

## ADDENDUM A

### LEVEL

Reflects updated information received on January 16, 2009, for Questions 10 through 17.

1. For what state, do your responses apply?
Texas
2. Please consider throughout the survey that (1) the interest is in identifying monitoring networks that are NOT targeted to known contaminated sites, e.g. Superfund sites and (2) the term "regional" is meant to refer to monitoring networks that cover large, multi-county areas within a state. Given points 1 and 2, does your state have: (check all that apply)
A state-wide ground water level monitoring network
One or more regional (large, multi-county area within the state) ground water level monitoring networks
3. Please select one from the following list. Then answer questions 4 through 24 based on the specific network you selected. If you are responsible for both a state-wide and regional ground water level monitoring network and do not have time to take the survey twice to cover both, we ask that you complete the survey for the state-wide network.
State-wide ground water level monitoring network
4. Please indicate whether the existing state-wide/regional ground water level monitoring network IS INTENDED TO provide ground water level data to answer the following questions: (check all that apply)
What are the trends in ground water levels over time? How/why do ground water levels change over time? What is the current background (ambient) ground water level condition?
5. Please indicate whether the existing state-wide/regional ground water level monitoring network COULD BE USED to answer the following questions: (check all that apply)
What are the trends in ground water levels over time? How/why do ground water levels change over time? What is the current background (ambient) ground water level condition?
6. Who manages the state-wide/regional ground water level monitoring network? (check all that apply)
Texas Water Development Board
7. How is the state-wide/regional ground water level monitoring network funded?
Mostly state and/or county and/or local government funds
8. Is the state-wide/regional ground water level monitoring network designed based on: (check all that apply)
Aquifer based Based on political subdivisions of the state amount of pumpage per aquifer per county

## ADDENDUM A

9. What wells or other observation points are used for the state-wide/regional ground water level monitoring network? (check all that apply)

Domestic wells or other private wells

Irrigation wells

Public water supply wells

Unused water quality monitoring wells

10. (NOTE: Questions 10-17 are designed to determine the number of wells or observation points in your network, the frequency of measurement, and the length of available historic record. Please respond with that in mind.) Responses for TOTAL WELLS OR OBSERVATION POINTS IN YOUR NETWORK:

**Total wells or observation points measured**  
8790

**Total wells or observation points with at least 5 years of measurements**  
7614

11. Responses for WELLS OR OBSERVATION POINTS MEASURED AT LEAST ONCE PER YEAR:

**Total wells or observation points measured**  
8523

**Total wells or observation points measured with at least 5 years of measurements**  
7386

12. Responses for WELLS OR OBSERVATION POINTS MEASURED AT LEAST TWICE PER YEAR (SEMI-ANNUAL):

**Total wells or observation points measured**  
5

**Total wells or observation points with at least 5 years of measurements**  
5

13. Responses for WELLS OR OBSERVATION POINTS MEASURED AT LEAST 4 TIMES PER YEAR (QUARTERLY):

**Total wells or observation points measured**  
50

**Total wells or observation points with at least 5 years of measurements**  
45

14. Responses for WELLS OR OBSERVATION POINTS MEASURED AT LEAST MONTHLY:

**Total wells or observation points measured**  
30

**Total wells or observation points with at least 5 years of measurements**  
27

## ADDENDUM A

15. Responses for WELLS OR OBSERVATION POINTS MEASURED AT LEAST WEEKLY:

**Total wells or observation points measured**

68

**Total wells or observation points with at least 5 years of measurements**

61

16. Response for WELLS OR OBSERVATION POINTS MEASURED AT LEAST DAILY (INSTRUMENTED):

**Total wells or observation points measured**

114

**Total wells or observation points with at least 5 years of measurements**

90

17. Responses for WELLS OR OBSERVATION POINTS MEASURED AT LEAST DAILY, AND AVAILABLE IN "REAL TIME":

**Total wells or observation points measured**

the same 114 as in question 16

**Total wells or observation points with at least 5 years of measurements**

the same 90 as in question 16

18. Who collects ground water level data for the state-wide/regional ground water level monitoring network? (check all that apply)

State government employees

Regional or local government employees

Water providers

USGS staff

GCDs

## ADDENDUM A

19. What information is typically available for wells or observation points in the state-wide/regional ground water level monitoring network? (check all that apply)

Well number/name	Pump horsepower
County code	Primary water use
Latitude/Longitude	Secondary water use
Source of coordinates	Water level available
Owner	Water quality available
Driller	Measuring point information
Aquifer code	Well log available
Land surface elevation	Construction method
Method of measuring elevation	Completion method
User code	Screen material
Date drilled	Depth of open or screened interval
Well type	Casing material
Well depth	Casing depths
Source of depth	Casing diameter
Type of pump	we're beginning to take photos
Type of power for the pump	

20. The written Standard Operating Procedures (SOP's) used for FIELD DATA COLLECTION for the state-wide/regional ground water level monitoring network were developed by: (check all that apply)

State government

21. The written Standard Operating Procedures (SOP's) used for DATA MANAGEMENT AND STORAGE for the state-wide/regional ground water level monitoring network were developed by: (check all that apply)

State government

22. Are the data collected for the state-wide/regional ground water level monitoring network routinely entered/maintained in a computer data base?

Yes

23. Are the data available on a website accessible to the public?

a. Yes, all data

24. If you are NOT the contact person for additional information on the state-wide/regional ground water level monitoring network, please provide his/her contact information below.

## ADDENDUM A

25. Contact information for the person completing this survey.

<b>Name</b> Janie Hopkins	<b>State</b> Texas
<b>Agency</b> Texas Water Development Board	<b>Zip</b> 78711-3231
<b>Address</b> PO Box 13231	<b>Phone</b> 512.936.0841
<b>City</b> Austin	<b>Email</b> janie.hopkins@twdb.state.tx.us

26. Are you aware of other individuals who may be able to provide information on other ground water level monitoring programs in your state, either state-wide or regional? If so, please provide name and contact information.

**Name**  
Dana Barbie

**Agency**  
US Geol. Sur.

**Phone**  
512.927.3510

**Email**  
dlbarbie@usgs.gov

27. Please share any additional comments on state-wide or regional ground water level monitoring networks in your state?

The TWDB encourages groundwater conservation districts to measure and send us their data. We provide informal training when we are in their counties, and we've conducted two workshops that have included data collection, particularly emphasizing their abilities to take over our observation well measuring and to measure more wells and more frequently than we do. As the districts begin to figure things out, they are generally able to take over, but not always. We had about 15 districts giving us data in 1997; now we have more than 30.

## ADDENDUM A

### QUALITY

Reflects updated information received on January 16, 2009, for Questions 10 through 17.

1. For what state, do your responses apply?

Texas

2. Please consider throughout the survey that (1) the interest is in identifying monitoring networks that are NOT targeted to known contaminated sites, e.g. Superfund sites; and (2) the term "regional" is meant to refer to monitoring networks that cover large, multi-county areas within a state. Given points 1 and 2, does your state have: (check all that apply)

A state-wide ground water quality monitoring network  
A state-wide ground water quality monitoring network is being considered for development  
One or more regional (large, multi-county area within the state) ground water quality monitoring networks  
An interstate ground water quality monitoring network, a portion of which is in the state  
WQ studies in the Ogallala by USGS for last type

3. Please select one from the following list. Then answer questions 4 through 25 based on the specific network you selected. If you are responsible for both a state-wide and regional ground water quality monitoring network and do not have time to take the survey twice to cover both, we ask that you complete the survey for the state-wide network.

State-wide ground water quality monitoring network

4. Please indicate whether the existing state-wide/regional ground water quality monitoring network is INTENDED TO PROVIDE ground water quality data to answer the following questions: (check all that apply)

What is the extent of ground water contamination?  
What are the trends in ground water quality over time?  
How/why does a specific ground water quality parameter change over time?  
What is the current background (ambient) quality?  
What are the impacts to ground water quality due to over-pumping of aquifers?  
What is the age of ground water within an aquifer?  
What type(s) of uses (e.g. domestic, irrigation, livestock, industrial, etc.) is ground water suitable for?  
gw NATURAL contamination

## ADDENDUM A

5. Please indicate whether the existing state-wide/regional ground water quality monitoring network COULD BE USED to answer the following questions: (check all that apply)

How effective are ground water permitting programs in protecting water quality?  
How effective are protection programs in source water protection areas?  
What is the extent of ground water contamination?  
What are the trends in ground water quality over time?  
What are the effects of drought/climate change?  
How/why does a specific ground water quality parameter change over time?  
What is the current background (ambient) quality?  
What are the impacts to ground water quality due to over-pumping of aquifers?  
What is the age of ground water within an aquifer?  
What is the ground water quality contribution to surface water, and vice versa?  
What type(s) of uses (e.g. domestic, irrigation, livestock, industrial, etc.) is ground water suitable for?

6. Who manages the state-wide/regional ground water quality monitoring network? (check all that apply)

Texas Water Dev. Bd. a nonregulatory bank of sorts

7. How is the state-wide/regional ground water quality monitoring network funded?

state & CWSRF (fed) funds through the state

8. Is the state-wide/regional ground water quality monitoring network designed based on: (check all that apply)

Aquifers

Political subdivisions of the state

amount of pumpage

9. What wells or other observation points are used for the state-wide/regional ground water quality monitoring network? (check all that apply)

Domestic wells and/or other private wells

Irrigation wells

Public water supply wells

Springs

Unused water level observation wells

some industrial

10. (NOTE: Questions 10-17 are designed to determine the number of wells or observation points in your network, the frequency of measurement, and the length of available historic record. Please respond with that in mind.) Responses for TOTAL WELLS OR OBSERVATION POINTS IN YOUR NETWORK:

**Total wells or observation points measured**

approximately 3,000 every 4 years or 750 yearly

**Total wells or observation points with at least 5 years of measurements**

approximately 200

## ADDENDUM A

11. Responses for WELLS OR OBSERVATION POINTS MEASURED AT LEAST ONCE PER YEAR:

**Total wells or observation points measured**  
approximately 750

**Total wells or observation points measured with at least 5 years of measurements**  
approximately 220

12. Responses for WELLS OR OBSERVATIONS POINTS MEASURED AT LEAST TWICE PER YEAR (SEMI-ANNUAL):

**Total wells or observations points measured**  
0

**Total wells or observation points with at least 5 years of measurements**  
0

13. Responses for WELLS OR OBSERVATION POINTS MEASURED AT LEAST 4 TIMES PER YEAR (QUARTERLY):

**Total wells or observation points measured**  
0

14. Responses for WELLS OR OBSERVATION POINTS MEASURED AT LEAST MONTHLY:

**Total wells or observation points measured**  
0

**Total wells or observation points with at least 5 years of measurements**  
0

15. Responses for WELLS OR OBSERVATION POINTS MEASURED AT LEAST WEEKLY:

**Total wells or observation points measured**  
0

**Total wells or observation points with at least 5 years of measurements**  
0

16. Responses for WELLS OR OBSERVATION POINTS MEASURED AT LEAST DAILY (INSTRUMENTED):

**Total wells or observations points measured**  
0

**Total wells or observation points with at least 5 years of measurements**  
0

17. Responses for WELLS OR OBSERVATION POINTS MEASURED AT LEAST DAILY, AND AVAILABLE IN "REAL TIME":

**Total wells or observation points measured**  
0

**Total wells with at least 5 years of measurements**  
0

## ADDENDUM A

18. What analytes are included in the state-wide/regional ground water quality monitoring network? (check all that apply)

Basic field and unstable parameters (e.g. pH, temperature, conductivity, DO)  
 Major cations and anions (e.g. Ca, Mg, NA, K, SO<sub>4</sub>, Cl, HCO<sub>3</sub> + CO<sub>3</sub>)  
 Minor and trace metals (e.g. Fe, Mn, Ni, Cu)  
 Nutrients (e.g. nitrate, phosphate, etc.)  
 Radionuclides and daughter products (e.g. uranium, radon)  
 Pesticides and herbicides (e.g. atrArizonaine, metolachlor)  
 only collect for atrArizonaine & metolachlor

19. Who collects ground water quality data for the state-wide/regional ground water quality monitoring network? (check all that apply)

State agency employees  
 Regional or local government employees  
 USGS staff  
 USGS, if paid, so not really network, some GCD's

20. What information is typically available for wells or observation points in the state-wide/regional ground water quality monitoring network? (check all that apply)

Well number/name	Well depth
County code	Sampled using pump
Latitude/Longitude	Sampled using bailer
Other locational data	Primary water use
Owner	Water level available
Driller	Well log available
Aquifer code	Construction method
Land surface elevation	Completion method
SOP or protocols for sampling	Casing material
User code	Screen material
Date drilled	Depth of open or screened interval
Well type	land use sometimes, not all screened info available

21. The written Standard Operating Procedures (SOP's) used for FIELD DATA COLLECTION for the state-wide/regional ground water quality monitoring network were developed by: (check all that apply)

State government

relying on USGS methods

22. The written Standard Operating Procedures (SOP's) used for DATA MANAGEMENT AND STORAGE for the state-wide/regional ground water quality monitoring network were developed by: (check all that apply)

State government

23. Are the data collected for the state-wide/regional ground water quality monitoring network routinely entered/maintained in a computer data base?

## ADDENDUM A

Yes

## ADDENDUM A

24. Are the data available on a website accessible to the public?

a. Yes, all data

25. If you are NOT the contact person for additional information on the state-wide/regional ground water quality monitoring network, please provide his/her contact information below.

26. Contact information for the person completing this survey.

**Name**

Janie Hopkins

**Agency**

Texas Water Development Board

**Address**

PO Box 13231

**City**

Austin

**State**

Texas

**Zip**

78711-3231

**Phone**

512.936.0841

**Email**

janie.hopkins@twdb.state.tx.us

27. Are you aware of other individuals who might be able to provide information on other ground water quality monitoring programs in your state, either state-wide or regional? If so, please provide name and contact information.

28. Please share any additional comments on state-wide or regional ground water quality monitoring networks in your state?

I'll leave in answers for 4 - 17, but I answered as if for WATER LEVEL MEASURING. --So, to answer 4 - 17 for Water Quality SAMPLING:

Overall network is currently 2500, of which 100 to 150 are sampled no more frequently than once a year and approximately 650 are sampled once every four years. Of the 100 to 150, approx. 75% have 5 years or more of analyses. Of the other 2350 to 2400, approx. 15 - 20% have 5 years or more of analyses.

However, we do have 55,333 wells with analyses (with 15-20% of these having 5 or more years of analyses).