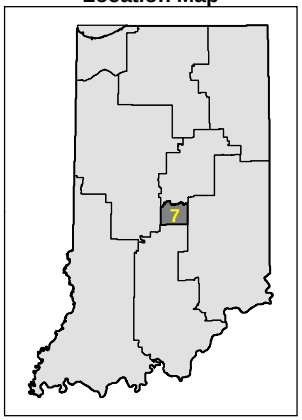
Congressional District: IN 07

Dam Safety Program
(All COE Indiana Dams)

Olmsted Locks & Dam

Location Map



Legend

- Project Name
- Interstate Highways
- Major Streams
- Congressional District
- County Boundary

US Army Corps of Engineers
Louisville District

INDIANAPOLIS NORTH, IN

U.S. ARMY CORPS OF ENGINEERS BUILDING STRONG®

Official Title: Indianapolis, White River (North), Indiana

March 2016

Authorization: Flood Control Act (FCA) of 1936, as amended, Section 10 of FCA 1946, and subject to cost sharing provisions of the Water Resources Development Act of 1986.

Project Phase: Construction

Summarized Financial Data:

Estimated Federal Cost	$37,340,427
Estimated Non-Federal Cost	$12,649,756
Allocation thru FY15	$27,907,427
Balance to Complete	$0
FY16 President's Budget	$0
FY16 Allocation	$9,433,000
FY17 President's Budget	$0

Project Location: The project is located in northern Indianapolis, IN, along a 3 ½-mile reach of the White River.

Project Description: The project involves construction of earthen levees and floodwalls in three sections – Warfleigh (Phase 3A), South Warfleigh (Phase 3B) and Broad Ripple (Phase 3C). (See attached project map.) All three sections must be completed to achieve the project benefits within the designated areas of protection. Phases 3A and 3C were substantially completed in 2004 and 2009, respectively. As a result of design standard revisions made after Hurricane Katrina, a construction contract was awarded in September 2011 for modifications to the I-wall for Phases 3A and 3C. This construction contract was completed in August 2013.

Project Status: Construction of the first of three sections of the Phase 3B levee was completed in June of 2014, Phase 3B-1. A construction contract was awarded in September 2014 provide a portion of the mitigation required for the project. A subsequent mitigation contract was awarded in September 2015 to provide additional required mitigation. Plans are currently being developed for two separate construction contracts. Levee Section 3B-2 and a project to clear and grub trees along previous phases (3A and 3C) are projected to be awarded in summer of 2016. Levee Section 3B-3 is expected to be awarded in FY17.

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Map

Non-Federal Sponsor: City of Indianapolis, Department of Public Works.

Where We Are Now: In September 2011, the Corps of Engineers (Louisville District) awarded a construction contract to modify the floodwall for Phases 3A and 3C. This work was completed in August 2013. This work was necessary due to design standard revisions made post-Hurricane Katrina.

The Louisville District prepared a Supplemental Environmental Impact Statement (SEIS) in July 2012. The Louisville District finalized the SEIS and issued a Record of Decision on 27 June 2014.

Phase 3B is the final phase of this project. In September 2012, a contract was awarded for construction of the first segment of the levee for Phase 3B, section 3B-1. This work was completed in June 2014. A contract to construct Phase 3B-2 is projected to be awarded in summer of 2016. Upon receipt of the remaining funds, a contract will be awarded for construction of the Phase 3B-3 floodwall section. This final section is projected to be awarded in FY17.

Issues and Other Information: The project is sponsored by the Indianapolis Department of Public Works at a cost share of 75% Federal and 25% non-Federal. It was designed to provide flood damage reduction for approximately 1,500 residential and commercial structures that would be inundated by an annual 0.35 percent chance flood event (300-year flood event).

Absent completion of the project, critical facilities, such as a fire station, waterworks pumping station, and large sewage lift stations would be inundated in major flood events. In addition, portions of the Butler University property, including student housing and a child development/ daycare facility, would be inundated in a 100-year flood event. During such events, structures would be submerged in up to 7 1/2 feet of water. Through February 2015, the non-Federal sponsor has provided cash contributions of $5,553,000 for design and construction of the project. All three sections of the floodwall and levee, as shown on the attached map, must be completed to achieve the project benefits within the designated areas of protection.

Based upon the General Reevaluation Report completed in September 1996, the project's benefit-to-cost ratio (BCR) was 2.4 at 7 percent. This project meets policy criteria as a high priority budgetable project. However, its completion has been slowed by limited annual Federal appropriations. Because of the delayed completion, project costs have risen sharply due, in part, to high world demand for steel, cement, and fuel. The project's BCR is currently 1.3 at 7 percent.

The existing Phase 3A levee is tree-covered on the river slope of the embankment. There are also small areas of trees along the river slope of Phase 3C. Additional tree clearing is required for both phases to meet current Corps' guidance for vegetation management on earthen levees and for levee certification.

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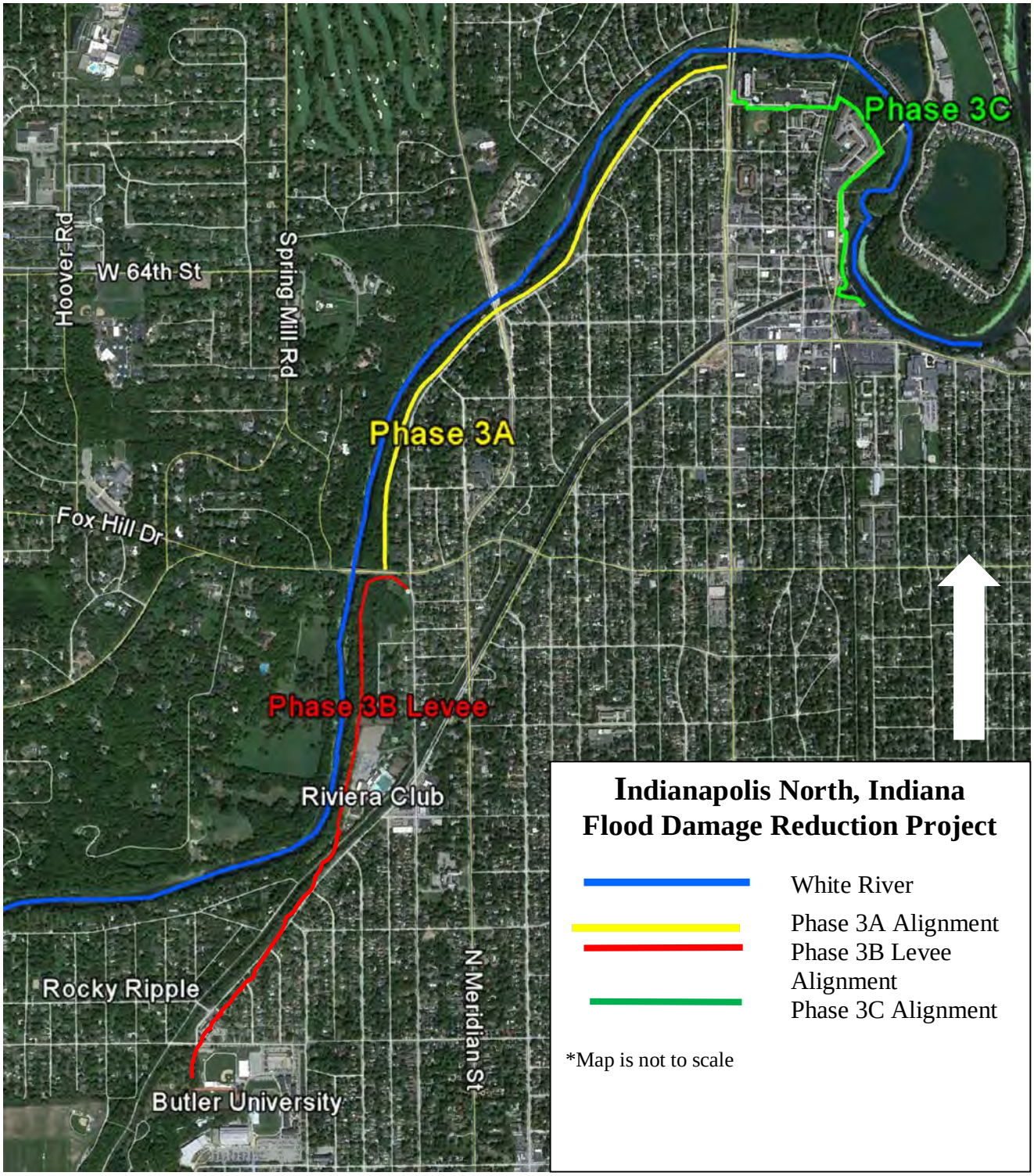
Map



Indianapolis North, Indiana
Flood Damage Reduction Project

White River

Phase 3A Alignment

Phase 3B Levee Alignment

Phase 3C Alignment

*Map is not to scale

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Map

Olmsted Locks and Dam Project

February 2016

U.S. ARMY CORPS OF ENGINEERS **BUILDING STRONG®**

Official Title: Locks and Dam 52 and 53 Replacement Project (Olmsted Locks and Dam), IL and KY

Location: The project is located in Olmsted, IL near Ohio River Mile 964.4.

Purpose: Construct the new Olmsted Locks and Dam to replace Ohio River Locks and Dams 52 & 53. Demolish Locks and Dams 52 & 53 once Olmsted is operational.

Project Description and Background: The project consists of two 110' X 1200' locks adjacent to the Illinois bank, and a dam comprised of five tainter gates, 1400' of boat-operated wickets and a fixed weir. The proposed replacement structure will eliminate Ohio River Locks & Dams 52 & 53. Locks & Dams 52 & 53 were completed in 1929 and the temporary 1,200' long lock chambers were added in 1969 at Locks & Dam 52 and 1979 at Locks & Dam 53. The antiquated design and age of these structures make it impossible to meet current traffic demands without significant delays. The existing structures have deteriorated structurally and are overstressed during normal operating conditions. The temporary locks at Locks & Dam 52 & 53 have significantly passed their 15-year design life.

This strategic reach of the Ohio River provides a connection between the Mississippi River, Tennessee River and Cumberland River. More tonnage passes this point than any other place in America's inland navigation system. In 2011, 91 million tons (Locks & Dam 52), traversed this portion of the Ohio River. 25% of all coal shipped on the inland waterways transits Locks & Dam 52, destined for many of the 50 power plants located on the Ohio River System or the 17 power plants located in eight states on the Upper or Lower Mississippi River.

Project Status: The two 110' X 1200' locks and approach walls are complete. The fixed weir on the Kentucky bank is complete. As of 01 February 2016, all eighteen dam tainter gate shells are set and tainter gate #1 and #2 are erected. In the navigable pass section, eight of twelve paving blocks, the right boat abutment, and six of twelve navigable pass shells have been set in the river. Foundation pile driving operations for the navigable pass are underway. Current schedule is to be dam operational in October 2018 and project complete in March 2022.

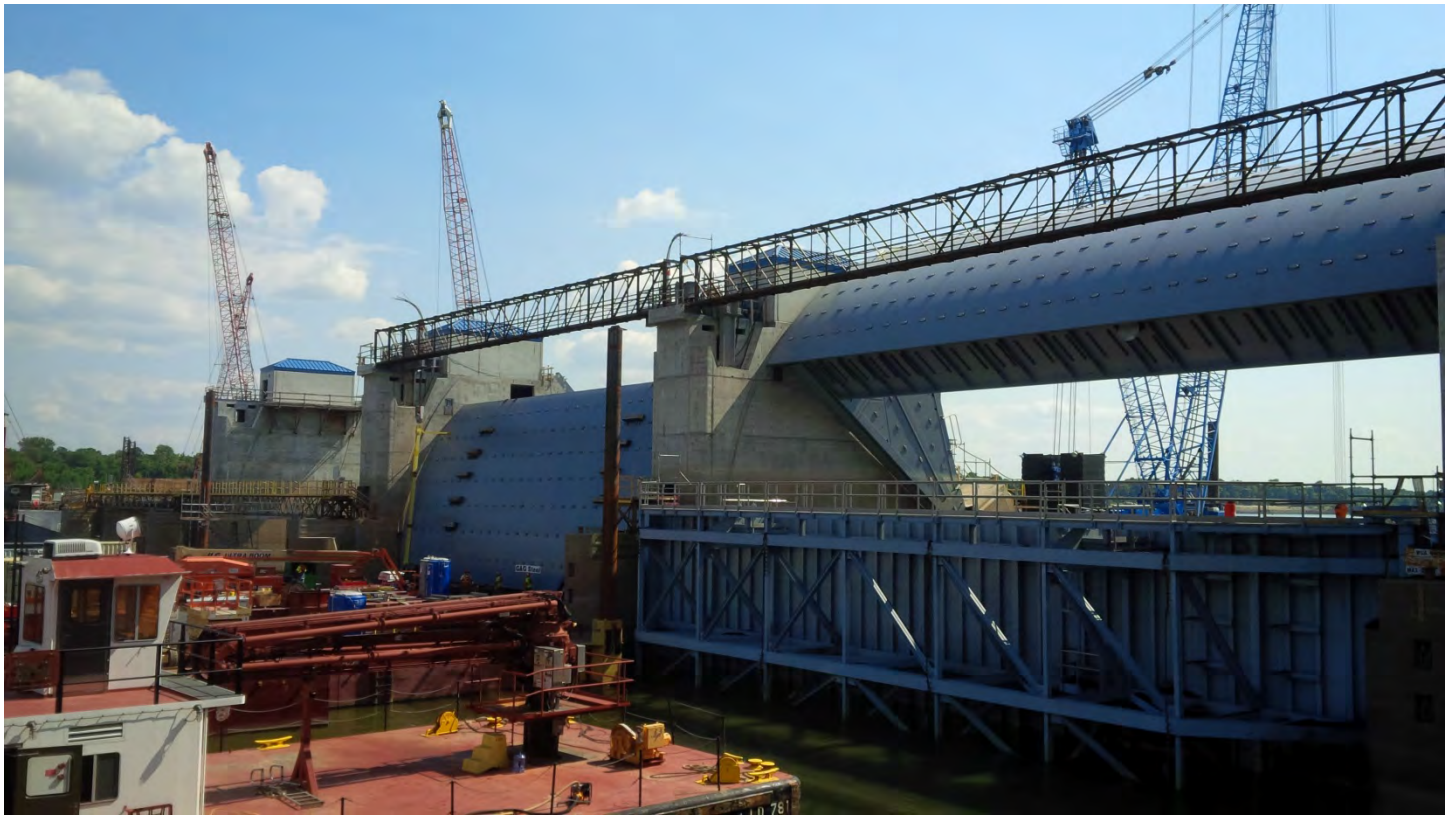
Summarized Financial Data

2012 PACR	$3,099,000,000
2014 Total Estimated Project Cost (NWW certified)	$3,098,573,000
Estimated Federal Cost	$2,047,852,000
Estimated Inland Waterways Trust Fund Cost	$1,050,721,000
Allocation thru FY16 including ARRA allocation thru 30 Sept 15	$2,227,402,000
FY 16 Budget/Capability	$180,000,000/$268,000,000
FY 17 Budget	$225,000,000
Benefit to Cost Ratio (at 7%)	3.4
Non-Federal Sponsor	N/A

The Olmsted Locks & Dam project was authorized by Section 3(a)(6) of the Water Resources Development Act (WRDA) of 1988. The project authorization was increased on 17 October 2013 as part of a Continuing Appropriations Act, 2014 for $2,918,000,000. The project was cost shared 50/50 with the Inland Waterways Trust Fund (IWTF) through FY2013. The FY2014 Omnibus Appropriation Act changed the split of IWTF and federal cost share to 25/75 for FY2014 only. Water Resources Reform and Development Act of 2014 changed the IWTF and federal cost share to 15/85 beginning 1 October 2014.

As of 01 February 2016, $2,123,787,491 has been expended on the project. The annual average benefits from the Olmsted project are approximately $640M.

Upcoming Actions: The Government and navigation industry stakeholders are exposed to significant increased economic risk given the failing condition of Locks & Dams 52 & 53. Accordingly, efficient completion of the Olmsted project construction is the only sustainable mitigation measure available. Continued capability funding is required to meet a dam operational date of October 2018. Without annual capability level funding in place, the dam operational date will likely slip one or more years reverting to the less than optimum operational timeframe of September 2020 contemplated in the PACR forgoing approximately $1.28B in benefits.



Tainter Gates #1 and #2

DAM SAFETY, INDIANA

June 2016

U.S. ARMY CORPS OF ENGINEERS **BUILDING STRONG®**

Official Title: Corps of Engineers Dam Safety Program; Indiana Dams - Dam Safety Portfolio Risk Management

Project Phase: Routine Dam Safety Inspection and Assessment/Risk Studies

Summarized Financial Data: The Dam Safety Risk Studies are part of a national program with funds distributed by the Corps of Engineers (COE) Headquarters Dam Safety Office on a priority basis

Project Location: Brookville Lake Dam, Cagles Mill Lake Dam, CM Harden Lake Dam, Mississinewa Lake Dam, Monroe Lake Dam, Patoka Lake Dam, J.E. Roush Lake Dam & Markle Levee, and Salamonie Lake Dam (See next pages for site specific information)

Non-Federal Sponsor: N/A

Study and Program Information: During normal operations, these dams are routinely inspected daily, weekly, and monthly by COE operations staff and annually by Louisville District dam safety staff. The dam also receives a comprehensive inspection every five years by a multi-discipline team of Louisville District engineers.

The COE has instituted a “risk informed” dam safety program. The initial step was conducting a Screening Portfolio Risk Assessment (SPRA). A team of engineers conducted a screening level review of the dam’s construction, performance history, and instrumentation to evaluate current dam behavior, as well as economic consequences and the population at risk of potential dam failure. After the initial screening, the risk is re-evaluated every ten years as part of a routine Periodic Assessment (PA) in conjunction with the 5 year comprehensive site inspection. The findings are reviewed by the Senior Oversight Group and a Dam Safety Action Classification (DSAC) rating is assigned based upon confirmed or unconfirmed dam safety issues and the combination of life or economic consequences should failure occur. The DSAC ratings are used to prioritize further study to confirm the proposed dam safety issues. If the DSAC rating is 1 through 3, an Interim Risk Reduction Measures (IRRM) Plan is established while further investigations are conducted and/or remedial actions are implemented as necessary.

The first study phase is an Issue Evaluation Study (IES) which confirms the dam safety issue. If more information is necessary to confirm the issues, an IES Phase II study may be undertaken to gather the necessary data to reduce the uncertainty. The results of these studies are presented to the COE Risk Management Center (RMC) and the Dam Senior Oversight Group (DSOG). The results may indicate the need to progress to the next phase of study or reduce the DSAC rating for the dam. If the case is made that the dam is in need of remedial construction then the project moves to the Dam Safety Modification Report (DSMR). The DSMR analyzes potential remedial construction elements to determine the best “fix” to reduce the overall project risk. These studies and remedial construction are prioritized based upon the relative risk estimates at each stage to best make use of the available funding and resources.

Project Location: Brookville Dam, IN

Project Status:

* SPRA (Screening for Portfolio Risk Analysis): 2007
* DSAC (Dam Safety Action Classification) Rating: Class 4
* IRRMP (Interim Risk Reduction Measures Plan): Completed 11 March 2009
* The findings of the Phase 2 Issue Evaluation Study (IES) risk analysis were presented to the Risk Management Center (RMC) in November 2011 and to the Dam Senior Oversight Group (DSOG) in February 2012. The RMC and DSOG agreed with the report recommendation that the project be reclassified to a DSAC 4 based on the results of the risk analysis.

Where We Are Now: Remedial construction is not warranted at this time and the dam was re-classified to a DSAC 4. The project is following the routine O&M surveillance and monitoring program.

Project Location: Cagles Mill Dam, IN

Project Status:

* SPRA (Screening for Portfolio Risk Analysis): 2007
* DSAC (Dam Safety Action Classification) Rating: Class 4
* IRRMP (Interim Risk Reduction Measures Plan): N/A since it is DSAC 4
* IES (Issue Evaluation Study): Not required since it is a DSAC 4

Where We Are Now: Routine O&M surveillance and monitoring program.

Project Location: Cecil M Harden Dam, IN

Project Status:

* SPRA (Screening for Portfolio Risk Analysis): 2009
* DSAC (Dam Safety Action Classification) Rating: Class 3
* IRRMP (Interim Risk Reduction Measures Plan): Completed 30 June 2010
* The findings of the Issue Evaluation Study (IES) risk analysis were presented to the Risk Management Center (RMC) in September 2013 and to the Dam Senior Oversight Group (DSOG) in October 2013. The RMC and DSOG agreed with the report recommendation that the project be reclassified from a DSAC 2 to a DSAC 3 based on the results of the risk analysis. Another recommendation was to pursue subsurface exploration and instrumentation at the ridgeline and dam abutments.

Where We Are Now: Remedial construction is not warranted at this time and the dam was re-classified to a DSAC 3. A Scope of Work and estimate is being prepared for subsurface exploration and instrumentation at the ridgeline and dam abutments. This work will be performed when funding is available. This structure has been reprioritized in the risk study queue.

Project Location: Mississinewa Dam, IN

Project Status:

* SPRA (Screening for Portfolio Risk Analysis): 2009
* DSAC (Dam Safety Action Classification) Rating: Class 2
* IRRMP (Interim Risk Reduction Measures Plan): Completed 27 July 2010
* IES (Issue Evaluation Study): As a result of the 2014 Periodic Assessment, the dam was downgraded to a DSAC 2 rating. The IES Phase 2 was initiated in August 2015. The IES Report will address concerns with unacceptable foundation conditions and associated seepage in order to remove uncertainty and lower project risk. This will determine if the work needs to continue to complete a full Dam Safety Modification Report (DSMR).

Where We Are Now: IES Phase 2 work was initiated in August 2015. Additional field surveys have been performed and a Drilling and Instrumentation Plan is being developed. The drilling and instrumentation are scheduled for completion in October 2016.

Project Location: Monroe Dam, IN

Project Status:

* SPRA (Screening for Portfolio Risk Analysis): 2006
* DSAC (Dam Safety Action Classification) Rating: Class 4
* IRRMP (Interim Risk Reduction Measures Plan): N/A since it is DSAC 4
* IES (Issue Evaluation Study): Not required since it is a DSAC 4

Where We Are Now: Routine O&M surveillance and monitoring program.

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Map

Project Location: Patoka Dam, IN

Project Status:

* SPRA (Screening for Portfolio Risk Analysis): 2008
* DSAC (Dam Safety Action Classification) Rating: Class 4
* IRRMP (Interim Risk Reduction Measures Plan): Completed 30 April 2009
* IES (Issue Evaluation Study): The IES was initiated in February 2014. The IES terminated at an early stage and a Semi Quantitative Risk Assessment (SQRA) was completed in August 2015. The DSAC rating was changed from a DSAC 2 to a DSAC 4. Remedial construction is not warranted at this time. This structure has been reprioritized in the risk study queue.

Where We Are Now: Routine O&M surveillance and monitoring program.

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Map

Project Location: J.E. Roush Dam, IN

Project Status:

* SPRA (Screening for Portfolio Risk Analysis): 2005
* DSAC (Dam Safety Action Classification) Rating: Class 3
* IRRMP (Interim Risk Reduction Measures Plan): Completed 6 November 2007
* The findings of the Dam Safety Modification Report (DSMR) were presented to the Risk Management Center (RMC) in March 2010 and the Dam Senior Oversight Group (DSOG) in June 2010. Based on the reviews, the study was converted from the existing DSMR to a Phase 2 Issue Evaluation Study (IES).
* The findings of the Phase 2 IES risk analysis were presented to the RMC in March 2013 and to the DSOG in April 2013. The RMC and DSOG agreed with the report recommendation that the project be reclassified to a DSAC 3 based on the results of the risk analysis. Other recommendations were to continue the increased instrumentation monitoring and collecting of performance data and to update the current IRRMs.

Where We Are Now: Remedial construction is not warranted at this time and the dam was re-classified to a DSAC 3. This structure has been reprioritized in the risk study queue.

Project Location: Salamonie Dam, IN

Project Status:

* SPRA (Screening for Portfolio Risk Analysis): 2005
* DSAC (Dam Safety Action Classification) Rating: Class 4
* IRRMP (Interim Risk Reduction Measures Plan): Completed 6 November 2007
* The Dam Safety Modification Report (DSMR) was reviewed by the Risk Management Center (RMC) in March 2010 and the Dam Senior Oversight Group (DSOG) in June 2010. Based on the reviews, the title of the study was changed to an Issue Evaluation Study (IES). The report was revised and the IES was completed in April 2011. The DSOG re-classified this dam from a DSAC 2 to a DSAC 4.

Where We Are Now: Remedial construction is not warranted at this time and the dam was re-classified to a DSAC 4. This structure has been reprioritized in the risk study queue.

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Map