Water System Plan

Eastern Washington University

Cheney, Washington

2003 Update

Final Report

Prepared By

Thomas, Dean & Hoskins, Inc.
303 E. 2nd Ave
Spokane, WA 99202
March 28, 2005

Ron Hess
Eastern Washington University
Rozell Bldg, MS 101
Cheney, Washington 99004

Dear Mr. Hess:

RE: Eastern Washington University; PWS ID#21900
   Comprehensive Water System Plan; Spokane County; DOH Approval

Dear Mr. Hess:

The Eastern Washington University water system plan (WSP), was received in this office on
June 22, 2004. In response to comment letter(s) from this office, revisions were submitted on
December 20, 2004 and March 9, 2005. This office has reviewed the WSP including the
revisions and in accordance with the provisions of WAC 246-290-100, is hereby APPROVED.

Approval of this plan is valid as it relates to current standards outlined in Chapter 246-290 WAC,
revised March 2003, Chapter 246-293 WAC, revised September 1997, and is subject to the
qualifications herein. Future revisions in the rules and statutes may be more stringent and require
facility modification or corrective action.

You must update this WSP and submit it for approval on or before March 28, 2011, unless an
update or plan amendment is required, pursuant to WAC 246-290-100(9), prior to that time.

The approved WSP includes capacity information that demonstrates the physical ability of this
water system to provide water within its water right quantity limitations during the 6-year period
in which the approval of this WSP is valid.

Based upon the information supplied in the WSP, the water system has sufficient capacity to
meet the growth projections for the identified 6-year planning period. DOH will reflect this
condition by noting an “unspecified” designation for its approved number of connections on the
Water Facilities Inventory form and Operating Permit.

The Eastern Washington University water system is expected to allow additional new service
connections in a manner consistent with the water system plan so that its physical capacity
limitations are not exceeded. In addition, you remain responsible for providing service within the quantity and other limitations of your water rights. This approval does not circumvent that responsibility.

Pursuant to RCW 43.20.260, the water service to be provided by the system under the WSP for any new industrial, commercial, or residential use must be consistent with certain local plans.

Submittal of the WSP included determinations from the following local governments: The City of Cheney, and Spokane County that the service to be provided by the system under the WSP for any new industrial, commercial, or residential use is consistent with the local plans identified in RCW 43.20.260. The Department has reviewed these determinations and finds that the WSP meets local government consistency requirements for WSP approval in accordance with RCW 43.20.260.

The Department of Ecology has jurisdiction with respect to water rights determinations. Pursuant to RCW 90.03.386(1), the Department has entered into a Memorandum of Understanding with the Department of Ecology regarding joint review of water system plans. Under the MOU, Ecology generally has 60 days from the date the WSP is mailed to Ecology to review the plan and comment in writing.

This approval does not provide any guarantee and should not be considered to provide any guarantee concerning legal use of water or subsequent water rights decisions by the Department of Ecology (Ecology). Ecology’s comment letter dated June 2, 2004, is enclosed. Questions concerning water rights should be directed to the Department of Ecology.

Pursuant to RCW 43.20.260, Eastern Washington University water system now has a duty to provide water service within its retail service area according to the specifications set forth in RCW 43.20.260. This WSP provided documentation of the procedures and processes that the system intends to use to meet the duty to serve requirement of RCW 43.20.260.

Standard Construction Specifications for distribution main extensions have been approved as part of this WSP. With this approval and consistent with WAC 246-290-125(2) the Eastern Washington University water system may proceed with the installation of distribution main extensions without submitting project reports and construction documents for the new distribution mains provided that:

Eastern Washington University water system maintains on file completed construction completion reports (a copy of which is attached) in accordance with
WAC 246-290-125 (2) and WAC 246-290-120 (5) and makes them available for review upon request by DOH.

The Department of Health is not responsible for administering watershed planning requirements under RCW 90.54 or 90.82 but supports public water systems' involvement in watershed planning. Although there is no approved watershed plan in place, the Eastern Washington University water system is located in the Hangman Creek watershed (WRIA 56), an area that is actively planning. DOH encourages involvement in this process. You may contact Walt Edelen of Spokane County Conservation District for additional information related to current activities towards the development of the Hangman Creek watershed plan.

Thank you for your cooperation. DOH recognizes the significant effort and resource commitment involved in the preparation of this WSP. Spokane County and the City of Cheney are being notified of the terms and requirements of this approval and the determination of the approved number of connections. If you have any questions or wish to check our records, please contact either of us at the numbers listed below.

Sincerely,

Scott Torpie, P.E.
Regional Engineer
(509) 456-3183

Megan Harding
Regional Planner
(509) 456-2717

Encl: Letter from the Department of Ecology dated June 2, 2004
Construction Completion Report

cc: Karen Tusa, Department of Ecology, ERO Spokane
Keith Holliday, Department of Ecology, ERO Spokane
Gerard Nararra, P.E., Thomas, Dean & Hoskins, Inc.
City of Cheney Planning Department
Don LeGrou, EWU
Gene Repp, P.E., Spokane County Utilities
John Pederson, Spokane County Planning
Walt Edelen, Spokane County Conservation District
Spokane County Health District

RECEIVED
MAR 30 2005
THOMAS, DEAN & HOSKINS
SPOKANE
# INDEX

## CHAPTER 1: Description of Water System
1.1 Ownership and Management ................................................................. 1  
1.2 System Background ........................................................................ 1  
1.3 Inventory of Existing Facilities ......................................................... 3  
1.4 Related Plans .................................................................................. 3  
1.5 Existing Service Area ..................................................................... 3  
1.6 Future Service Area ....................................................................... 4  
1.7 Service Area Agreements ............................................................... 4  
1.8 Service Area Policies ..................................................................... 4  
1.9 Conditions of Service ................................................................. 4  
1.10 Complaints .................................................................................. 5  

Figure 1-1 EWU Vicinity Map

## CHAPTER 2: Basic Planning Data And Water Demand Forecasting
2.1 Current Population, Service Connections, Water Use, and Equivalent Residential Units ........................................................................ 6  
2.2 Future Projections ......................................................................... 12  

Figure 2-3. EWU Service Area Map

## CHAPTER 3: System Analysis
3.1 System Design Standards ............................................................... 20  
3.2 Water Quality Analysis ................................................................ 20  
3.3 System Description and Analysis .................................................. 21  
3.4 Summary of Deficiencies ............................................................... 28  
3.5 Proposed Improvements ............................................................... 30  

Figure 3-2 Network Model Node Map

## CHAPTER 4: Conservation, Water Rights, System Reliability and Interties
4.1 Conservation Program Development and Implementation .............. 32  
4.3 Water Right Evaluation ................................................................ 34  
4.4 Source Reliability ......................................................................... 37  
4.5 Interties ....................................................................................... 37  

## CHAPTER 5: Source Water Protection

## CHAPTER 6: Operation and Maintenance Program
6.1 Water System Management and Personnel .................................... 40  
6.2 Operator Certification ................................................................... 40  
6.3 System Operation and Control ....................................................... 40  
6.4 Comprehensive Monitoring Plan .................................................. 43  
6.5 Emergency Response Program ..................................................... 44  
6.6 Safety Procedures ....................................................................... 46
6.7 Cross-Connection Control Program ..........................................................46
6.8 Customer Complaint Response .................................................................47
6.9 Record Keeping and Reporting .................................................................48

Figure 6-1. University Directors
Figure 6-2. Facilities Maintenance
Figure 6-3. Facilities Planning
Figure 6-4. Human Resources - Office of Risk Management

CHAPTER 7: Distribution Facilities Design and Construction Standards ............49

CHAPTER 8: Improvement Program
8.1 Improvements ............................................................................................50

Figure 8-1 Proposed Network Map

CHAPTER 9: Financial Program
9.1 Operating Income ........................................................................................52
9.2 Annual Operation and Maintenance Expenses ...........................................52
9.3 Revenue Plan for All Expenses ...................................................................53

APPENDIX 1:
Item A. DOH Water Facilities Inventory (WFI)
Item B. EWU – Cheney Intertie Agreement
Item C. EWU – Cheney Storage Reservoir Agreement
Item D. Spokane Coordinated Water Plan Service Area Agreement

APPENDIX 2:
Item A. EWU Master Plan Improvements List
Item B. EWU Reservoir Level Data

APPENDIX 3:
Item A. EWU Construction Specifications
Item B. EWU Wells Logs
Item C. Pump Curves for Wells 1 & 2
Item D. Campus Utility Maps
Item E. Computer Model Data & Contour Maps
Item F. Well Contamination
Item G. Fire Department E-Mail

APPENDIX 4:
Item A. Water Rights Certificates
Item B. Water Conservation Program Checklists
Item C. Water Supply Alternatives Comparison
Item D. DOH Water Reclaim Checklist
Item E. Well Contamination
Item F. Fire Department E-mail
Item G. DOE Water Right Review

APPENDIX 5:
Item A. Wellhead Protection Study
Item B. Notification to Owners of Potential Contaminant Sources
Item C. Notification to Regulatory Agencies and Local Governments
Item D. Notification to Local Emergency Responders
Item E. Contingency Plan
Item F. Spill/Incident Response
Item G. Wellhead Protection Implementation

APPENDIX 6:
Item A. Water Quality Monitoring Requirements
Item B. Water Quality Analysis Reports
   -S01
   -S02
   -Lead & Copper
Item C. Coliform Sampling Plan
Item D. EWU Cross Connection Control Program
Item E. Work Orders and Complaints
Item F. 2002 Consumer Confidence Report
Item G. Draft Emergency Plan Excerpts
Item H. Electrical Diagrams

APPENDIX 7:
(No Inserts)

APPENDIX 8:
(No Inserts)

APPENDIX 9:
(No Inserts)

APPENDIX 10:
Item A. Consistency Statement Checklist and Confirmation Correspondence
Item B. Municipal Water Law System Plan Checklist
Item C. SEPA
Item D. Determination of Nonsignificance
Item E. Publication Confirmation
Item F. DOH approval letter
GLOSSARY

AC = Asbestos-cement pipe (a.k.a. Transite pipe)
ADD = Average Daily Demand for a water system, (gallons per day).
ANSI = American National Standards Institute
APWA = American Public Works Association
ASCE = American Society of Civil Engineers
ASME = American Society of Mechanical Engineers
ASTM = American Society for Testing and Materials
AWWA = American Water Works Association
BAT = Backflow Assembly Tester
C = Multiplicative Coefficient used in the general equation to determine PHD.
CTU = Central Terminal Unit
DOH = Washington State Department of Health (Division of Drinking Water)
EPA = Environmental Protection Agency
ERU = Equivalent Residential Unit
ES = Equalizing Storage or the portion of a system’s storage that is used for those periods when the source capacity can not meet the system demands, (gallons).
EWU = Eastern Washington University
F = Additive factor used in the general equation to determine PHD.
FOMS = Facility Operation and Maintenance Specialist
FSS = The amount of storage designated for fire suppression purposes for a system, (gallons).
gpd = gallons per day
gpm = gallons per minute
HOA = Hand, Off, Automatic Switch
HVAC = Heating, ventilation, and air conditioning
IBC = International Building Code
IOC = Inorganic chemical
MCL = Maximum Contaminant Level
MDD = Maximum Daily Demand for a water system, (gallons per day).
N = Number of ERU’s for any individual water system.
OS = Operational storage volume for pump motor protection and level controls.
OSHA = Occupational Safety and Health Administration/Act
PE = Professional Engineer
PHD = Peak Hourly Demand for a water system, (gallons per minute)
PRV = Pressure Reducing Valve
psi = pounds per square inch
psig = pounds per square inch, gauge
Qa = Annual withdrawal from a water source as applied to water rights determinations, (acre-feet per year)
Qi = Instantaneous rate of withdrawal from a water source as applied to water rights determinations, (gallons per minute).
QL = The flow rate of the source that is the largest of all sources available to the system, (gallons per minute).
Qs = Total flow capacity of all installed sources of supply, except emergency sources (gallons per minute).
RM = Office of Risk Management
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCW</td>
<td>Revised Code of Washington (state statutes)</td>
</tr>
<tr>
<td>SB</td>
<td>Standby Storage for a system, (gallons).</td>
</tr>
<tr>
<td>SDWA</td>
<td>Safe Drinking Water Act</td>
</tr>
<tr>
<td>SEPA</td>
<td>State Environmental Policy Act</td>
</tr>
<tr>
<td>SOC</td>
<td>Synthetic Organic Chemical or Compound</td>
</tr>
<tr>
<td>UL</td>
<td>Underwriters Laboratory</td>
</tr>
<tr>
<td>UPC</td>
<td>Uniform Plumbing Code</td>
</tr>
<tr>
<td>USGS</td>
<td>United States Geological Survey</td>
</tr>
<tr>
<td>VOC</td>
<td>Volatile Organic Chemical or Compound</td>
</tr>
<tr>
<td>WAC</td>
<td>Washington Administrative Code (state regulations)</td>
</tr>
<tr>
<td>WFI</td>
<td>Water Facility Inventory and Report Form (DOH form)</td>
</tr>
<tr>
<td>WSDOT</td>
<td>Washington State Department of Transportation</td>
</tr>
</tbody>
</table>