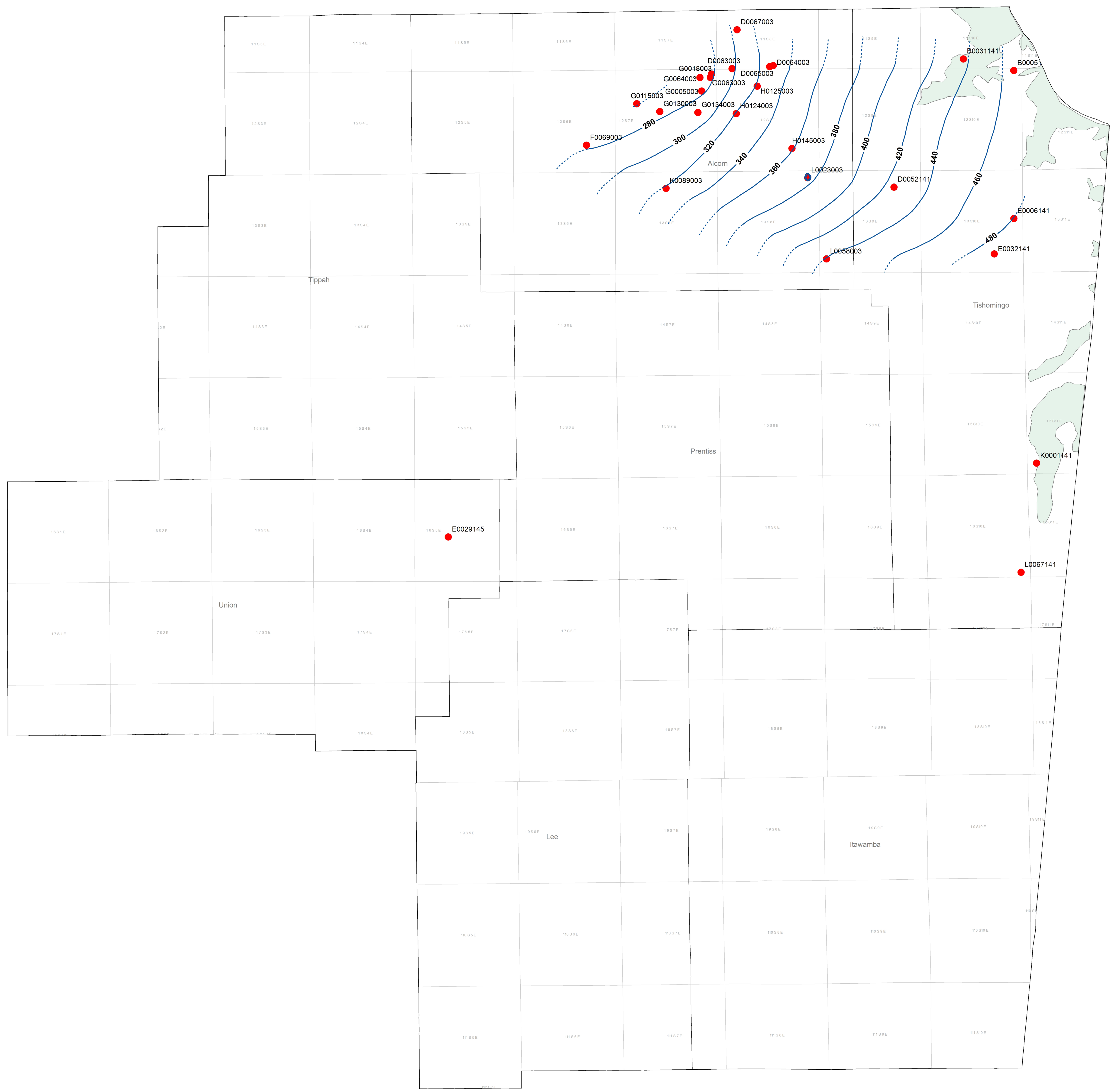
OLWR Hydrologic Map 11-3

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF LAND AND WATER RESOURCES



POTENTIOMETRIC MAP OF THE PALEOZOIC AQUIFERS IN NORTHEASTERN MISSISSIPPI 2008 TO 2009

John V. Banks, RPG
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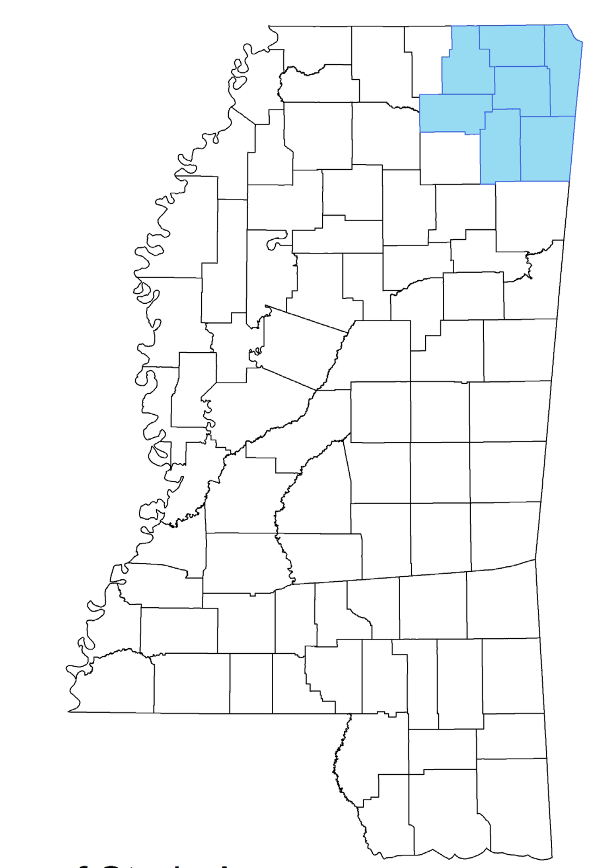

Location of Study Area

County	Well Number	Head Value in Feet Relative to MSL	Owner	Date Measured	County	Well Number	Head Value in Feet Relative to MSL	Owner	Date Measured
ALCORN	D0063003	294.87	CORINTH, CITY OF	6/1/2008	ALCORN	H0125003	321.05	FARMINGTON WA	7/9/2008
ALCORN	D0064003	328.65	CORINTH, CITY OF	6/1/2008	ALCORN	H0145003	359.00	ALCORN CO BRD OF SUPV	11/5/2008
ALCORN	D0065003	330.60	CORINTH, CITY OF	6/1/2008	ALCORN	K0089003	321.50	ALCORN CO WA	11/6/2008
ALCORN	D0067003	304.77	CORINTH, CITY OF	6/1/2008	ALCORN	L0023003	339.50	ALCORN CO WA	11/6/2008
ALCORN	F0069003	278.60	KOSSUTH WA	11/6/2008	ALCORN	L0058003	441.50	ALCORN CO WA	11/6/2008
ALCORN	G0005003	271.37	CORINTH, CITY OF	6/1/2008	TISHOMINGO	B0005141	468.20	SHORT COLEMAN PARK WA	10/1/2008
ALCORN	G0018003	276.23	CORINTH, CITY OF	6/1/2008	TISHOMINGO	B0031141	436.48	SHORT COLEMAN PARK WA	10/1/2008
ALCORN	G0063003	277.84	CORINTH, CITY OF	6/1/2008	TISHOMINGO	D0052141	424.45	BURNSVILLE, TOWN OF	9/30/2008
ALCORN	G0064003	268.00	CORINTH, CITY OF	6/1/2008	TISHOMINGO	E0006141	480.00	IUKA, TOWN OF	10/1/2008
ALCORN	G0115003	258.70	KOSSUTH WA	11/6/2008	TISHOMINGO	E0032141	486.90	USACE	9/2/2009
ALCORN	G0130003	275.25	CORINTH, CITY OF	6/1/2008	TISHOMINGO	K0001141	440.35	TISHOMINGO STATE PARK	9/2/2009
ALCORN	G0134003	259.77	CORINTH, CITY OF	6/1/2008	TISHOMINGO	L0067141	474.98	BELMONT, TOWN OF	9/17/2008
ALCORN	H0124003	320.77	CORINTH, CITY OF	6/1/2008	UNION	E0029145	278.80	KEOWNVILLE WA	5/14/2009

Legend

Potentiometric Contour — *Contour interval is 20 feet. Datum is sea level.*

Observation Well

Outcrop Area of Paleozoic Formations

N

1:240,000

0 2 4 8 12 16 Miles

Basic Overview and Proper Uses of Potentiometric Maps

Groundwater occurs under unconfined and confined conditions in aquifers. In cases where water only partially fills an aquifer, the water surface is free to rise and fall, and the water is unconfined. Wells that are screened in unconfined aquifers are water-table wells, and the water level in them indicates the position of the water table in the surrounding aquifer. Water levels in wells in unconfined aquifers are subject to the influences of topography, geology, and climate that are highly localized and site-specific. Any attempt to accurately depict the surface of the zone of saturation in an unconfined aquifer beyond a very limited area would require such a large number of control points as to be impractical. In cases where water completely fills an aquifer that is overlain by a confining bed so that the water is under pressure greater than atmospheric pressure, the aquifer is confined.

Wells that are screened in confined aquifers are artesian wells, and the water level in such wells will stand at some height above the top of the aquifer but will not necessarily rise above land surface. The static water levels in tightly cased wells screened in confined aquifer represent the level of the potentiometric surface of the aquifer.

A Potentiometric map of a confined aquifer is a depiction of the pressure in the aquifer. This pressure is measured by the height to which water from a given aquifer rises above the top of the aquifer. Such a map is of value to anyone who is interested in the development of water supplies. A potentiometric map can be utilized in conjunction with land surface altitude to estimate the minimum depth necessary for a pump to be installed in a well to produced water at a given location. By comparing the potentiometric surface with the altitude of the top of the aquifer, available drawdown can be estimated at a given location. Analysis of the configuration of equipotential contours (lines of equal water-level altitude) can be useful in determining areas of recharge and discharge, general directions of groundwater flow, and areas of significant drawdown in response to large withdrawals of water. The general direction of groundwater flow is perpendicular to the contours in the direction of decreasing hydraulic heads. A potentiometric map is not a depiction of depth-to-water and should not be utilized for such a purpose.

The potentiometric map is based upon limited water-level data and is not intended to be a substitute for site-specific information. The map is intended to provide a generalized regional description of water levels. One limitation in application of this map is related to the degree to which water levels measured in the wells represent true static water levels. Most of the water-level measurements were from active production wells. Although some pumps may have been turned off for several hours or days prior to measurement of water levels, most pumps were turned off for as little as fifteen minutes to two hours to allow water levels to recover from pumping levels. Furthermore, pumping from nearby wells may have continued, thus influencing water levels at the measured well. A second limitation is related to the complexity of the configuration of the water-bearing sand bodies that comprise a major aquifer system. More than one sand bed may be present within the interval that is considered to constitute a particular aquifer. These sand beds may be vertically separated by beds of clay, resulting in hydraulic isolation and different static water levels for the individual sands within the aquifer at a specific location; however, they may be hydraulically interconnected on a scale covering a larger area. As a result, a well screened in a sand bed other than that from which data was collected for this report could have water levels different that those indicated on the map.