appropriate. Should EPA determine that a project may contaminate the aquifer, so as to create a significant hazard to public health, no commitment for federal assistance may be entered into. However, a commitment for federal assistance may, if authorized under another provision of law, be entered into to plan or design the project to assure that it will not contaminate the aquifer.

Although the project review process cannot be delegated to state or local agencies, the EPA will rely upon any existing or future state and local control mechanisms, to the maximum extent possible, in protecting the ground-water quality of the aquifer. Included in the review of any federal financially assisted project will be coordination with local agencies. Their comments will be given full consideration, and the Federal review process will attempt to complement and support state and local ground water quality protection mechanisms.

VI. Public Comments

In response to the Public Notice and Public Meeting, a detailed discussion of all questions, a transcript of the public meeting as well as all written comments can be found in the Administrative Record and may be inspected during normal business hours at EPA Region VIII, 999 18th Street, Suite 300, Denver, Colorado 80202–2466. Participants at the Public Meeting voiced unanimous support for designation. Of the 52 written comments received all were supportive of designation except for one. All comments are addressed in EPA's Responsiveness Summary, which is part of the Administrative record.

No additional data were presented during the public comment period regarding aquifer characteristics, boundary delineation or potential errors of fact presented in the petition.

VII. Economic and Regulatory Impact

Pursuant to the provisions of the Regulatory Flexibility Act (RFA), 5 U.S.C. 605(b), I hereby certify that this designation will not have a significant impact on a substantial number of small entities. For purposes of this Certification, "small entity" shall have the same meaning as given in section 601 of the RFA. This action is only applicable to projects with the potential to impact the Glen Canyon Aquifer System Sole Source Aquifer as designated.

The only affected entities will be those businesses, organizations or governmental jurisdictions that request federal financial assistance for projects which have the potential for contaminating the Sole Source Aquifer so as to create a significant hazard to public health. EPA does not expect to be reviewing small isolated commitments of financial assistance on an individual basis, unless a cumulative impact on the aquifer is anticipated; accordingly, the number of affected small entities will be minimal.

For those small entities which are subject to review, the impact of today's action will not be significant. Many projects subject to this review will be preceded by a ground water impact assessment required pursuant to other federal laws, such as the National Environmental Policy Act (NEPA) as amended 42 U.S.C. 4321, *et seq.* Integration of those related review procedures with sole source aquifer review will allow EPA and other federal agencies to avoid delay or duplication of effort in approving financial assistance, thus minimizing any adverse effects on those small entities which are affected. Finally, today's action does not prevent grants of federal financial assistance which may be available to any affected small entity in order to pay for the redesign of the project to assure protection of the aquifer.

Under Executive Order 12866, EPA must judge whether a regulation is "major" and therefore subject to the requirement of a Regulatory Impact Analysis. This regulation is not major because it will not have an annual effect of $100 million or more on the economy, will not cause any major increase in costs or prices, and will not have significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of United States enterprises to compete in domestic or export markets. Today's action only affects the Glen Canyon Aquifer System in Grand County, Utah. It provides an additional review of ground water protection measures, incorporating state and local measures whenever possible, for only those projects which request federal financial assistance.

VIII. Summary

This determination affects only the Glen Canyon Aquifer System, located in Moab Utah. As a result of this designation all federal financially assisted projects proposed in the delineated area will be subject to EPA review to ensure that they do not create significant hazard to public health,

Jack W. McGraw,

Acting Regional Administrator, Region VIII.

[FR Doc. 02–297 Filed 1–4–02; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[FRL–7126–6]

Program Requirement Revisions related to the Public Water System Supervision Program for the States of Connecticut, Rhode Island, Vermont and the Commonwealth of Massachusetts

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: Notice is hereby given that the States of Connecticut, Rhode Island, Vermont and the Commonwealth of Massachusetts are in the process of revising their approved Public Water System Supervision Programs to meet the requirements of the Safe Drinking Water Act (SDWA).

EPA has determined that the Revised Public Water System Definitions for the State of Connecticut and the Commonwealth of Massachusetts are no less stringent than the corresponding revised Federal definition, as authorized under the Safe Drinking Water Act Amendments of 1996 and final rule provided on April 28, 1998 (63 FR 23362). Therefore, EPA intends to approve this Public Water System Supervision Program requirement for both Connecticut and Massachusetts.

The State of Connecticut has adopted drinking water regulations for Synthetic

APPENDIX C

SOURCE PROTECTION ORDINANCE

ORDINANCE 2001-10
ESTABLISHING DRINKING WATER SOURCE PROTECTION ZONES SURROUNDING ALL CITY WELLS AND SPRINGS

WHEREAS, the State of Utah requires public drinking water providers to adopt a Drinking Water Source Protection Plan delineating drinking water protection zones for all wells and springs that provide water for a public drinking water system; and

WHEREAS, A Drinking Water Source Protection Ordinance should be adopted as part of the implementation Drinking Water Source Protection Plan; and

WHEREAS, the City of Moab has submitted its Drinking Water Source Protection Plan to the State,

NOW, THEREFORE, BE IT ORDAINED by the Mayor and Council of the City of Moab that Chapter 13.26 of the Moab Municipal Code be adopted and shall read:

Chapter 13.26 DRINKING WATER SOURCE PROTECTION

13.26.010 Purpose

The purpose of this chapter is to insure the provision of a safe and sanitary drinking water supply for the City by the establishing drinking water source protection zones surrounding wellheads and springs for all wells and springs that are supply sources for the City water system and by designating and regulating property uses and conditions within such zones.

13.26.020 Definitions.

A. "Design standard" means a control which is implemented by the property owner of a property on which a potential contamination source exists, in order to prevent discharges to the ground water.

B. "Land management strategies" means zoning and non-zoning controls which include, but are not limited to, the following: zoning and subdivision ordinances, site plan reviews, design and operating standards, source prohibitions, purchase of property and development rights, public education programs, ground-water monitoring, household hazardous waste collection programs, water conservations programs, memoranda of understanding, written contracts and agreements and so forth.

C. "Pollution source" means point source discharges of contaminants to ground water or potential discharges of the liquid forms of "extremely hazardous substances" which are stored in containers in excess of "applicable threshold planning quantities" as specified in SARA Title III. Examples of possible pollution sources include, but are not limited to, the following: storage facilities that store the liquid forms of extremely hazardous substances, septic tanks, drain fields, Class V underground injection wells, landfills, open dumps, landfilling of sludge and septage, manure piles, pit privies, and animal feeding operations with more than ten animal units. The following clarify the definition of pollution source:

1. "Animal feeding operation" means a lot or facility where the following conditions are met: animals have been or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12 month period, and crops, vegetation forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility. Two or more animal feeding operations under common ownership are considered to be a single feeding operation if they adjoin each other, if they use a common area, or if they use a common system for the disposal of wastes.

2. "Animal unit" means a unit of measurement for any animal feeding operation calculated by adding the following numbers: the number of slaughter and feeder cattle multiplied by 1.0, plus the number of mature dairy cattle multiplied by 1.4, plus the number of swine

weighing of 55 pounds multiplied by 0.4, plus the number of sheep multiplied by 0.1, plus the number of horses multiplied by 2.0.

3. "Extremely hazardous substances" means those substances which are identified in the Sec. 302(EHS) column of the "TITLE III LIST OF LISTS – Consolidated List of Chemicals Subject to Reporting Under SARA Title III." (EPA 560/4-91-011).

D. "Potential contamination source" means any facility or site which employs an activity or procedure which may potentially contaminate ground water. A pollution source is also a potential contamination source.

E. "Regulatory agency" means any governmental agency with jurisdiction over hazardous waste as defined herein.

F. "Sanitary landfill" means a disposal site where solid wastes, including putrescible wastes, or hazardous wastes, are disposed of on land by placing earth cover thereon.

G. "Septic tank/drain-field systems" means a system which is comprised of a septic tank and a drain-field which accepts domestic wastewater from buildings or facilities for subsurface treatment and disposal. By their design, septic tank/drain-field system discharges cannot be controlled with design standards.

H. "Wellhead" means the upper terminal of a well, including adapters, ports, seals, valves, and other attachments.

I. "Spring" means the location of the water source and all attachments.

13.26.030 Establishment of drinking water source protection zones. There is hereby established use districts to be know as zones one, two, three, and four of the drinking water source protection area, identified and described as follows:

A. **Zone one** is the area within a 100-foot radius from the wellhead or spring.

B. **Zone two** is the area within a 250-day ground-water time of travel to the wellhead or spring, the boundary of the aquifer(s) which supplies water to the ground-water source, or the ground-water divide, whichever is closer.

C. **Zone three** (waiver criteria zone) is the area within a 3-year ground-water time of travel to the wellhead or spring or the margin of the collection area, the boundary of the aquifer(s) which supplies water to the ground-water source, or the ground-water divide, whichever is closer.

D. **Zone four** is the area within a 15-year ground-water time of travel to the wellhead or spring, the boundary of the aquifer(s) which supplies water to the ground-water source, or the ground-water divide, whichever is closer.

13.26.040 Permitted uses. The following uses shall be permitted within drinking water source protection zones:

A. Any use permitted within existing agricultural, single family residential, multi-family residential, and commercial zoning districts so long as uses conform to the rules and regulations of the regulatory agencies.

13.26.050 Prohibited uses. The following uses or conditions shall be and are hereby prohibited within drinking water sources protection zones, whether or not such use or condition may otherwise be ordinarily included as a part of a use permitted under Section 13.26.040 of the ordinance.

A. **Zone one** – The location of any potential contamination source as defined herein, unless it can be controlled with design standards.

B. **Zone two** – The location of a pollution source as defined herein, unless its contaminated discharges can be controlled with design standards.

C. **Zones three and four** – The location of a potential contamination source unless it can be controlled through land management strategies.

13.26.060 Administration. The policies and procedures for administration of the source protection zones established under this ordinance, including without limitation those applicable to nonconforming uses, exception, enforcement and penalties, shall be the same as provided in the existing zoning ordinance for the City of Moab, as the same is presently enacted or may from time to time be amended.

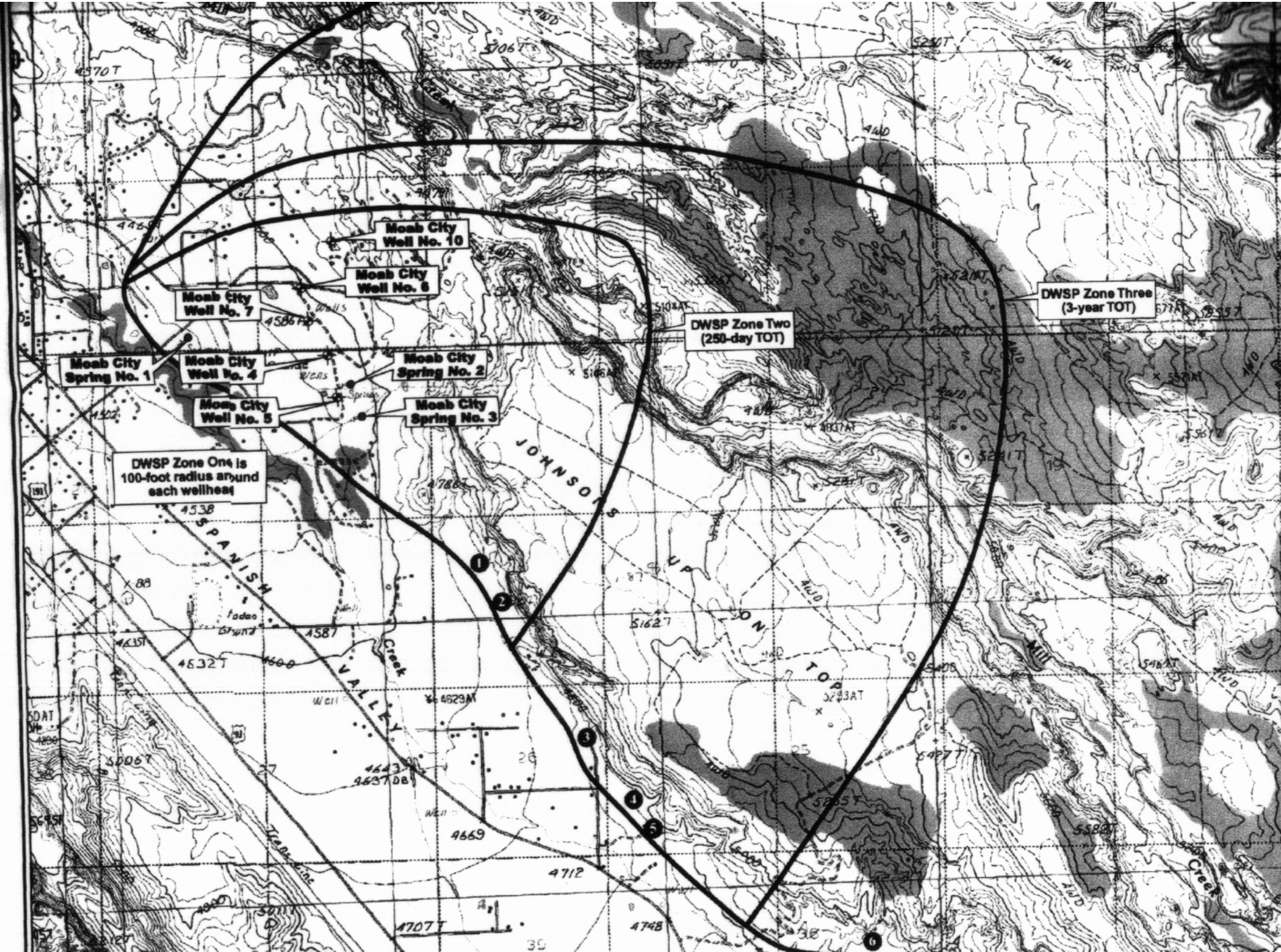
Approved and adopted by action of the Governing Body of the City of Moab in open session this 9th day of October 2001.

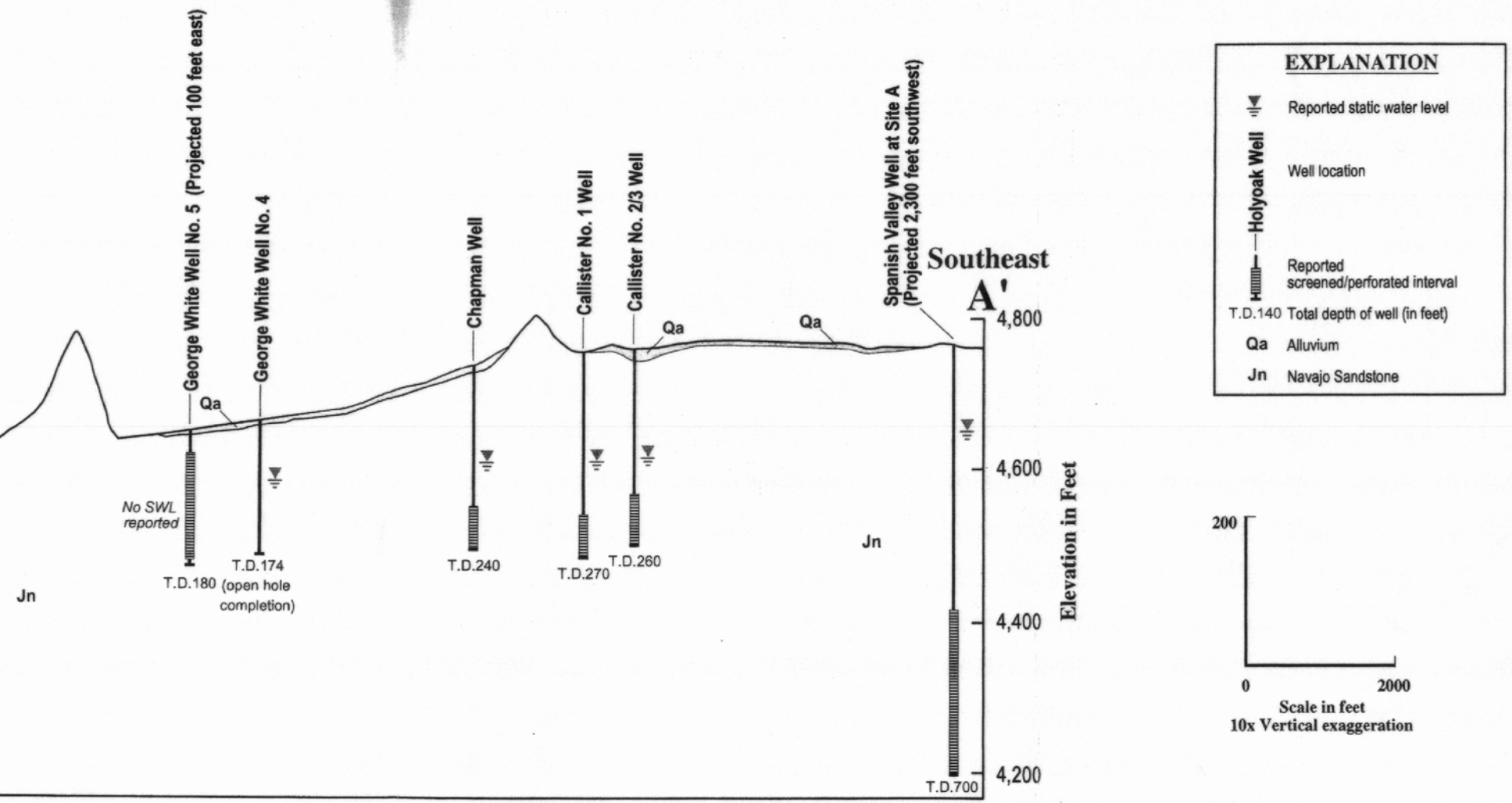
CITY OF MOAB

BY Karla R. Hancock
Mayor Karla R. Hancock

Attest:

Rachel Ellison
City Recorder


Moab City Well No. 10
Moab City Well No. 6
Moab City Well No. 7
Moab City Spring No. 1
Moab City Well No. 4
Moab City Spring No. 2
Moab City Well No. 5
Moab City Spring No. 3
DWSP Zone One is 100-foot radius around each wellhead
DWSP Zone Two (250-day TOT)
DWSP Zone Three (3-year TOT)
JOHNSONS
SPANISH VALLEY
1
2
3
4
5
6



EXPLANATION

- Reported static water level
- Holyoak Well — Well location
- Reported screened/perforated interval
- T.D.140 Total depth of well (in feet)
- Qa Alluvium
- Jn Navajo Sandstone

Scale in feet
10x Vertical exaggeration

MWH
MONTGOMERY WATSON HARZA