SURFICIAL GEOLOGY OF THE MIDDLE ILLINOIS RIVER VALLEY Institute of Natural Resource Sustainability William W. Shilts, Executive Director ILLINOIS STATE GEOLOGICAL SURVEY Bureau, Marshall, Peoria, Putnam, and Woodford Counties, Illinois E. Donald McKay III, Director Illinois Map 16 E. Donald McKay III, Richard C. Berg, Andrew J. Stumpf, and C. Pius Weibel 2010 **QUATERNARY DEPOSITS** Geologic material description Occurrence and interpretation HUDSON EPISODE (0 to ~12,000 years before present [B.P.]) Areas of disturbed earth and/or Deposits disturbed or modified removed earth; grain size ranges by human activity in gravel pits, from clay to gravel and may include coal mine spoil banks, earthen waste or other rubble dams, other excavations, and BUREAU CO PUTNAM CO Peat, organic silt, and muck, Peat; organic-rich deposits in stratified, dark gray to black, soft abandoned channels, shallow and compressible; may be interoxbow lakes, and low-lying depresbedded with silt, fine sand, and clay; sions on modern floodplain of overlies Cahokia Formation; less Illinois River; subject to frequent than 5 feet thick Silt and clay with local surface Cahokia Formation Alluvium (river sediment); postglacial overbank deposits on occurrences of sand and gravel; floodplain facies floodplains, natural levees, and in typically grades at depth to sand or c(fp) sand and gravel, which may be backwater lakes; coarse deposits in indistinguishable from Henry channels, point bars, and tributary Formation; stratified, brownish gray to gray; 5 to 50 feet thick Silt and silty clay, interbedded Alluvial fan deposits; postglacial Cahokia Formation with fine sand, and locally gravel stream sediment derived largely alluvial fan facies and redeposited bedrock clasts; from erosion of loess and till and brownish soft to moderately stiff deposited in fans where streams gray; calcareous or non-calcareous; and ravines emerge from uplands typically overlies Cahokia or Henry onto low-slope valley floors; subject Formations; 5 to 30 feet thick to flooding Silt, clay, sand, gravel, and Slopewash, talus, rockfall, and slump deposits on or at base of diamicton; unstratified to crudely stratified; yellowish brown to steep slopes in small coalescing brownish gray; may include bedrock fans along bluff of Illinois River clasts; overlies Cahokia, Henry, or valley; postglacial; may be poorly older glacial drift or bedrock; 5 to 25 consolidated and unstable Senachwine Lake WISCONSIN EPISODE (~12,000 to 75,000 years B.P.) Silt, silt loam, and silty clay loam; Loess; proglacial wind-transported Peoria Silt silt derived by wind erosion from unstratified to massive; yellowish (cross section only) brown to grayish brown; soft; lower source surfaces in Illinois River part calcareous and may contain valley; blankets uplands, decreasing fossil snails; conformably overlies in thickness with greater distance Batestown Member, Tiskilwa from valley; generally absent from Formation, or Henry Formation; 5 to terraces, floodplains, and alluvial 15 feet thick fans along Illinois River and from steep slopes gray to olive-green; calcareous; may deposits; fills channels or depres-(cross section only) contain beds of diamicton, sand, or sions on outwash plains; may е gravel and wood fragments and interfinger or be overlain by alluvial shells; typical thickness 5 to 40 feet and slopewash deposits PUTNAM CO 277 (outcrop) MARSHALL CO Sand dunes, dune fields, and Sand, very fine to fine, well Henry Formation sorted, and loose; weakly (Parkland facies) sheet deposits of sand formed by the erosion of underlying outwash stratified, yellowish brown to grayish redeposited locally on Illinois River brown; calcareous in lower part; conformably overlies Henry valley terraces and uplands; Formation; 5 to 15 feet thick proglacial and postglacial origins - 302 (outcrop) Sand and gravel with cobbles Henry Formation Fluvial (river-deposited) and and boulders; stratified; yellowish ice-marginal outwash deposits in brown to grayish brown; calcareous; Illinois River valley in terraces, usually clean and moderately well former bars and channels, and locally in terraces along tributaries sorted; occasional beds of silt and clay; unconformably overlies older to Illinois River; deposited proglasand and gravel deposits, glacial cially by meltwater from distant diamictons, or bedrock; 10 to 20 glaciers; not consistently differentiable from Pearl Formation where feet thick in uplands and tributaries and 10 to 80 feet thick in Illinois intervening tills are absent River valley — 303 (outcrop) PUTNAM CO Pebbly silty clay loam diamicton; Batestown Member Till and associated sediment MARSHALL CO derived directly from glacial ice; unstratified; olive-brown (oxidized) Lemont Formation to grayish brown (unoxidized); firm overlain by thin covering of loess; to hard; compact; calcareous; occurs east of the western edge of massive to jointed; some cobbles, the Eureka Moraine (cross section few boulders; discontinuous beds of buried by >5 feet of Peoria Silt C-D); absent in the Illinois River sand, gravel, silt, or clay; unconvalley and tributary valleys where p/l-b formably overlies Dry Creek tongue, removed by postglacial erosion Tiskilwa Formation, or older units; 5 to 35 feet thick Sand and gravel with cobbles; Fluvial and ice-marginal outwash Dry Creek tongue poorly sorted; yellowish brown to Henry Formation deposits in channel fills and along grayish brown; calcareous; former glacial margins; exposed on steep slopes, in excavations, and in cemented in places with calcite; grades laterally into fine-grained the abandoned gravel pits along Dry Creek, SW1/4 NW1/4 Sec. 11, stratified sediments; unconformably overlies Tiskilwa Formation; 5 to 30 T28N, R3W, Woodford County Pebbly loam diamicton; unstrati-Till and associated sediment Tiskilwa Formation fied, reddish brown (oxidized) to derived directly from glacial ice; dark brownish gray with distinctive exposed in gullies, excavations, and reddish cast (unoxidized); firm to along steep slopes where overlying hard, calcareous; some cobbles; Peoria Silt and Batestown Member buried by >5 feet of Peoria Silt have been eroded; occurs throughfew boulders; includes discontinuous beds of stratified sand, silt, or out the uplands of the area and clay; lower 5 to 30 feet commonly locally in the Illinois River valley where not removed by postglacial more silty than upper part, usually lacks reddish cast and may contain erosion; where lower part of the unit dispersed wood fragments and Delavan Member is gray, the Delavan Member is gastropod shells; unconformably (cross sections only) differentiated; may include Peyton overlies Ashmore Tongue, Morton Formation deposits that were too Tongue, Roxana Silt, or older small to be mapped at this scale deposits; 25 to 120 feet thick Fine to coarse sand, sand and Ashmore Tongue Fluvial and ice-marginal outwash deposits in former bars and gravel; occasional cobbles; channels of Ancient Mississippi yellowish brown to grayish brown; calcareous; few boulders; water River; deposited by meltwater from saturated; occasional armored "till advancing Wisconsin Episode balls" in the upper part; calciteglacier in the Princeton and Middle cemented in places; overlies Morton Illinois Bedrock Valleys (Berg et al. Tongue, Pearl Formation, Radnor 2009); also sheets and channel fills Member, or bedrock; 5 to 100 feet beneath Tiskilwa diamicton; widespread in subsurface; differentiated from rest of Henry Formation in Illinois River valley where Tiskilwa Formation occurs; not consistently differentiable from underlying Pearl Formation where intervening tills MARSHALL CO are absent 23493 PEORIA CO Silt and silt loam; massive to Loess; Morton Tongue of Peoria Morton Tongue crudely stratified; yellowish brown Peoria Silt Silt (upper part of map unit); (oxidized) to brownish gray and Roxana Silt proglacial eolian dust deposited on a former land surface as Wisconsi and in places jointed; may contain Episode glacier advanced into fossil snails, humus, and/or wood; upper reaches of the Ancient conformably overlies the Roxana Missisippi River watershed; locally Silt; 3 to 6 feet thick organic-rich; widespread, but locally preserved in the subsurface Silt, silt loam, and sandy silt; Loess and peat; Roxana Silt (lower massive to crudely stratified, part of map unit); proglacial eolian reddish brown (oxidized) to gray or dust containing a weakly developed greenish gray (gleyed) or black; paleosol (Farmdale Geosol) on a leached to weakly calcareous; often former land surface; includes peat containing humus, wood, or peat where deposited in poorly drained (Robein Member); conformably areas or silty slopewash sediment overlies Pearl Formation or Radnor where deposited on or near slopes; Member; 3 to 8 feet thick originally widespread but only locally preserved in subsurface ILLINOIS EPISODE (~130,000 to 200,000 years B.P.) Fine to coarse sand, sand and Pearl Formation Fluvial and ice-marginal outwash deposits in former bars and gravel, and cobbles; yellowish (cross section only) channels of Ancient Missisippi River brown to grayish brown; calcite cemented in places; unconformably and on uplands; deposited by overlies and intertongues with meltwater from Illinois Episode Radnor Member, Hulick Member, or glaciers; occurs above and Kellerville Member; may overlie intertongued with Glasford Formation; three tongues are widespread bedrock; upper part weathered in profile of Sangamon Geosol; 2 to 20 in the subsurface in Ancient Mississippi River valley but are differentiable from one another or from Ashmore Member only where intervening Illinois Episode tills are Glasford Formation Pebbly loam to silty clay loam Till and associated subglacially and ice-marginally deposited diamicton; some cobbles; few (cross section only) boulders; unstratified; yellowish sediment derived directly from brown (oxidized) to dark brownish glacial ice; widespread but discongray (unoxidized); calcareous; firm tinuous, having been largely removed by subsequent fluvial and to hard; discontinuous beds of sand, silt, or clay; conspicuous coal glacial erosion; well exposed in clasts; intertongues with Pearl portions of Rattlesnake Hollow, Marshall County, Sec. 27, T12N, Formation and overlies older deposits or bedrock; upper part R9E (McKay et al. 2008) weathered in profile of Sangamon Geosol; 5 to 15 feet thick PRE-QUATERNARY DEPOSITS PENNSYLVANIAN PERIOD (~280 to 315 million years B.P.) Lithified marine, estuarine, Shale, clay, sandstone, limestone, Carbondale and Modesto Formations deltaic, fluvial, and swamp Data Type

Base map compiled by Illinois State Geological Survey from digital and paper data provided by the United States Geological Survey.

North American Datum of 1983 (NAD 83) Projection: Transverse Mercator Recommended citation:

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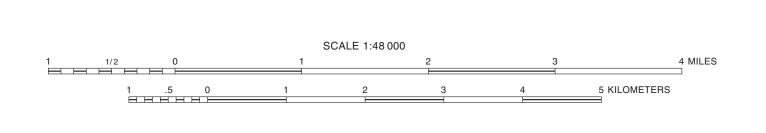
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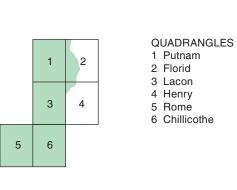
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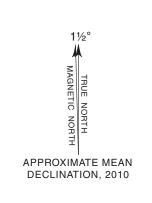


R 9 E

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Geology based on field work by E. Donald McKay III, Richard C. Berg, C. Pius Weibel, and Andrew J. Stumpf, 2001–2007, and compiled from 1:24,000 scale maps (McKay et al. 2007a, 2007b, 2007c; Stumpf 2010). Digital cartography by Jennifer E. Carrell and Jane E.J. Domier, Illinois State Geological

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Outcrop Stratigraphic boring Water well boring

Engineering boring

Coal boring

s 01299 Labels indicate samples (s). Numeric labels indicate the county number. Outcrop and hand-auger boring labels indicate geologist's field number. Dot indicates boring is to bedrock.

----- Contact A—B Line of cross section

Note: The county number is a portion of the 12-digit API number on file at the ISGS Geological Records Unit. Online well and boring records are available from the ISGS Web site.