

Water-Data Report 2013

351019077184102 Local number CR-543, NCDENR COVE CITY RESEARCH STATION R23x2, NEAR COVE CITY, NC (CASTLE HAYNE)

Castle Hayne aquifer
Castle Hayne Limestone

Craven County, NC

LOCATION.--Lat 35°10'19", long 77°18'41" referenced to North American Datum of 1927, Craven County, NC, Hydrologic Unit 03020202, on Secondary Road 1232, .6 mi east of Secondary Road 1001 and 2 mi south of Cove City. Owner: NCDENR (North Carolina Department of Environment and Natural Resources).

GROUNDWATER RECORDS

WELL CHARACTERISTICS.--Depth 98 ft. Upper casing diameter 2.5 in; top of first opening 88 ft, bottom of last opening 98 ft.

DATUM.--Land-surface datum is 46 ft above National Geodetic Vertical Datum of 1929. Measuring point: 1.34 ft above land-surface datum, April 10, 2007 to present.

PERIOD OF RECORD.--March 1985, June 1986, October 2002, October 2004 to current year.

GAGE.--Measured periodically with electric and steel tape.

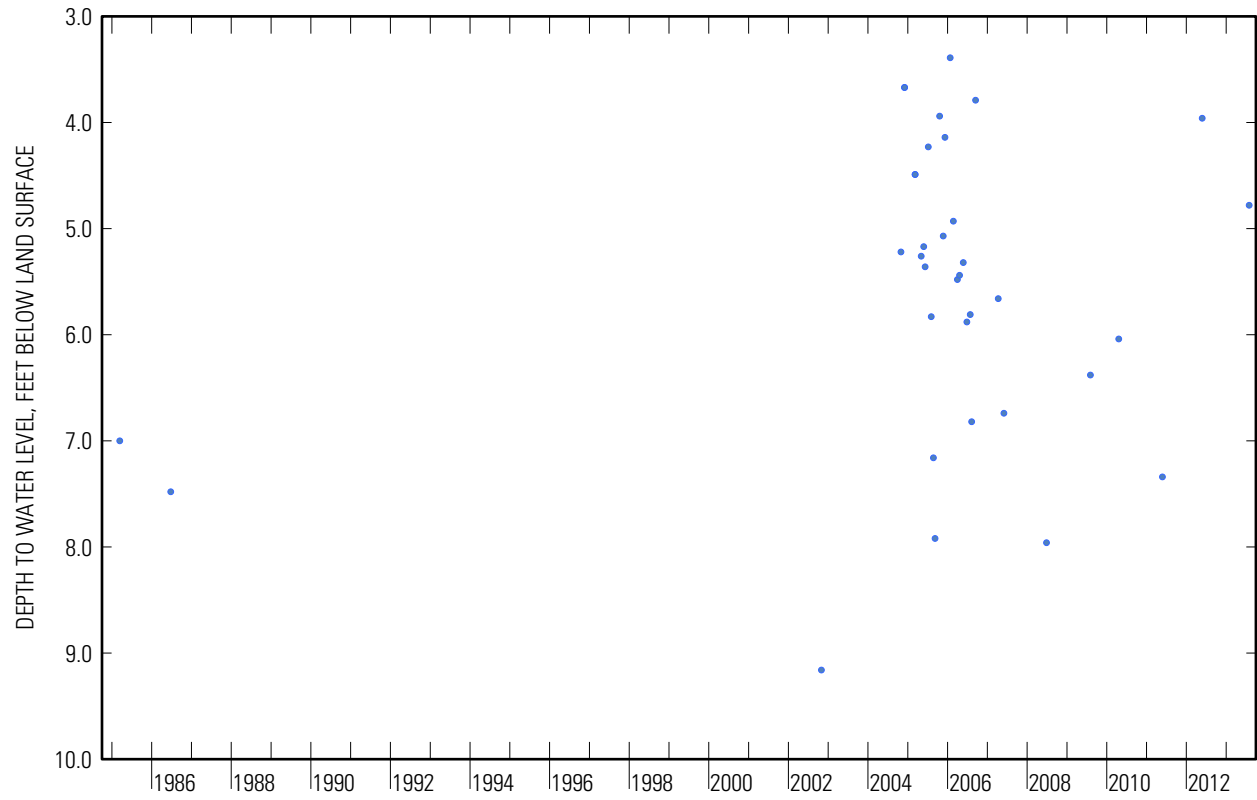
REMARKS.--Well measured as part of the National Water Quality Assessment (NAWQA) program.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.39 ft below land-surface datum, January 24, 2006; lowest water level measured, 9.16 ft below land-surface datum, October 30, 2002.

WATER LEVELS IN FEET BELOW LAND-SURFACE DATUM

Date	Water level
Jul 30, 2013	4.78

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WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 2003, 2005, 2007, 2009, 2011, 2013.

REMARKS.--Well is sampled as part of the National Water-Quality Assessment (NAWQA) Program.

WATER-QUALITY DATA WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 1 of 14

[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; M, presence verified but not quantified; R, radchem non-detect, below ssLc; U, analyzed for but not detected]

Date	Sample start time	Medium name	Sample type	Barometric pressure, mm Hg (00025)	Temperature, air, °C (00020)	Depth to water level, ft below land surface (72019)	Dissolved oxygen, water, unfiltered, mg/L (00300)	Flow rate, instantaneous, gallons per minute (00059)	pH, water, unfiltered, field, standard units (00400)	Specific conductance, water, unfiltered, µS/cm at 25°C (00095)
07-30-2013	1500	Groundwater	Regular	769	28.0	4.78	M	2.0	6.8	562

WATER-QUALITY DATA WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 2 of 14

[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; M, presence verified but not quantified; R, radchem non-detect, below ssLc; U, analyzed for but not detected]

Date	Sample start time	Temperature, water, °C (00010)	Turbidity, water, unfiltered, broad band light source (400-680 nm), detectors at multiple angles including 90 +/- 30 degrees, ratiometric correction, NTRU (63676)	Water level, depth below measuring point, feet (61055)	Calcium, water, filtered, mg/L (00915)	Magnesium, water, filtered, mg/L (00925)	Potassium, water, filtered, mg/L (00935)	Sodium, water, filtered, mg/L (00930)	Alkalinity, water, filtered, inflection-point, incremental titration method, field, mg/L as CaCO ₃ (39086)
07-30-2013	1500	18.2	1.8	6.12	116	2.09	1.08	3.55	288

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WATER-QUALITY DATA
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[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; M, presence verified but not quantified; R, radchem non-detect, below ssLc; U, analyzed for but not detected]

Date	Sample start time	Bicarbonate, water, filtered, inflection- point, incremental titration method, field, mg/L (00453)	Bromide, water, filtered, mg/L (71870)	Chloride, water, filtered, mg/L (00940)	Fluoride, water, filtered, mg/L (00950)	Hydrogen sulfide, water, unfiltered, mg/L (71875)	Silica, water, filtered, mg/L as SiO ₂ (00955)	Sulfate, water, filtered, mg/L (00945)	Ammonia, water, filtered, mg/L as N (00608)	Nitrate plus nitrite, water, filtered, mg/L as N (00631)
07-30-2013	1500	351	0.023	5.64	0.08	U	11.9	< .09	0.041	< .040

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

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[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; M, presence verified but not quantified; R, radchem non-detect, below ssLc; U, analyzed for but not detected]

Date	Sample start time	Nitrite, water, filtered, mg/L as N (00613)	Orthophos- phate, water, filtered, mg/L as P (00671)	Total nitrogen, water, analytically determined, mg/L (62854)	Aluminum, water, filtered, µg/L (01106)	Barium, water, filtered, µg/L (01005)	Beryllium, water, filtered, µg/L (01010)	Cadmium, water, filtered, µg/L (01025)	Chromium, water, filtered, µg/L (01030)
07-30-2013	1500	< .001	0.397	0.24	2.3	44.8	< .006	< .016	1.0

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

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[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; M, presence verified but not quantified; R, radchem non-detect, below ssLc; U, analyzed for but not detected]

Date	Sample start time	Cobalt, water, filtered, µg/L (01035)	Copper, water, filtered, µg/L (01040)	Iron, water, filtered, µg/L (01046)	Lead, water, filtered, µg/L (01049)	Lithium, water, filtered, µg/L (01130)	Manga- nese, water, filtered, µg/L (01056)	Molyb- denum, water, filtered, µg/L (01060)	Nickel, water, filtered, µg/L (01065)	Silver, water, filtered, µg/L (01075)
07-30-2013	1500	0.098	< .80	992	< .025	1.66	60.9	0.043	0.65	< .005

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WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 6 of 14

[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; M, presence verified but not quantified; R, radchem non-detect, below ssLc; U, analyzed for but not detected]

Date	Sample start time	Strontium, water, filtered, µg/L (01080)	Thallium, water, filtered, µg/L (01057)	Vanadium, water, filtered, µg/L (01085)	Zinc, water, filtered, µg/L (01090)	Antimony, water, filtered, µg/L (01095)	Arsenic, water, filtered, µg/L (01000)	Boron, water, filtered, µg/L (01020)	Selenium, water, filtered, µg/L (01145)	1,2-Dichloro-ethane, water, unfiltered, recoverable, µg/L (32103)
07-30-2013	1500	236	< .010	0.48	< 1.4	< .027	0.04	10	< .03	< .08

WATER-QUALITY DATA
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[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; M, presence verified but not quantified; R, radchem non-detect, below ssLc; U, analyzed for but not detected]

Date	Sample start time	1,4-Dichloro-benzene, water, unfiltered, recoverable, µg/L (34571)	Bromo-methane, water, unfiltered, recoverable, µg/L (34413)	Carbon disulfide, water, unfiltered, recoverable, µg/L (77041)	cis-1,3-Dichloro-propene, water, unfiltered, recoverable, µg/L (34704)	trans-1,3-Dichloro-propene, water, unfiltered, recoverable, µg/L (34699)	1,1,1,2-Tetra-chloro-ethane, water, unfiltered, recoverable, µg/L (77562)	1,1,1-Tri-chloro-ethane, water, unfiltered, recoverable, µg/L (34506)	1,1,2-Tri-chloro-ethane, water, unfiltered, recoverable, µg/L (34511)	1,1-Di-chloro-ethane, water, unfiltered, recoverable, µg/L (34496)
07-30-2013	1500	< .026	< .2	< .1	< .10	< .14	< .040	< .030	< .046	< .044

WATER-QUALITY DATA
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[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; M, presence verified but not quantified; R, radchem non-detect, below ssLc; U, analyzed for but not detected]

Date	Sample start time	1,1-Di-chloro-ethene, water, unfiltered, recoverable, µg/L (34501)	1,2,4-Tri-chloro-benzene, water, unfiltered, recoverable, µg/L (34551)	1,2,4-Tri-methyl-benzene, water, unfiltered, recoverable, µg/L (77222)	1,2-Dichloro-benzene, water, unfiltered, recoverable, µg/L (34536)	11-Ketotestosterone, water, filtered, recoverable, nanograms per liter (64507)	17-alpha-Estradiol, water, filtered, recoverable, nanograms per liter (64508)	17-alpha-Ethynyl estradiol, water, filtered, recoverable, nanograms per liter (64509)	17-beta-Estradiol, water, filtered, recoverable, nanograms per liter (64510)	3-beta-Coprostanol, water, filtered, recoverable, nanograms per liter (64512)
07-30-2013	1500	< .022	< .08	< .032	< .028	< 2.00	< .80	< .80	< .80	< 200

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[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; M, presence verified but not quantified; R, radchem non-detect, below ssLc; U, analyzed for but not detected]

Date	Sample start time	4-Androsterone-3,17-dione, water, filtered, recoverable, nanograms per liter (64513)	Benzene, water, unfiltered, recoverable, µg/L (34030)	Bisphenol A, water, filtered, recoverable, nanograms per liter (67304)	Bromo-chloro-methane, water, unfiltered, recoverable, µg/L (77297)	Bromo-dichloro-methane, water, unfiltered, recoverable, µg/L (32101)	Chloro-benzene, water, unfiltered, recoverable, µg/L (34301)	Chloro-methane, water, unfiltered, recoverable, µg/L (34418)	Cholesterol, water, filtered, recoverable, nanograms per liter (64514)	cis-1,2-Dichloro-ethene, water, unfiltered, recoverable, µg/L (77093)
07-30-2013	1500	< .80	< .026	< 100	< .06	< .034	< .026	< .1	< 200	< .022

WATER-QUALITY DATA
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[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; M, presence verified but not quantified; R, radchem non-detect, below ssLc; U, analyzed for but not detected]

Date	Sample start time	cis-Androstene, water, filtered, recoverable, nanograms per liter (64515)	Dibromo-chloro-methane, water, unfiltered, recoverable, µg/L (32105)	Dichloro-methane, water, unfiltered, recoverable, µg/L (34423)	Dihydrotestosterone, water, filtered, recoverable, nanograms per liter (64524)	Epitestosterone, water, filtered, recoverable, nanograms per liter (64517)	Equilenin, water, filtered, recoverable, nanograms per liter (64518)	Equilin, water, filtered, recoverable, nanograms per liter (64519)	Estriol, water, filtered, recoverable, nanograms per liter (64520)	Estrone, water, filtered, recoverable, nanograms per liter (64521)
07-30-2013	1500	< .80	< .12	< .04	< 4.00	< 2.00	< 2.00	< 8.00	< 2.00	< .80

WATER-QUALITY DATA
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[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; M, presence verified but not quantified; R, radchem non-detect, below ssLc; U, analyzed for but not detected]

Date	Sample start time	Ethyl-benzene, water, unfiltered, recoverable, µg/L (34371)	Mestranol, water, filtered, recoverable, nanograms per liter (64522)	m-Xylene plus p-xylene, water, unfiltered, recoverable, µg/L (85795)	Naphthalene, water, unfiltered, recoverable, µg/L (34696)	Norethindrone, water, filtered, recoverable, nanograms per liter (64511)	n-Propyl-benzene, water, unfiltered, recoverable, µg/L (77224)	Organic carbon, water, filtered, mg/L (00681)	o-Xylene, water, unfiltered, recoverable, µg/L (77135)	Progesterone, water, filtered, recoverable, nanograms per liter (64523)
07-30-2013	1500	< .036	< .80	< .08	< .18	< .80	< .036	13.1	< .032	< 8.00

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WATER-QUALITY DATA
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Part 12 of 14

[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; M, presence verified but not quantified; R, radchem non-detect, below ssLc; U, analyzed for but not detected]

Date	Sample start time	sec-Butyl-benzene, water, unfiltered, recoverable, µg/L (77350)	Styrene, water, unfiltered, recoverable, µg/L (77128)	Testosterone, water, filtered, recoverable, nanograms per liter (64525)	Tetra-chloro-ethene, water, unfiltered, recoverable, µg/L (34475)	Tetra-chloro-methane, water, unfiltered, recoverable, µg/L (32102)	Toluene, water, unfiltered, recoverable, µg/L (34010)	trans-1,2-Dichloro-ethene, water, unfiltered, recoverable, µg/L (34546)	trans-Diethylstilbestrol, water, filtered, recoverable, nanograms per liter (64516)	Tribromo-methane, water, unfiltered, recoverable, µg/L (32104)
07-30-2013	1500	< .034	< .042	< 1.60	< .026	< .06	< .02	< .018	< .80	< .10

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

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[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; M, presence verified but not quantified; R, radchem non-detect, below ssLc; U, analyzed for but not detected]

Date	Sample start time	Trichloro-ethene, water, unfiltered, recoverable, µg/L (39180)	Trichloro-methane, water, unfiltered, recoverable, µg/L (32106)	Vinyl chloride, water, unfiltered, recoverable, µg/L (39175)	Gross alpha radioactivity, 30-day count, water, filtered, Th-230 curve, picocuries per liter (62639)	Gross alpha radioactivity, 72-hour count, water, filtered, Th-230 curve, picocuries per liter (62636)	Gross beta radioactivity, 30-day count, water, filtered, Cs-137 curve, picocuries per liter (62645)	Gross beta radioactivity, 72-hour count, water, filtered, Cs-137 curve, picocuries per liter (62642)	Lead-210, water, filtered, picocuries per liter (17503)	Polonium-210, water, filtered, picocuries per liter (19503)
07-30-2013	1500	< .022	< .03	< .06	R .4	R 1.1	1.4	R .7	R .04	R .01

WATER-QUALITY DATA
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[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft, feet; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; per mil, parts per thousand; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; M, presence verified but not quantified; R, radchem non-detect, below ssLc; U, analyzed for but not detected]

Date	Sample start time	Radium-224, water, filtered, picocuries per liter (50833)	Radium-226, water, filtered, picocuries per liter (09503)	Radium-228, water, filtered, picocuries per liter (81366)	Uranium (natural), water, filtered, µg/L (22703)	Oxygen-18/Oxygen-16 ratio, water, unfiltered, per mil (82085)	Deuterium/Protium ratio, water, unfiltered, per mil (82082)
07-30-2013	1500	0.10	R .00	R .12	0.009	-4.52	-23.90