

APPENDIX C:
METADATA AND DEFINITIONS
(REVISED)

DATABASE MANAGER

Jody Arthur, Technical Environmental Specialist
Indiana Department of Environmental Management
Phone: 317-308-3179
Fax: 317-308-3219
Email: jarthur@idem.in.gov

Table C-1: Files included with Indiana's April 1, 2016 Integrated Report submittal.

File Name	Description
In_ADB_2016_20160401.mdb	MS Access file containing IDEM's 305(b) Assessment Database Version 2.3.1
IR2016_Narrative.docx	Adobe Acrobat file containing IDEM's Narrative Integrated Report
IR2016_AppA_Tables.docx	MS Word file containing the tables for the Integrated Report
IR2016_AppB_Figures.docx	MS Word file containing figures for the Integrated Report
IR2016_AppC_Metadata.docx	MS Word file containing filenames of all attachments and appendices and metadata needed to translate ADB information
IR2016_AppD_Status ofCat4Waters.docx	MS Word file containing information regarding impairment status of Category 4 waters
IR2014_Appendix C_Figures.pdf	MS Word file containing figures for the Integrated Report
IR2016_AppE_TMDLSchedule_ST.docx	MS Word file containing IDEM's short term TMDL development schedule
IR2016_AppF_TMDLSchedule_LT.docx	MS Word file containing IDEM's long term TMDL development schedule
IR2016_AppG_ListingSchedule.docx	MS Word file containing IDEM's 305(b)/303(d) Monitoring, Assessment, Reporting and Listing Schedule
IR2016_AppH_CompALUS&RECR.docx	MS Word file containing IDEM's comprehensive statewide water quality assessments based on probabilistic monitoring results. Intended for section 106 funding calculations and section 305(a) aquatic life use support reporting
IR2016_AppI_ConsolidatedList.xlsx	MS Excel file containing Indiana's Consolidated List Categories 1-5
IR2016_AppJ_Trend&TrophicStatus.docx	MS Word file containing IDEM's Clean Water Act Section 314 assessments of lake trends and trophic state
IR2016_AppK_HydrogeologicSettings.docx	MS Word file containing summaries of Indiana's hydrogeologic settings and groundwater monitoring results
IR2016_AppL_303dNOC&CALM_Cover.docx	MS Word file containing the cover page for Appendix L (IR2016_AppL_303dNOC&CALM.docx)

The IN305B in the ADB and the Entity_ID in the Indiana Reach Index are the same, providing for GIS table joins and links.

Table C-2: Files included with Indiana's February 22, 2017 Addendum to its 2016 Integrated Report. Revised versions of any files submitted on April 1, 2016 (see Table C-1) supercede.

File Name	Description
IR2016_Narrative_REV.pdf	Adobe Acrobat file containing IDEM's Narrative Integrated Report
IR2016_AppA_Tables_REV.pdf	Adobe Acrobat file containing the tables for the Integrated Report
IR2016_AppC_Metadata_REV.pdf	Adobe Acrobat file containing filenames of all attachments and appendices and metadata needed to translate ADB information
IR2016_AppD_Status of Cat4 Waters_REV.pdf	Adobe Acrobat file containing information regarding impairment status of Category 4 waters
IR2016_AppH_ComprALUS&RECR_REV.pdf	Adobe Acrobat file containing IDEM's comprehensive statewide water quality assessments based on probabilistic monitoring results. Intended for section 106 funding calculations and section 305(a) aquatic life use support reporting
IR2016_AppI_ConsolidatedList_REV.xlsx	MS Excel file containing Indiana's Consolidated List Categories 1-5
IR2016_AppJ_Trend&TrophicStatus_REV.pdf	Adobe Acrobat file containing IDEM's Clean Water Act Section 314 assessments of lake trends and trophic state
IR2016_AppM_RTC_2016ALLw2014EPA.pdf	Adobe Acrobat file containing U.S. EPA and public comments on the draft 2016 303(d) list and CALM and IDEM's Responses. This file also contains IDEM's responses to U.S. EPA's October 19, 2016 comments to Indiana's 2014 303(d) list of Impaired Waters.
IR2016_AppN_2016CALM_FINAL.pdf	Adobe Acrobat file containing IDEM's finalized Consolidated Assessment and Listing Methodology (CALM) for the 2016 cycle. This version of the CALM supersedes that submitted on April 1, 2016 as part of Appendix L
IR2016_AppO_SummaryOfChanges.pdf	Adobe Acrobat file describing the changes made to Indiana's 303(d) list since April 1, 2016
IR2016_AppP_303d2016_FINAL.xlsx	MS Excel file containing Indiana's finalized 303(d) list of Impaired Waters for the 2016 cycle

Table C-3: User-defined fields in the database.

Flag	Description
Partial	A relict impairment transferred from the ADBv1; Flag will be eliminated when questionable assessment is resolved through database QAQC.
Not Attainable	Applies to aquatic life use assessments on limited use waters.
IIFA – PCB	Used to indicate where data are available but insufficient for assessment; Applied only to fish tissue data.
IIFA – Hg	Used to indicate where data are available but insufficient for assessment; Applied only to fish tissue data.
Aesthetics	Used to distinguish recreational use for aesthetics (chlorophyll a, phosphorus, etc.) versus recreational use for human health (<i>E. coli</i>).
QAQC-RI	Need to map verify that this reach exists. May have been reindexed and not properly retired.
QAQC	QAQC needed for one/more assessments related to this AUID

Table C-4: Codes used in the Assessment Database (ADB) to describe causes of water quality impairments.

ADB Cause ID	ADB Cause Name	IDEM Cause Definition
10	Cause Unknown	Cause Unknown. Non-Attainment was identified, but a specific cause of impairment could not be identified.
91	Ammonia (Un-ionized)	Exceeds 1999 U. S. EPA ammonia criteria. USEPA's 1999 Update of Ambient Water Quality Criteria for Ammonia (EPA-822-R-99-014). ⁴ Although Indiana's water quality standards contain criteria for ammonia, the narrative language in the standards gives IDEM the authority to use the most up-to-date criteria. Because the 1999 U.S. EPA criteria are more current than those in the state's standards, Indiana uses the U.S. EPA criteria instead of state standards for ammonia in water quality assessments.
99	Atrazine	Atrazine exceeds U. S. EPA 2001 aquatic life chronic criterion. ¹ (From U. S. EPA's Notice of Availability of Draft Aquatic Life Criteria Document for Atrazine published in the Federal Register, September 26, 2001 (Vol. 66, No. 187, pages 49186-49188)).
138	Chloride	Chloride anion concentration exceeds Indiana's water quality standards
150	Chlorophyll-a	Chlorophyll-a. CAS Registry Number: 479-61-8.
168	Cyanide	Free cyanide in waterbodies within the Great Lakes watersheds; Total cyanide in other Indiana waterbodies
203	Dioxin (including 2,3,7,8-TCDD)	Exceeds ORSANCO 2003 criterion for human health protection for the Ohio River ³ (From ORSANCO's 2003 Revision of its Pollution Control Standards for Discharges to the Ohio River. This standard was taken from U.S. EPA's recommended criteria for priority pollutants.)
217	Bacteria, Escherichia coli	E. coli concentration exceeds Indiana's water quality standards
270	Low flow alterations	Low flow alterations (anthropogenic sources, e.g., diversions or subsurface drainage). Federal Interagency Stream Restoration Working Group (ISRWG). 1998 (Updated 2001). Stream Corridor Restoration: Principles, Processes, and Practices.
274	Mercury in Water Column	More than one result in three-year period exceeds chronic aquatic criterion (CAC) defined in Indiana's water quality standards.
317	Oil and Grease	A legacy code no longer used to indicate impairment; PAH and Priority Organics are used instead when data is available
322	Oxygen, Dissolved	Oxygen, Dissolved. CAS Registry Number: 7782-44-7. Code a Clean Water Act Non-Priority Pollutant. Code commonly used in CWA NPDES permitting.
344	Other Habitat Alterations	Physical substrate habitat alterations
371	Sedimentation/Siltation	Imbeddedness and smothering of substrate in streams; Loss of depth in lakes
385	Sulfates	Sulfate anion concentration exceeds Indiana's water quality standards
388	Temperature, water	Water temperature conditions do not meet Indiana's water quality standards
410	PCBs in Water Column	Polychlorinated biphenyls
441	pH	Parameter is outside criteria range defined in Indiana's water quality standards
447	Polycyclic Aromatic Hydrocarbons (PAHs) (Aquatic Ecosystems)	Polycyclic aromatic hydrocarbons
448	Nutrient/Eutrophication Biological Indicators	Inorganic nutrients driving physico/chemical stream imbalance
449	Organic Enrichment (Sewage) Biological Indicators	Biological assessment or measured parameters indicate sewage or manure inputs
459	Taste and Odor	Algae growth in drinking water reservoirs that requires additional treatment of raw water
462	Phosphorus (Total)	Total Phosphorus. Total Phosphorus measured excluding Orthophosphate.

ADB Cause ID	ADB Cause Name	IDEM Cause Definition
467	Mercury in Fish Tissue	More than one result in three-year period exceeds chronic aquatic criterion (CAC) defined in Indiana's water quality standards
472	PCB in Fish Tissue	Polychlorinated biphenyls in fish tissue

Table C-5: Codes used in the Assessment Database to describe sources of water quality impairments.

ADB Source ID	ADB Source Name	IDEM Source Definition
2	Acid Mine Drainage	Low pH, high total dissolved solids and/or sulfates
4	Animal Feeding Operations (NPS)	When linked to E. coli impairments, this source is used in conjunction with 1050 to indicate nonpoint source pollution related to manure application from intensive animal feeding operations.
20	Channelization	Straightening channel; destroying instream habitat
23	Combined Sewer Overflows	Within CSO community or observed discharge
28	Contaminated Sediments	Legacy contaminants in sediments; no associated point source
30	Crop Production with Subsurface Drainage	Dryland agriculture with subsurface drains or other water level adjustment technologies involving crops from SIC Group 01 (Agricultural Production – Crops); see sections on agriculture from CZARA management measure guidance (EPA-840-B-92-002B); Profile of the Agricultural Crop Production Industry (EPA/310-R-00-001).
32	Dam Construction (Other than Upstream Flood Control Projects)	Pollution impacts on larger mainstem rivers in patterns in flood pulses, channel incision trends, water temperatures, or substrate particle size distribution related to construction of dams on mainstems or larger tributaries.
33	Discharges from Biosolids (SLUDGE) Storage, Application or Disposal	Land application of sludge
37	Dredge Mining	Not Used
45	Golf Courses	Pollution effects from operation of golf course facilities. See background information in CZARA management measure guidance (EPA-840-B-92-002B); A Sourcebook for Natural Landscaping for Public Officials. Northeastern Illinois Planning Commission for EPA
50	Highways, Roads, Bridges, Infrastructure (New Construction)	Road construction, including bridges
51	Historic Bottom Deposits (Not Sediment)	Indicates human activities that have altered the stream bottom
54	Illegal Dumps or Other Inappropriate Waste Disposal	Unpermitted landfill or disposal site
55	Illicit Connections/Hook-ups to Storm Sewers	Straight pipes, unpermitted discharges
56	Impacts from Abandoned Mine Lands (Inactive)	Inactive mine is source
58	Impacts from Hydrostructure Flow Regulation/modification	Impacts from flow regime alterations (anthropogenic sources, e.g., decrease in flood pulses due to hydrostructures). See background information in Federal Interagency Stream Restoration Working Group (ISRWG). 1998 (Updated 2001).
62	Industrial Point Source Discharge	NPDES-permitted industrial facility
69	Landfills	Permitted landfill
72	Loss of Riparian Habitat	Indicates human activities resulting in removal of riparian vegetation (bushes, trees) including legal drain maintenance; also used to indicate row crops to bank edge or bare soil on banks

ADB Source ID	ADB Source Name	IDEM Source Definition
73	Managed Pasture Grazing	Livestock production using managed grasslands that will usually be mown for hay. See sections in CZARA management measure guidance (EPA-840-B-92-002B); Profile of the Agricultural Crop Production Industry (EPA/310-R-00-001.)
92	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Leaking septic tanks; When linked to E. coli impairment, this source is used to indicate point source pollution related to septic tanks; Source applicable only in rural, unsewered areas.
99	Package Plant or Other Permitted Small Flows Discharges	NPDES semi-public facility
100	Permitted Runoff from Confined Animal Feeding operations (CAFOs)	Supplemental feeding of livestock that can lead to major nutrient and other pollution concerns as animal unit densities increase. EPA, in cooperation with the USDA, is developing regulations for concentrated animal feeding operations (CAFOs).
107	Post-development Erosion and Sedimentation	Post-construction impacts from land development in cities or urbanized areas. See information in CZARA management measure guidance (EPA-840-B-92-002B); (NURP) Nationwide Urban Runoff Program (EPA-841-S-83-109); and Storm Water Phase II Final Rule
109	RCRA Hazardous Waste Sites	Pollution releases to receiving waters from RCRA Treatment Storage and Disposal Facilities (TSDFs). Handbook of Groundwater Protection and Cleanup Policies For RCRA Corrective Action (EPA530-F-01-021); Municipal Solid Waste Generation, Recycling and Disposal
115	Sanitary Sewer Overflows (Collection System Failures)	Pump OR lift station overflow; sewer line break
122	Site Clearance (Land Development or Redevelopment)	Residential or industrial construction activities
125	Streambank Modifications/destabilization	Indicates human activities resulting in bank erosion and/or undercutting, including legal drain maintenance
133	Waste from Pets	Pet wastes are of particular concern in urbanized areas, where contaminants can enter storm sewers or otherwise introduce pollutants into receiving waters. See materials in CZARA management measure guidance (EPA-840-B-92-002B).
134	Waterfowl	Pollution impacts (often pathogen indicators – related) from waterfowl (e.g., ducks, geese, swans, etc.). See background information in Protocol for Developing Pathogen TMDLs (EPA 841-R-00-002).
135	Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)	Complex situation involving combinations of receiving water impacts from point source end-of-pipe discharges with wet weather contributions from CSOs, SSOs or storm sewer inputs -- this combined with other diffuse (nonpoint source) wet weather pollutant
136	Wildlife Other than Waterfowl	Naturally occurring sources/stressors; When linked to E. coli, indicates wildlife sources
140	Source Unknown	Associated with fish consumption advisories and lake impairments
141	Non-Point Source	Nonpoint sources; When used without point source codes, this source indicates that there are no permitted facilities upstream and that nonpoint source is most likely source
143	Livestock (Grazing or Feeding Operations)	Land use is grazing, animal feeding; when linked to E. coli impairments, this source is used in conjunction with 1640 to indicate nonpoint source manure application from intensive animal feeding operations.
144	Crop Production (Crop Land or Dry Land)	Land use is row crops as indicated by land use data; when linked to E. coli impairments, this source is used in conjunction with 1640 to indicate nonpoint source manure application from intensive animal feeding operations.
155	Natural Sources	Naturally occurring sources/stressors; When linked to E. coli, indicates wildlife sources

ADB Source ID	ADB Source Name	IDEM Source Definition
156	Agriculture	Major category included with farming activities (1050 and 1060); When used with or without additional agricultural source codes, source indicates that land use data show dominant land use is agriculture but more specific agricultural sources cannot be distinguished.
159	Reclamation of Inactive Mining	Reclamation in progress in the watershed may be the source of temporary water quality impairments.
164	Impervious Surface/Parking Lot Runoff	Impervious Surface/Parking Lot Runoff. runoff from a paved or impervious surface.
168	Sewage Discharges in Unsewered Areas	Impacts from both failing septic systems and straight pipes.
169	Unspecified Urban Stormwater	Overland and unknown residential; urban source
174	Unrestricted Cattle Access	Land use is grazing, animal feeding; when linked to E. coli impairments, this source is used to indicate nonpoint source pollution from pastured areas in/near riparian zone as indicated by land use data and/or observations of livestock in stream.
175	Contaminated Groundwater	Contaminated Groundwater. Contaminants from the underlying groundwater leaching into the surface water.
176	Rural (Residential Areas)	Rural (Residential Areas). Houses and surrounding land disturbances cause a water to not meet its uses