S. Hrg. 112–170

THE WIND RIVER IRRIGATION PROJECT—ISSUES ARISING FROM AND CONTRIBUTING TO DEFERRED MAINTENANCE AND OTHER PROJECT MANAGEMENT PROBLEMS

FIELD HEARING

BEFORE THE

COMMITTEE ON INDIAN AFFAIRS
UNITED STATES SENATE

ONE HUNDRED TWELFTH CONGRESS

FIRST SESSION

APRIL 20, 2011

Printed for the use of the Committee on Indian Affairs

U.S. GOVERNMENT PRINTING OFFICE

70–860 PDF WASHINGTON : 2012

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
Fax: (202) 512–2104 Mail: Stop IDCC, Washington, DC 20402–0001

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WEDNESDAY, APRIL 20, 2011

U.S. SENATE,
COMMITTEE ON INDIAN AFFAIRS,
Riverton, WY

The Committee met, pursuant to notice, at 10 o'clock a.m. in the Robert A. Peck Arts Theatre, Central Wyoming College, Hon. John Barrasso, Vice Chairman of the Committee, presiding.

OPENING STATEMENT OF HON. JOHN BARRASSO, U.S. SENATOR FROM WYOMING

Senator BARRASSO. Good morning. Welcome one and all to this incredible center. I am thinking back over the last decade or so about the number of very significant events that have been held here on this campus, specifically in this very room. I am so grateful that President Joy McFarland allowed us to come here today for this hearing.

This is a Senate Committee on Indian Affairs field hearing. I'm John Barrasso, the Vice Chairman of the Committee. Dan Akaka who is from Hawaii is the Chairman of the Committee. We work closely together in a bipartisan way to try to find solutions for problems, and it's a privilege for me to work with him. He has allowed me to come and do this hearing today in my home state. He's back in his home State of Hawaii and was unable to join us today. As you know, we're out on recess this week so I'm traveling around the state of Wyoming, but I've heard from a number of members of our legislature about issues and wanted to come and hold this hearing today.

So I want to welcome everyone to the hearing, which is entitled, "The Wind River Irrigation Project—Issues Arising From and Contributing to Deferred Maintenance and Other Project Management Problems." I want to begin by thanking all of our witnesses for coming today, not only for your willingness to attend the hearing but also for taking the time to prepare and submit the thoughtful written testimony. All written testimonies will be part of the permanent hearing of record.

Our capable staff is here, as well, from the Indian Affairs Committee both representing the Republicans as well as the Democrats, so that this is a bipartisan staff event as well. We have a full-time

Fremont County resident, Travis McNiven, who works on my staff in my Washington office. Travis is well-known to many of you. If you haven't had a chance to know Travis or his family, I recommend that you do so and maybe get his direct phone line so that if there are specific issues in Fremont County, and there are ways we can be helpful, Travis is the guy to get in touch with. We see each other multiple times every day in Washington, and we want to be helpful in any way we can.

I plan to keep my opening statement relatively brief so there will be time to hear from all the witnesses. We have three separate panels today, as well as some time for me to ask questions.

I want to go into a little bit of the history surrounding the Wind River Irrigation Project. I think many of you know the history, but for some that don't, it's specifically for the record today. Located on the Wind River Indian Reservation, home of the Eastern Shoshone and the Northern Arapaho tribes, the earliest phases of the Wind River Irrigation Project dates back to the 1870s. Construction of this irrigation system continued from 1905 until 1926, but the system was never completed to the full extent it was planned. I mean, it's a fascinating history when you go through all of this. So like many Indian irrigation projects around the country, the Wind River project is not new. And as all of you know, it is not modern.

Now today about two-thirds of the project serves the two Wind River tribes or their allottees, and the remaining one-third serves non-Indian irrigators. Of the 51,000 acres that were authorized for irrigation, currently only about 38,000 are assessed for operations and maintenance. The Wind River Project is "revenue generating," and in theory is supposed to be self-sustaining, and we have studies and documents on all of those issues.

Now, there are 15 other of these revenue generating Indian irrigation projects across the United States. There was a report from the Government Accounting Office issued about five years ago on the Reservation, and it says that here, on Wind River, there is a gap between the theory and the reality. The annual assessments do not cover the full cost of operations and the maintenance. Well, as this gap between theory and reality has existed, not just last year or the year before but for many years, and has resulted in a very significant accumulation of, as you know, deferred maintenance, and that is contributed to less than optimal system management. The Wind River Irrigation Project was intended to be a central component for the reservation economy, and when you go back and read the history from the 1800s, that was what the design and desired intent was, to be a central component of the reservation economy. Despite some of the shortcomings that we're going to hear about this morning, it still is to this day a very important source of income and economic development. This project delivers much-needed water for the agriculture economy, farmers and their crops, ranchers and their livestock. The problem is that it falls significantly short of its potential, and some recent government reports do not describe what I see as a positive trend.

The conditions of the Wind River Irrigation Projects and other BIA irrigation projects around the country have been the subject of recent Inspector General and Government Accountability Office reports. The Government Accountability Office issued a report in

2006, which I have here, detailing many deficiencies in the BIA irrigation projects, and the Wind River was one of the projects that was studied for the report. So I'm going to make that 2006 GAO report part of the hearing record, because its findings and its recommendations mark important points of reference for future trends. The report made what I call a preliminary finding that the cost of deferred maintenance at that time was over $84,000,000.

Now, in 2008 they did a condition assessment, the BIA, the Bureau of Indian Affairs, and revised this figure downward to almost $34.8 million for remediating the identified deficiencies of the project; still an incredibly large number. So even if this figure is more accurate—and I'm not sure that it is—then this is still a lot of money. One byproduct of significant deferred maintenance is that it can exacerbate a revenue generating problem which in turn can lead to still more deferred maintenance. Thus, over time, deferred maintenance can threaten a project's long-term sustainability.

The Government Accountability Office made other findings about irrigation project management besides just that of deferred maintenance. One of the things they talked about is a lack of technical expertise to support the projects and failure to adequately involve the project stakeholders; that is, you in this audience, the water users in the decisionmaking about the projects. One of the most ominous findings in the GAO's 2006 report was that the BIA had no long-term plan to address these issues. Let me repeat that: The finding in 2006—it's now 2011—was that the BIA had no long-term plan to address these issues. In its report, the GAO recommended that the Bureau of Indian Affairs conduct a complete condition assessment to determine the long-term sustainability of the project. And in 2008, the BIA completed the, quote, "condition assessment" for the Wind River Irrigation Project that I mentioned. Its assessment echoed several of the findings of the 2006 report. Most disturbing was that several diversion dams were given "critical deficiency" ratings and were recommended for replacement. So critical deficiencies were recommended in 2006 for replacement. Now, as defined in this assessment, a critical deficiency rating means that the feature will pose a threat to the health and/or safety of the user which may occur within two years or that an advanced deterioration hazard will result in the failure of the feature if not corrected within two years. This was a report that was over two years ago. So the implications of these deficiencies goes beyond inefficient irrigation. Hopefully, we'll hear from the department this morning in how it intends to turn these problems around.

At this point, I'm going to introduce the witnesses, and we have three separate panels. Panel one, we have John Anevski, the Chief of Division of Water and Power. He'll be accompanied by Ray Nation, who's the Deputy Superintendent for Trust at the Wind River Agency, and Karl Helvik, the Rocky Mountain Regional Irrigation Engineer for the Bureau of Indian Affairs.

On panel two, we'll hear from Wes Martel, who has a powerpoint presentation and who is Co-Chair of Eastern Shoshone Business Council for the Eastern Shoshone Tribe, followed by Norman Willow, Council Member for the Northern Arapaho Business Council for the Northern Arapaho Tribe. Mike Cottenoir will testify on behalf of the Wind River Water Resource Control Board for the Eastern Shoshone Tribe, and he'll be followed I believe by Sandra C'Bearing, the Co-Chair from the Wind River Water Resource Control Board for the Northern Arapaho Tribe.

Finally, the third panel, we will hear from three individual water users on the Wind River Irrigation Project. First, Will O'Neal, Eastern Shoshone Tribal Member, and a member of the Crowheart Bench Water Users Association, will testify, followed by Clinton Glick, Eastern Shoshone tribal member, and Gary Collins, Northern Arapaho Tribal Member and former Tribal Water Engineer for the Wind River Water Control Board.

Now, again I want to thank the witnesses for taking time out of their schedules to testify today before this Committee and for working with my staff on the hearing. I know this hearing is a considerable interest to people in this community, and obviously it is not possible to have every single stakeholder testify; therefore, we will keep the hearing record open for two weeks so that all interested parties can submit written statements, which will be part of the official hearing record for the United States Senate. And then after the hearing, you can also speak with David Mullon here on my staff. He was, as you know, on Senator Thomas's staff, worked with Indian Affairs in this Committee, has a long, long history, knows this reservation well, and he can tell you how you can get your testimony and things to me. So since the written testimonies will be part of the record, I will ask each of you, please limit oral testimony to five minutes, which I know is sometimes hard to do, but I appreciate your efforts because we want to hear from a lot of people today.

So with that, I invite the first panel to come forward and testimony to begin. Good morning.

STATEMENT OF JOHN ANEVSKI, CHIEF, DIVISION OF WATER AND POWER, BUREAU OF INDIAN AFFAIRS, U.S. DEPARTMENT OF INTERIOR; ACCOMPANIED BY RAY NATION, DEPUTY SUPERINTENDENT FOR TRUST, WIND RIVER AGENCY AND KARL HELVIK, ROCKY MOUNTAIN REGIONAL IRRIGATION ENGINEER

Mr. ANEVSKI. Good Morning, Mr. Chairman. My name is John Anevski, and I'm the Chief of the Division of Water and Power, Bureau of Indian Affairs, U.S. Department of Interior. I am pleased to provide the Department's statement on the Wind River Irrigation Project. Let me begin with a brief discussion of the history of the BIA irrigation program.

The BIA has been involved with Indian irrigation since the mid 1800s starting with the Colorado River Indian Irrigation Project. The BIA is responsible for 15 revenue generating Indian irrigation projects with rivers delivering water to over 700,000 acres of land with 6,200 miles of canals and drains with over 55,000 irrigation structures. Because of the specific statutory authorities, the BIA charges operating and maintenance for these projects to both Indian and non-Indian customers to reimburse the Federal Government for their individual operation maintenance costs, and the Wind River project is one of these. Most of these 15 irrigation projects receive little or no appropriated funds which means these projects operate much like non-profit utilities. All the BIA irrigation projects, including this project, are vital economic contributors to the local communities and regions where they are located.

The BIA operates irrigation projects under various laws, regulations, and policy guidance including Chapter 11 of Title 25 of the U.S. Code, part 171, Title 25 of the Code of Federal Regulations, Part 50, Chapter One, of the Indian Affairs Manual and the BIA Irrigation Handbook which was updated in August 2008. Most projects also have extensive legislative histories including the Wind River Project which has over 50 congressional appropriations and statutes. The BIA completed the operation and maintenance guidelines for the project in 2008. The BIA also consults with Eastern Shoshone, Northern Arapaho Tribes' Joint Business Council and their staff and project water users on a regular basis regarding project matters.

The project was authorized in 1905. The project has been operated and administrated by the BIA at Wind River Agency and consists of a total of 37,883 accessible acres. The project facilities include 67 miles of canals and laterals and 5,268 irrigation structures. The Crowheart and LeClaire units were organized to administer some of the lands in the project. The Regional Irrigation Engineer, who is the officer in charge of the project, administers the project through the project manager who manages, supervises, and administers daily operations in making of the projects. The BIA's operation and maintenance of the project is funded entirely by investments appropriated from approximately 960 landowners and lessees, which include the tribes, individual Indians, and non-Indians. The current 2011 O&M assessment for the project varies from a low of $14 per acre at Crowheart Unit to $21 per acre at the LeClaire Unit with a majority of the project assessed at $20 an acre. The cost of operating and maintaining the project is approximately $715,000 annually. 67 percent of the land is Indian-owned and 33 percent is non-Indian-owned. The BIA recently completed several significant improvements of the project using congressional appropriated funds, including construction of our Wyoming and Montana projects.

The BIA safety dams recently completed rehabilitation of Washakie and Ray Lake dams at approximately $15,000,000, and the BIA annually uses over $30,000 from this program to support ongoing safety dams to make and set the dams. In addition, congress earmarked $3.75 million in fiscal year 2006–2007 for irrigation construction of the project, and the state of Wyoming has matched these funds for the $3.5 million grant.

The BIA is currently preparing for the upcoming irrigation season with deliveries anticipated to begin approximately May 1st and end sometime in late September. Once the season is complete, there are several maintenance activities to be performed, including the installation and/or replacement of several new turnouts, cleaning drains, installation of numerous drains, culvert crossings, and replacement of a check structure and crossing.

For the 2011 season, the BIA is scheduled to bill water users O&M assessments totalling $670,000. As the project has a significant number of fractionated lands, lands with multiple owners, approximately 1,978 bills will be under BIA's economic threshold of

$25 and hence will not be mailed. In 2010 this amounted to just under $8,500. In recent years, project collection rate has hovered around 87 percent. However, in 2010, the project experienced a 92 percent collection rate. The high historical collection rate has been in part due to the BIA's implementation of the Debt Collection Improvement Act.

The BIA is implementing several new initiatives to address the challenges of the Wind River Project and several of its other projects. Some of these initiatives are in response to the recommended remedial actions from various reports by the Department's Officer Inspector General and Government Accountability Office. One recommendation made in these reports was the BIA should increase the level of technical support for project managers by putting these projects under the direct supervision of regional or central irrigation office staff or by implementing more stringent protocols for engineering review and approval of actions taken at the project. In February of 2007, the BIA established policies to ensure adequate technical oversight and assistance it has given to project managers of the BIA irrigation projects. These policies set requirements for Central Office Division of Water and Power staff, Regional Irrigation Engineers, and Irrigation Project Managers to follow for approve oversight, program reviews, assistance, review and approval and standards.

In January 2011, the Rocky Mountain Region realigned irrigation personnel at the agency level to be under the direct supervision of the region for a BIA pilot project. This realignment will more effectively utilize personnel and resources, streamline processes such as contract and purchasing, decrease technical oversight, and reduce administrative costs so more money can be directly spent on operation and maintenance. In addition to these managerial reforms, the BIA is working more closely with water users to be responsive to their concerns and giving water users a greater role in project operations.

In July 2006, policy was established requiring projects to hold water users meetings at least twice annually. This was done in order to provide for more transparent operations and is a method of keeping water users informed of our activities and how we are spending their money. In addition to collecting more feedback on management performance, the BIA is encouraging and empowering water users to make O&M activities for all or part of our project. Currently here at Wind River, there is a memorandum of agreement in place with the Crowheart Bench Water Users Association and a tripartite agreement with the LeClaire Unit and Riverton Valley Irrigation District. Approximately 32 percent of the successful acres on the project of O&M activities contracted out to these agreements. The BIA is also instituting several financial reforms to bring project revenues in line that needed expenditures.

The BIA's policy, similar to that of the Bureau of Reclamation, is that revenues from irrigators must fund the annual O&M operation maintenance with BIA irrigation projects. Historically, the BIA operation and maintenance rate increases were based in part on potential economic impact to the water users. Over time, this tempering of rates has led to budget deficiencies which contributed to the decline of the project, and it's led to critical reviews of this practice by the Office of the Inspector General and the Government Accountability Office. In response of the concerns that have been raised, BIA has been working for several years to increase the assessment rate to a level that better represents the actual costs of operating and maintaining the project. To complement these financial reforms, the BIA has undertaken several initiatives to improve its maintenance management to ensure O&M assessments are spent effectively.

Engineering condition assessments have been commissioned for most BIA irrigation projects with the Wind River scheduled to be completed in a 2008 (HKM Engineering Study). The 2008 study estimated a replacement value of the project to be approximately $93,000,000. Deferred maintenance for the project is estimated at $28 million.

In 2008, the BIA revised its irrigation regulations of Title 25, Part 171, of the Code of Federal Regulations. The revision includes two key features that will include all of the BIA irrigation projects, annual assessment waivers and Incentive agreement. The annual assessment waivers are designed to allow for an easy method to waive O&M assessments for lands to which the BIA cannot deliver water. The past regulations required BIA to bill water users, and the water users had to appeal the bill to receive a refund. Consent agreements provide incentives to potentially to lessees to bring idle lands into production. Many BIA projects have lands that have become idle or have not been farmed for many years. Consent agreements allow the projects to waive the irrigation O&M assessment for up to three years if the landowner or lessees make improvements to the land to bring them back into production. These agreements benefit the landowners by improving the value of their land and will increase the project revenues.

I thank you for your time and for your consideration on this issue.

I will be happy to answer any questions you may have.

[The prepared statement of Mr. Anevski follows:]

PREPARED STATEMENT OF JOHN ANEVSKI, CHIEF, DIVISION OF WATER AND POWER, BUREAU OF INDIAN AFFAIRS, U.S. DEPARTMENT OF INTERIOR

Good morning Mr. Chairman, I am John Anevski, Chief, Division of Water and Power, Office of Trust Services, for the Bureau of Indian Affairs (BIA) in the U.S. Department of the Interior (Department). I am pleased to provide the Department's statement on the Wind River Irrigation Project (Project). Let me begin with a brief discussion of the history of the BIA's irrigation program.

The BIA has been involved with Indian irrigation since the mid-1800s starting with the Colorado River Indian Irrigation Project. The BIA is responsible for fifteen revenue-generating Indian irrigation projects that deliver irrigation water to over 700,000 acres of land through 6,200 miles of canals and drains with over 55,000 irrigation structures. Because of specific statutory authorities the BIA charges operation and maintenance (O&M) assessments on these projects to both Indian and non-Indian customers, to reimburse the Federal Government for their individual O&M costs (the Project is one of these). Most of these fifteen projects receive little or no appropriated funds, which means these projects operate much like a non-profit private utility. All of the BIA's irrigation projects, including the Project, are vital economic contributors to the local communities and regions where they are located.

The BIA operates its irrigation projects under various laws, regulations and policy guidance, including chapter 11 of title 25 of the U.S. Code, part 171 of title 25 of the Code of Federal Regulations, Part 50, Chapter 1 of the Indian Affairs Manual, and the BIA National Irrigation Handbook (August 2008). Most projects also have extensive legislative histories, including the Wind River Project, which has over fifty congressional appropriations and statutes. The BIA completed O&M Guidelines for the Project in 2008. The BIA also consults with the Eastern Shoshone and Northern Arapahoe Tribes' (Tribes) Joint Business Council and their staff, and Project water users on a regular basis regarding Project matters.

The Project was authorized in 1905. The Project is operated and administered by the BIA, at Wind River Agency, and consists of a total of 37,883 assessable acres. The Project facilities include 467 miles of canals and laterals and 5,268 irrigation structures. The CrowHeart and LeClair units were organized to administer some of the lands in the Project. The Regional Irrigation Engineer, who is the Officer-in-Charge of the Project, administers the Project through the Project Manager who manages, supervises and administers the daily operations and maintenance of the Project.

The BIA's operation and maintenance of the Project is funded entirely by assessments from approximately 960 landowners and lessees which include the Tribes, individual Indians and non-Indians. The current (2011) O&M assessment for the Project varies from a low of $14.00/acre at the CrowHeart unit to $21.00/acre at the LeClair Unit with the majority of the Project assessed at $20.00/acre. The cost to operate and maintain the Project is approximately $715,000 annually. Sixty-seven percent of the land is Indian owned and thirty-three percent is non-Indian owned. The BIA recently completed several significant improvements at the Project using congressionally appropriated funds for construction on our Wyoming and Montana projects.

The BIA Safety of Dams program recently completed rehabilitation of Washakie and Ray Lake Dams at a cost of $15 million. And the BIA annually uses over $30,000 from this program to support ongoing Safety of Dams maintenance at these dams. In addition, Congress earmarked $3.75 million in Fiscal Year 2006 and 2007 for irrigation construction at the Project and the State of Wyoming has matched these funds with a $3.5 million grant.

The BIA is currently preparing for the upcoming irrigation season with deliveries anticipated to begin approximately May 1 and end sometime in late September. Once this season is complete there are several maintenance activities the BIA plans to perform, including the installation and/or replacement of several new turnouts, cleaning of drains, installation of numerous drain culvert crossings, and replacement of a check structure and crossing.

For the 2011 irrigation season, the Project is scheduled to bill water users O&M assessments totaling $670,018. As the Project has a significant number of "fractionated" lands, lands with multiple owners, approximately 1,978 bills will be under BIA's economic threshold of $25, and hence, will not be mailed. In 2010, this amounted to just under $8,500. In recent years, the Project's collection rate has hovered around 87 percent. However, in 2010, the Project experienced a 92 percent collection rate. The high historical collection rate has been, in part, due to the BIA's implementation of the Debt Collection Improvement Act.

The BIA is implementing several new initiatives to address challenges at the Wind River Project and several of its other projects. Some of these initiatives are in response to recommended remedial actions from various reports by the Department's Office of Inspector General and the Government Accountability Office. One recommendation made in those reports was that BIA should increase the level of technical support for project managers by putting these projects under the direct supervision of regional or central irrigation office staff or by implementing more stringent protocols for engineering review and approval of actions taken at the projects. In February 2007, BIA established policies to ensure adequate technical oversight and assistance is given to project managers of the BIA irrigation projects. These policies set requirements for Central Office Division of Water and Power staff, Regional Irrigation Engineers and Irrigation Project Managers to follow for improved oversight, program reviews, assistance, review and approval, and standards.

In January 2011, the Rocky Mountain Region realigned irrigation personnel at the Agency level to be under the direct supervision of the Region for a BIA pilot project. This realignment will more effectively utilize personnel and resources, streamline processes such as contracting and purchasing, increase technical oversight, and reduce administrative costs so more money can be directly spent on O&M. In addition to these managerial reforms, the BIA is working more closely with water users to be responsive to their concerns and giving the water users a greater role in Project operations.

In July 2006, policy was established requiring projects to hold water users meetings at least twice annually. This was done in order to provide for a more transparent operation and as a method to keep our water users informed of our activities and how we are spending their money. In addition to collecting more feedback on its management performance, the BIA is encouraging and empowering water users to take over O&M activities for all or parts of the Project. Currently, here at Wind River, there is a memorandum of agreement (MOA) in place with the Crowheart Bench Water User Association, and a tripartite agreement with the LeClair Unit and Riverton Valley Irrigation District. Approximately 32 percent of the assessable acres on the Project have the O&M activities contracted out through these agreements. The BIA is also instituting several financial reforms to bring project revenues in line with needed expenditures.

The BIA's policy, similar to that of the Bureau of Reclamation, is that revenues from irrigators must fund the annual O&M for BIA irrigation projects. Historically, the BIA tempered O&M rate increases based, in part, on the potential economic impact to water users. Over time, this tempering of rates resulted in budget deficiencies which contributes to the decline of the projects and has led to critical reviews of this practice by the Office of Inspector General and the Government Accountability Office. In response to the concerns that have been raised, BIA has been working for several years to increase the assessed rate to a level that better represents the actual cost of operating and maintaining the projects. To complement these financial reforms the BIA is undertaking several initiatives to improve its maintenance management and ensure O&M assessments are spent effectively.

Engineering condition assessments have been commissioned for most BIA irrigation projects, with the Wind River study being completed in 2008 (HKM Engineering Study). The 2008 study estimated the replacement value of the Project to be approximately $93 million. The deferred maintenance for the project is estimated at $28 million.

In 2008, the BIA revised its irrigation regulations at title 25 part 171 of the Code of Federal Regulations. The revision includes two key features that were included to benefit all of the BIA irrigation projects, Annual Assessment Waivers and Incentive Agreements. The Annual Assessments Waivers are designed to allow for an easy method to waive the O&M assessments for lands to which the BIA cannot deliver water. The past regulations required BIA to bill the water user and the water user had to appeal the bill to receive a refund. Incentive Agreements provide incentive to potential lessees to bring idle lands into production. Many BIA projects have lands that have become idle and have not been farmed for many years. Incentive Agreements allow the project to waive the irrigation O&M assessment for up to three years if the landowner or lessee agrees to make improvements to the lands to bring them back into production. These agreements benefit the land owner by improving the value of their land and will increase the Project's revenues.

I thank you for your time and for your consideration of this issue. This concludes my prepared statement. I will be happy to answer any questions you may have.

Senator BARRASSO. Thank you. I appreciate you being here. Where are you headquartered?

Mr. ANEVSKI. I'm out of Washington, D.C.

Senator BARRASSO. I appreciate you taking the time to be here. Looking around to see who is joining us, I see there are a number of members of our select committee on tribal relations that are part of our state legislature that are here, and they are the ones that initially contacted me about trying to hold this hearing today. The Co-Chairmen are Kale Case and Dale McOmie and other State Senators are Paul Bernard and Wayne Johnson. I see Wayne here today and Representative Patrick Goggles, who lives here on the reservation, and as well as representative Jeff Stewart. So these are people who have been focused on this.

I have a number of questions. I let you go on a little bit longer than five minutes because I think people want to hear all of this information. I have a number of questions, and it's kind of interesting because, you know, according to the BIA's budget justification for the fiscal year 2012, BIA requested about 12 million, 11.93 million, in appropriations for the 16 of these revenue generating Indian irrigation projects. It's my understanding the BIA does not plan to direct any of the requested appropriations to the Wind River Irrigation Project for this fiscal year. Could you please help all of us here understand why the BIA does not plan to direct any appropriations from 2012, the 12 million, to the Wind River Irrigation Project.

Mr. ANEVSKI. Yes, sir. That fund is mostly for our mandatory payments which are by court order or legislative mandates that we have to fund on some irrigation projects. There's actually legislation and/or court orders that tribes have taken us to court that we have to pay for trust land that are not leased on those projects. So we are paying for those, and that's probably $3,000,000 or $4,000,000 of that fund. There's other irrigation related water rights that we're paying out of that fund. We do have to pay for the Navajo Indian Irrigation Project, which is approximately $4,000,000. We pay the operation and maintenance, and that again is by the 1962 Act with the Navajo Indian Irrigation Project which requires us to pay that fund. And we also fund part of the irrigation billing and collection system for our 15 or 16 revenue generating projects. So the billing and collection and debt management is paid for by appropriated funds out of that account. So there's a lot of different things in that account, but in the past, back in the 1970s, 1980s, maybe early 1990s, some of those O&M funds were going out to some projects, but as the mandatory funds costs kept increasing, we lost a discretionary amount to that fund.

Senator BARRASSO. As I mentioned in the opening statement, one of the most ominous findings in the 2006 report was that the BIA had no long-term plan to address the deferred maintenance issue. So I understand to date we still have not, through the BIA, produced a long-term plan. When can we expect the Bureau of Indian Affairs to produce a long-term plan to address the deferred maintenance issues?

Mr. ANEVSKI. To be honest, we have been addressing it slowly. The critical deferred list and the HCAM reports, that's the first step, especially at Wind River here. We're actually working our way down the priority list as we have funding. We have that 3.7 million dollars earmarked for the projects so we've been using those funds. So the condition assessments were needed to help us develop the list. So all our projects we're working on developing the high priority items to fix the list. And the problem is, if we're just rely on the revenues, the O&M assessments, operation assessments, like the Wind River here, the full cost would be around 35 to $40 an acre versus the $20 just to really go and rehabilitate it, which would be an economic disaster for all the farmers. So we're trying to limit our O&M rates, and we're slowly—you know, the appropriated funds we did receive we're slowly going to work on fixing the projects as best we can and keep the economics reasonable for farmers.

Senator BARRASSO. Words like slowly and working down the list, that's not something that the folks here—people in Wyoming kind of like when they see a problem, they fix it, and move onto the next thing. So I'm trying to figure out if you're going to come out with a long-term plan, and I was wondering what the process is going to be to put this long-term plan together. And this might have been 2006. I don't know if you were doing this job in 2006. We're now five years down the line when they said we're going to have a long-term plan. Can you help us along?

Mr. ANEVSKI. And that was the end of my first year there in D.C. Like I said, the condition assessments are the first part. And part of the IG reports talk about sustainability of the projects and recommend we do a sustainability study of which condition assessments are one part of it. But we still would have to look at the economics and a lot of other things which would cost us a lot of money which we don't have. We haven't been focusing, I'll be honest, and I guess that's something we should really focus on. My division, Central Office Division of Water and Power, will be looking at that and as we staff up will be working to develop a long-term plan.

Senator BARRASSO. Yes, I've noticed—I've only been in the Senate for about three and a half years, but I noticed there doesn't seem to be a lot of focus, throughout, a long-term plan for so many things. And I would recommend to you to try to get to that and move that up in the priority list of things that need to be done, because it's troubling when you read an assessment, even the findings from the 2008 condition assessment, it's nearly 77 percent of the project units reviewed received critical deficiency ratings, and you're talking 2008, now 2011. That could potentially mean a threat to the health and safety of the users, and those are the things that people are concerned about and say what is really going on here. This isn't the highest of the high up. In the written testimony, as I think you stated, there was a program with safety of the dams that completed the rehab of the Washakie and Ray Lake dams at a cost of about 15 million. What does the BIA plan to do to deal with the structure described with the other structures described in 2008 as really critically deficient? What can the BIA do in the interim to address these deficiencies while you're working on the long-term plan?

Mr. ANEVSKI. On the critical list, annually we work on the list, and we work with the tribes and water users and talk about what we're going to be doing. And we're using some of the appropriated funds, and we'll be working our way down the list to fix those issues.

Senator BARRASSO. I ask how it is, how do you involve the tribes and involve the users, and I think you said we work with the tribes. I'm curious as to what exactly you do so people who are here--

Mr. ANEVSKI. Well, we do have two water user meetings a year, there are two different locations each time at Crowheart and Ethete, and then the regional—the agency staff actually attends the tribal water engineers office meetings monthly, is it?

Mr. NATION. Actually twice a month.

Mr. ANEVSKI. So we're meeting with them twice a month.

Senator BARRASSO. I wonder if you could introduce your two guests. Maybe everybody in the audience knows them, but if you wouldn't mind.

Mr. ANEVSKI. Ray Nation, he's the Deputy Superintendent for Trust at the Wind River Agency stationed in Fort Washakie. Karl Helvik is the engineer and also the officer in charge of the project, and he's located in Billings, Montana, at the Rocky Mountain Regional Office.

Senator BARRASSO. Just a couple of additional questions. The 2006 GAO report found that additional water storage and improved efficiency were needed to meet the demands for water; however, according to the BIA, operation and maintenance fees may not be used for capital improvements. So how does the BIA estimate the accommodation of additional water demands, and given that from 1926 when they stopped, they never really got the full completion of what was envisioned for this area?

Mr. ANEVSKI. Right. And I probably can't fully answer that question, but when we fix the dams, both dams were under restrictions that we could only store water to a certain level. So the Washakie dam now we can store water to the full height. And Ray Lake's, that was the same thing, had a restriction on it for many years, and now that it's been fixed we can store more water there. But adding more stored facilities, there are not really any plans for that.

Senator BARRASSO. Do you believe the Wind River Irrigation Project can meet the Wind River demands with out additional capital?

Mr. NATION. No, Senator, it can't. Normally during the spring irrigation season, if we get a late runoff, the Crowheart Unit has to wait in order to build water in order to flush the system and get water out the 1st of May. The same with the Ray Canal, the Cooley system which is around Fort Washakie, depending on how spring runoff is, we have to wait for Washakie to build up storage. So depending on the spring runoff, when that comes, during the month of September normally Washakie reservoir is out of water and Washakie reservoir serves water to, like, around 20,000 acres. So the month of September, there's hardly any water in the system for roughly 20,000 acres of land. We go to stock water. We do need storage in the Little Wind drainage for Ray Coolidge and subagency. Crowheart also during the month of September doesn't have a lot of water so it also needs storage some place upstream.

To talk about your question on long-term planning, right now we've got kind of a three-year plan. We've got 12 major structures that are going to be rehabilitated using the state and the federal funds. But for long-term planning, that's going to take planning between the government and the tribes, because as you know, the BIA can't go to Congress and get money. We can't go to Wyoming and get money. Because of that and with the help from the tribes, that's how we got this $7,000,000 so the tribes are going to be part of this big planning process as far as rehabilitating the project. But for right now, like I said, our three-year plan is to do the 12 structures, possibly do some piping of some laterals, and then with our BIA staff, we plan on picking away at some of the other structures that are identified in the HCAM report that are priority, realizing that some of those structures we don't have the power to do so we're going to have to contract some of that out. So that's kind of our three-year plan, and then the long-term plan is going to be up to Congress and the tribes being able to lobby congressmen for more money.

Senator BARRASSO. Just some last follow-up questions on all of this—Karl, if you want to jump in on any of this, feel free to answer. I know there's concerns among the water users in this room about how the BIA spends operation and maintenance fees, and I know there's concerns that BIA spends some of these operation maintenance fees on administrative expenses that maybe ought to be covered under the agency's own appropriations. There are also concerns that the administrative expenses make up too high of a percentage of the fees as well. So can you please give the Committee a breakdown of how the BIA spends its operation and maintenance fees that it collects from the water users on this irrigation project?

Mr. ANEVSKI. I guess generally I'd like to point out the administrative fees, a lot of times people look at all salaries and a lot of the salaries are going to the people doing operation and maintenance, the ditch riders, the maintenance workers and stuff. So those really need to be split out that they're operation and maintenance versus admin. We do admin fees which is like a project manager and accounting techs running the office. I don't know if you wanted to——

Senator BARRASSO. Ray, do you want to——

Mr. NATION. Yes, for some reason, there's people thinking that we spend a lot of money on salaries, and we actually do but realizing that under our operations——

Senator BARRASSO. Let the record reflect that they do.

Mr. NATION. We do. Yes. We have four ditch riders that operate and maintain and deliver water.

Senator BARRASSO. On the ground.

Mr. NATION. That's $134,000. As far as maintenance, we have two equipment operators, and they do nothing but run equipment, put in head gates, clean out head gates, put in laterals. And their costs are $112,000. Those are salaries, but those people are needed to operate the system. Our administrative staff is $147,000. That's for the project manager or civil engineer, whatever you want to refer to that person as, and also our accounting technician. Those two positions are hired. You have to have a supervisor in order to conduct day-to-day work schedules for water delivery and maintenance. So that's kind of why our salaries seem to be high, but it's not that they're getting paid to do nothing. They're out there delivering water and helping operate and maintain the system.

Senator BARRASSO. I think it's helpful for you to describe where the salaries go and water on the ground and people and different places. Karl, do you have anything that you'd like to add?

Mr. HELVIK. Yes, I'd like to add that the project manager of those two accounting technicians is necessary because we do the billing and collection for the entire project out to those ones that we contracted so we're providing that service to everybody.

Senator BARRASSO. Well, Ray, John and Karl, I appreciate you being here. Thank you for testifying. We'll make your written statements part of the record. If you have anything you'd like to add, any of the questions I've asked, please feel free to include that, and we'll keep the record open for the next two weeks. Thanks for being here.

Mr. NATION. Thank you.

Mr. ANEVSKI. Thank you.

Senator BARRASSO. I'd like to call up our second panel, please. Thank you very much for taking time out of your schedule to be with us today. We're going to start, if you could, with Wes Martel, who is Co-Chairman, Eastern Shoshone Business Council, Eastern Shoshone Tribe of the Wind River Reservation, Fort Washakie.

STATEMENT OF HON. WESLEY MARTEL, CO–CHAIRMAN, EASTERN SHOSHONE BUSINESS COUNCIL, EASTERN SHOSHONE TRIBE OF THE WIND RIVER RESERVATION

Mr. MARTEL. Senator Barrasso, I'd like to start off by thanking you for holding this field hearing. I'd to thank the tribal relations committee from the state legislature for their support in this event coming to Riverton, and we really appreciate this.

So Honorable Senator Barrasso, distinguished guests, and Committee staff and council, I come before you today to offer comments related to the Wind River Irrigation Project and other management problems. Let me begin by noting that for all things living on this great earth, water is our livelihood. As tribes we strive to maintain our culture and spiritual beliefs, and water is that special resource that sustains us and allows us to take our place destined to provide a positive future and hope and energy to our people.

Government beginnings began with the signing of the treaty of 1863 whereby Shoshone tribe was designated over 44,000,000 acres of land. This treaty was followed by subsequent treaties which narrowed our land base to the present day acres of approximately 2.2 million acres. Problems started when congress passed the Reclamation Act of 1902 whereby well over a million acres of this reservation was opened up for homesteading. This brought a morass of issues, challenges, and confronts to triable sovereignty, which we now confront on a daily basis. In 1905 to the present, Bureau of Reclamation's attention and resources were devoted mainly to the homesteaders.

Since 1905, over $77,000,000 was put into irrigation works and structures north of the Big Wind while approximately $6,000,000 has been put into the BIA project. The Indian moneys that were earmarked for Indian irrigation improvements were diverted to the reclamation fund thus the huge disparity. In addition, the Bureau of Reclamation exploited tribal resources without proper consent and approval, and the tribe just recently were awarded $33,000,000 for partial compensation of this misdeed. Another affront to the Federal/Tribal trust relationship is the Bureau of Reclamation's stance that section eight of the 1905 Act requires them to administer resources according to state law. Virtually all Tribes in this country oppose this infringement upon a valuable trust resource.

Based on the history surrounding the BIA reclamation project, the Joint Business Council and the Wind River Water Resources Control Board have four major consequences of federal and state management on the Wind River Basin that require separate research and investigation. These are federal appropriations of tribal reserve water rights to serve non-Indian hydropower interest, use of tribal funds to construct major federal and non-federal irrigation, storage and hydropower facilities on the Wind River Reservation, diversion of tribal revenues into the U.S. Treasury for use in paying costs of the irrigation project, O&M on existing canals and surveying costs of the Wind River Reclamation Project from 1906 to 1942, and diversion of tribal water by the State of Wyoming based on use of Wyoming water law to declare surplus conditions, depriving tribal use of the water resource from 1989 until the present.

The federal and state use of tribal water and tribally funded irrigation and power facilities has deprived the tribes exercising the right to manage and use the water for their economic development and community well-being. In addition, these actions and diversion of tribal funds have resulted in environmental damage, economic damage, and lost opportunities for economic development. Research indicates that the users have overpaid O&M fees for the Wind River Irrigation Project. Initial legislation authorized the Riverton project in 1905, formerly the Wind River Irrigation Project which is no relation to the tribal system, specified that the tribes were only to pay $150,000 in a one-time payment for O&M fees for the tribal system. This could mean the tribe overpaid the O&M fees for the Wind River Irrigation Project by millions of dollars.

My initial stint as an elected official of the Shoshone Tribe began in 1979, not too long after the state of Wyoming filed the Big Horn Adjudication of 1977. These water boards made us realize the extreme importance exercising tribal sovereignty wisely to protect our people and our future. Eventually, there are two major activities that must begin immediately in order to fully pursue a diversion of tribal water and funds. Research and strategy development on head water issues including economic, environmental, legal, social, cultural, and political impact of diversion of tribal water, continued strengthening and reorganization of the tribal water management function, including the Office of the Tribal Water Engineer and the Wind River Water Resources Control Board.

We have been building our technical administrative capability to make stronger our tribal government and strengthen families and communities to bring progress and positive economic impact to our reservation and our region. As you well know, Wind River ag. and livestock, recreation, and tourism are sectors of the bulk of our economy. The further development of nonrenewable resources—wind, solar, geothermal, biomass, and hydropower allows us a major role to play in the energy security of this nation as well as reducing our dependence on foreign energy sources. The most important resource in our future growth is water.

Our purpose today is to bring respect and dignity to the trust obligation. When our four fathers signed the treaties asserting our homelands, it was not a grant of rights to us but a grant of rights from us. The permanent homelands established by treaty were meant to uphold the intent to evolve over time and embark on a path assuring livelihood and advanced civilization.

The GAO's report of July 3rd of 1996 and February 3rd, 2006, address various issues surrounding the allocation and repayment of costs constructing federal water projects including the allocation of these costs among the projects' various purposes and irrigators of their share of the costs. We have testified over the decade at many sessions of the Senate Select Committee of Indian Affairs and now the Senate Committee of Indian Affairs all to no avail. It is my solemn wish that this distinguished committee with leadership and foresight begin and deliver a process to not only ensure that the sovereign Indian nations of this country have reliable sources of water but to acknowledge the trust obligation exists in relation to the most critical resource, water. Thank you for your time, sir.

[The prepared statement of Mr. Martel follows:]

PREPARED STATEMENT OF HON. WESLEY MARTEL, CO-CHAIRMAN, EASTERN SHOSHONE BUSINESS COUNCIL, EASTERN SHOSHONE TRIBE OF THE WIND RIVER RESERVATION

Honorable Sen. Barasso, distinguished guests and Committee Staff and Counsel, it gives me pleasure to come before you today to offer comments relating to the Wind River Irrigation Project ("Project") and other management problems. Let me begin by noting that for all things living on this Great Earth water is our lifeblood. As, Tribes we strive to maintain our culture, tradition and spiritual beliefs, and water is that special resource that sustains us and allows us to take our place destined to provide a positive future and hope and energy to our people.

Governmental beginnings began with the signing of the Treaty of 1863, whereby the Shoshone Tribe was designated over 44,000,000 acres of land. This Treaty was followed by subsequent Treaty's which narrowed our land base to the present day acreage of approximately 2.2 million acres. The problems started with Congress' passage of the Reclamation Act of 1902 whereby well over a million acres of this Reservation were opened up to homesteading. This brought a morass of issues, challenges and affronts to tribal sovereignty which we now confront on almost a daily basis!

From 1905 to the present Bureau of Reclamation's attention and resources were devoted mainly to the homesteaders. Since 1905, over $77,000,000 has been put into irrigation works and structures north of the Big Wind River while a paltry $6,000,000 has been put into the BIA Project! Indian moneys that were earmarked for Indian Irrigation Improvements were diverted to the Reclamation Fund thus the huge disparity. In addition, Bureau of Reclamation exploited tribal resources without proper consent and approval and the Tribes just recently were awarded $33,000,000 for partial compensation of this misdeed. Another affront to the Federal/Tribal trust relationship is the Bureau of Reclamation's stance that Section 8 of the 1905 Act requires them to administer tribal trust resources according to State Law! Virtually all Tribes in this country would oppose this infringement upon a valuable trust resource.

Based on the history surrounding the BIA and Reclamation Projects, the Joint Business Council and the Wind River Water Resources Control Board have four major consequences of federal and state management in the Wind River Basin that will require extensive research and investigation. These are:

1. Federal appropriation (condemnation) of Tribal reserved water rights to serve non-Indian irrigation and hydropower interests.
2. Use of Tribal funds to construct major federal and non-federal irrigation, storage and hydropower facilities in the Wind River basin (1906-1942).
3. Diversion of Tribal revenues into the US Treasury for use in repaying costs of the irrigation project, O&M on existing canals and surveying costs of the Riverton Reclamation Project from 1906-1942.
4. Diversion of Tribal water by the State of Wyoming based on use of Wyoming water law to declare surplus conditions, depriving the Tribes of the use of their water resources from 1989 until the present.

The federal and state use of tribal water and tribally-funded irrigation and power facilities has deprived the Tribes of the exercise of their rights to manage and use the water for their economic development and community well-being. In addition, these actions and the diversion of tribal funds have resulted in environmental damage, economic damage and lost opportunities for Tribal economic development. Research indicates that the users have overpaid O&M fees for the Wind River irrigation project. Initial legislation authorizing the Riverton Project (1905, formerly the 'Wind River Irrigation Project', no relation to the Tribal system) specified that the Tribes were only to pay $150,000 -- in a one-time payment - for O&M fees for the Tribal system. This could mean the Tribes have overpaid - the O&M fees for the Wind River Irrigation Project by millions of dollars.

My initial stint as an elected official of the Shoshone Tribe began in 1979, not too long after the State of Wyoming filed the Big Horn Adjudication in 1977. These water wars made us realize the extreme importance of exercising tribal sovereignty wisely to protect our people and their future. Essentially, there are two major activities that must begin immediately in order to fully pursue the diversion of Tribal water and funds:

1. Research and strategy development on headwaters issues, including economic, environmental, legal, social, cultural and political impacts of the diversion of Tribal water.
2. Continued strengthening and reorganization of the Tribal water management function, including the Office of the Tribal Water Engineer and Wind River Water Resources Control Board.
3. Inclusion of the Federal government in these endeavors.

We have been building our technical and administrative capabilities to make stronger our tribal government and strengthen families and communities to bring progress and positive economic impact to our Reservation and our region. As you well know, sir, Wind River is a smaller version of Wyoming. Energy development, agriculture and livestock, recreation and tourism, and governmental sector jobs are the bulk of our economy. The further development of non-renewable resources and renewables - wind, solar, geothermal, biomass and hydropower - allows us a major role to play in the energy security of this nation as well as reducing our dependence on foreign energy sources. The most important resource in future growth and advancement is water!

Our purpose today is to bring respect and dignity to the trust obligation. When our forefathers signed the treaties asserting our homelands it was not a grant of rights to us, but a grant of rights from us! The permanent homelands established by treaty were meant to uphold the intent of allowing tribal life to evolve over time and embark on a path assuring livelihood and ability to advance in civilization.

The General Accounting Office's Reports of July 3, 1996 and February 2006 address various issues surrounding the allocation and repayment of the costs of constructing federal water projects, including the allocation of these costs among the projects' various purposes and irrigator's repayment of their share of costs. We have testified over the decades at many sessions of the Senate Select Committee on Indian Affairs and now the Senate Committee on Indian Affairs, all to no avail. It is my solemn wish that this distinguished Committee, with leadership and foresight, begin a deliberative process to, not only ensure that the sovereign Indian Nations of this country have reliable sources of clean water, but to also acknowledge the trust obligations that exist in relation to the most critical of resources -- water!

Attachments: -Letter from Bureau of Indian Affairs acknowledging Wind River Water Code of the Shoshone and Arapaho Tribes
-Wind River Water Code
-Water Management Plan of the Eastern Shoshone & Northern Arapaho Tribes

The attachments have been retained in Committee files.

Senator BARRASSO. Thank you very much. Norman Willow is next, the Honorable Norman Willow is Council Member, Northern Arapaho Business Council, Northern Arapaho Tribe, Wind River Reservation, Fort Washakie, Wyoming. Thank you very much.

STATEMENT OF HON. NORMAN WILLOW, COUNCIL MEMBER, NORTHERN ARAPAHO BUSINESS COUNCIL, NORTHERN ARAPAHO TRIBE, WIND RIVER RESERVATION

Mr. WILLOW. Greetings to all and all the fellow residents within the boundaries of the reservation. This affects us all, and I think we started out with irrigation. And it goes way back. Trying to make farmers out of us. They allocated land, allocated water, and we have a senior water right to this land here. And that's not being looked at like the way we want it to be looked at, and there was Indian appropriated money when they built these systems. We don't even have a right to vote on this irrigation systems, but we come here to ask the Federal Government to unstrangle us with the state and the state law that's been passed down onto us. The water is necessary for agriculture, ceremony, and healthy rivers.

We have a decree where the court awarded 500,000 acre feet of water, with the State of Wyoming suing us but we won, you know. We can't use our water rights on whatever because of poor irrigation system. It's outdated, lack of maintenance, and our systems are 20 to 30 percent deficient. And in the interest of native irrigators have been promoted by the state that should be tribal members benefitting, and a former U.S. Senator, Wyoming Supreme Court Judge explained the state policy that you look at Coolidge, looked at LeClaire, there's a big water difference right before our eyes, full capacity, hardly any capacity on our side. And then the injustice we can see it right before our eyes as one failed policy, it has at least three fields a year without any compensations to the tribe, the senior water right holders.

I have a little different view than all other, and we shouldn't take our system for under 638, because it's not even deliverable. Our lands are being reclassified because they're not irrigated, but that's because of the system. The system is not working. We can't accept the reclassification of the lands due to nondeliverable water. We're not using the land because water can't be delivered. Changing our class six to class one funding and no funding, the Federal Government needs to evaluate things reservation-wide, realize what's happening here. We need to see our manager, our water office. And, you know, this is my interpretation of what's been going on, and you have all these people reporting. Well, a lot of them isn't happening. They say they have big plans. You've got to excuse me, I'm recovering from cancer, and I had surgery. Anyway, you know, how can we compensate the senior water right, and that's the tribe's. We're being left out considerably. I know that these farmers, the irrigators all around here. They have a different view than I do, but, you know, we need to work this thing out. We need to be recognized a little more, and we need to be compensated because we are the senior water right holders here.

And in closing, I don't want to take up too much time. I wish everybody well, and I would like to see some kind of compensation coming to the tribe, because a lot of it was done by Indian people, Indian appropriated money, yet we're not using it. Thank you.

[The prepared statement of Mr. Willow follows:]

PREPARED STATEMENT OF HON. NORMAN WILLOW, COUNCIL MEMBER, NORTHERN ARAPAHO BUSINESS COUNCIL, NORTHERN ARAPAHO TRIBE, WIND RIVER RESERVATION

- History of Irrigation, Wind River Indian Reservation: Did Tribal Funds Build the Riverton Reclamation Project?
  - Did the 1905 Act authorize the construction of *any* irrigation project on the lands north of the Wind River?
  - NAT research shows that the Riverton Reclamation Project was once known as the "Wind River Indian Irrigation Project", and that monies designated for Tribal irrigation projects was instead diverted to build this project north of the river, on the 1905 Act lands. The structures constructed with "Indian funding" include Diversion Dam, the Wyoming Canal, Pilot Butte Reservoir, and the Dry Creek, Le Clair and Riverton Valley canals.
  - In addition to funds for direct construction of these facilities, a portion of the operation and maintenance costs for the irrigation project on the 1905 Act lands were repaid by funding earmarked for "Indian irrigation projects."
  - In 1942 the Wind River Indian Irrigation Project was reauthorized as the Riverton Reclamation Project and is now a distant and minimally contributing component of the Missouri River Pick-Sloan program or 1944 Flood Control Act.
  - During this period between 1905 and 1942, the Indian irrigation project on the non-195 act lands, the Wind River Irrigation Project on the south side of the Wind River, was never finished and is today in serious disrepair.

- Big Horn Decree affirmed a federal reserved water right in 1988 to 500,000 acre feet of water from the Wind River and its tributaries.
  - The Bureau of Indian Affairs and the Bureau of Reclamation have failed to protect the value and use of these waters for the benefit of the Northern Arapaho and Eastern Shoshone Tribes
  - The Tribes have a Water Law that is the framework for the use, management, and protection of water on the Wind River Indian Reservation. The WRIR has an administrative agency for water, the Tribal Water Engineer's office. A Water Plan has been developed for the WRIR. Despite this, the Tribes are not allowed to manage or sometimes even use their own water.

        - The Bureau of Indian Affairs and the Bureau of Reclamation do not recognize nor incorporate these key Tribal protocol and plans in any of their water management decisions.
    - The Bureau of Indian Affairs has violated its own rules in 25 CFR Part 171
        - Failed and refused to deliver the full amount of quantified federal reserved water to Tribal irrigated lands,
        - Failed to develop a plan for the delivery of 1868 water in accordance with the Water Code and water right priority
        - Failed to develop a plan for and guard the productive value of the irrigable lands of the Wind River Indian Reservation

- Waste, Fraud, and Abuse of 1868 Tribal Water Rights in Irrigation-Related Uses and Management by BIA and Reclamation (BOR)

    - Tribes and federal government spent over $50 million dollars securing 500,700 acre feet of water
        - The BIA as trustee has failed to protect the use, quality, and value of the Tribes' federal reserved right and has not acted to protect its appropriation by junior water users.
    - BIA Failure to manage, operate, and maintain irrigation project
        - Over 70% of operation and maintenance fees (O&M) spent on administrative overhead. Maintenance and repair of the project has been 'deferred'. As a result, the deferred costs to completely rehabilitate the Wind River Irrigation Project are estimated to range from $50,000,000 to $75,000,000 dollars.
        - BIA irrigation project does not have the capacity to carry all of the Tribes' 1868 water.
    - BOR has allowed the diversion of over 2 million acre feet of Tribal 1868 water by non-Indian irrigation canals and junior water rights holders
        - The BOR enables the direct diversion of senior federal reserved water rights for use by junior state water user's canals, even during drought.
        - By filling federal reservoirs with Tribal water after the first fill and violating of the State of Wyoming's "one-fill rule", the BOR sells the Tribal water for 'surplus water use' or hydropower generation in Boysen Reservoir. Revenue generated from the sale, storage, or use of Tribal water is not received by the Tribes.
- Offering the Tribes the opportunity to "638" the Wind River Irrigation Project is insufficient to address the mismanagement and unlawful use of the Tribes' federal reserved water rights; the 50 million-plus dollar price tag for rehabilitation of the project; and the failure of the major federal agencies in the region to protect the Tribes' reserved water rights.

Senator BARRASSO. Thank you. And as you say, we want to get whole different viewpoints so I appreciate you expressing your thoughts and concerns here. Thank you.

Our next witness is Mitchel Cottenoir, Acting Tribal Water Engineer Director, Wind River Water Resources Control Board for the Eastern Shoshone Tribe, Fort Washakie. Thank you.

STATEMENT OF MITCHEL COTTENOIR, ACTING TRIBAL WATER ENGINEER DIRECTOR, WIND RIVER WATER RESOURCES CONTROL BOARD, EASTERN SHOSHONE TRIBE

Mr. COTTENOIR. Senator Barrasso, I'd like to thank you for this opportunity to address this hearing on behalf of the Wind River Water Resource Control Board. According to the GAO report dated February 6th, the Wind River irrigation project was authorized for construction in 1905, but construction was never completed. Wind River Irrigation Project comprises of three storage facilities, 11 canals, and 377 miles of canal. These facilities provide water for 38,300 acres of which 67 percent is Indian owned and 33 percent is non-Indian owned.

These 38,300 irrigated acres are assessed operation and maintenance fees to finance the irrigation project's operation, maintenance, of administrative functions. These assessments have historically been low, but over the last 20 years these rates have risen approximately 91 percent from a low of $10.90 in 1991 to $20 in 2011. Even with the rising assessment fees, little rehabilitation efforts have been made. According to the 1994 NRCE project assessment and plan, no project wide rehabilitation of the delivery system has occurred since the 1930s. According to that study, huge deferred maintenance over many years, 60 percent or 1,200 structures were in need of repair or replacement, and 45 percent were 190 miles of canals and laterals needed repair or reconstruction. According to the study, structure failures were routine resulting in progressive loss of control of project water and the catastrophic failure of segments of the delivery system were coming.

According to the 1994 NRCE project assessment and plan, due to the project's current configuration, it only has 66 acres of irrigated land per mile of canal. In comparison Midvale Irrigation District has over 160 acres per mile of canal. As a general guideline, Bureau of Reclamation suggests that irrigation projects in the region need to have at least 140 acres of irrigated land for mile of canal to be economically self-sufficient. As a result of the poor delivery performance, that has contributed to the progressive deterioration quality and water users ability to pay assessment. It is apparent that the Wind River Irrigation System cannot be considered self-sufficient.

Conditions on the Wind River Irrigation Project sadly continue to deteriorate, and little has changed since the 1994 NRCE report, the 2006 GAO report, and the 2008 HCAM assessment.

In 2003, the Wyoming legislature passed House Bill 144. House Bill 144 allowed the tribes to participate in state funding toward water development projects. This bill is strongly supported by both the Joint Business Council and the Water Resource Control Board.

In 2004 in order to facilitate the rehabilitation of the Wind River Irrigation Project, the Eastern Shoshone and Northern Arapaho Tribes through the efforts of the Wind River Water Resource Control Board applied to and were granted 3.5 million dollar grant from the Wyoming Water Development Commission to aid in the rehabilitation of the irrigation structures that were in dire need of repair or replacement. This state appropriation was a 50 percent grant, required an additional 3.5 million in matching funds before the state funds could be utilized. Once again through the efforts of the Wind River Water Resource Control Board in conjunction with the efforts of Senator Mike Enzi, a federal appropriation of 3.72 million dollars was secured in 2005 and 2006 as matching funds for 3.5 million and state funds.

To date, four major irrigation structures have been replaced and another rehabilitated at a cost of 1.63 million dollars. These structures include the Johnstown and left-hand ditch, diversion structures on the Big Wind River, the left-hand ditch wasteway, the Coolidge Canal Trout Creek diversion structure, and the Mill Creek Great Canal crossing structure.

Currently there are two diversion structures on the Wind River that are in the design phase. These structures are the Ray Canal, South Fork, the Coolidge Canal, and Little Wind diversion structures. Incorporated in these designs, structures are fish ladders and fish streams. The fish passage will mitigate the loss of hundreds of thousands of fish to the irrigation system. The fish passage project is a combined effort between the tribes, the U.S. Fish and Wild Life Service, the Bureau of Indian Affairs, Trout Unlimited, and the State of Wyoming. It is hoped that these structures will be designed and ready for the fall 2011 construction season.

In April of this year, the Wind River Water Resource Control Board elected engineering firms to design the remaining nine structures of the Wind River Irrigation Project priority list that was utilized to secure the federal and state funding. This list was compiled by the Bureau of Indian Affairs and the Office of Tribal Water Engineer. Depending on available funds as many of these structures will be replaced or rehabilitated. It is hoped that these structures will also be designed and ready for the fall 2011 construction season.

Without the efforts of the Eastern Shoshone and Northern Arapaho Tribes through the Wind River Water Resource Control Board, the current rehabilitation of the Wind River Irrigation Project would not be occurring.

Once the federal and state appropriations are completed, the Wind River Water Resource Control Board plans to pursue additional funding from both the Federal Government and State of Wyoming. The tribes and the Wind River Water Resource Control Board request the aid and assistance of both Senators Barrasso and Enzi and the Select Committee on Indian Affairs to help secure future funding on ongoing rehabilitation of the Wind River Irrigation System. As you know, estimates of the rehabilitation range from a low of $70,000,000 to a high in the range of $90,000,000. With that, I'd like to conclude, and thank you for allowing me to participate in this hearing.

[The prepared statement of Mr. Cottenoir follows:]

PREPARED STATEMENT OF MITCHEL COTTENOIR, ACTING TRIBAL WATER ENGINEER DIRECTOR, WIND RIVER WATER RESOURCES CONTROL BOARD, EASTERN SHOSHONE TRIBE

According to the GAO-06-314 report dated February 2006, the Wind River Irrigation Project was authorized for construction in 1905 but construction was never completed.

The Wind River Irrigation Project is comprised of 3 storage facilities, 11 canals and 377 miles of canals and laterals. These facilities provide water to 38,300 acres of which 67% is Indian owned and 33% non-Indian owned.

These 38,300 irrigated acres are assessed Operation and Maintenance Fees to finance the Irrigation Project's operations, maintenance and administrative functions. These O&M assessments have been historically low, but over the past 20 years these rates have risen approximately 91% from a low of $10.90 in 1991 to $20 in 2011. Even with the rising assessment fees, little rehabilitation efforts have been made. According to the 1994 NRCE Project Assessment and Plan, no Project-wide rehabilitation of the delivery system has occurred since the 1930's. According to that study due to deferred maintenance over many years, 60% or 1200 structures were in need of repair or replacement and 45% or 190 miles of canals and laterals needed repair or reconstruction. According to the study structure failures were routine resulting in the progressive loss of control of Project water and that catastrophic failure of segments of the delivery system was imminent. According to the 1994 NRCE Project Assessment and Plan due to the Project's current configuration, it only has 66 acres of irrigated land per mile of canal. In comparison, Midvale Irrigation District has over 160 acres per mile of canal. As a general guideline, the Bureau of Reclamation suggests that irrigation projects, in the region, need at least 140 acres of irrigated land per mile of canal to be economically self sufficient. The study also stated that the resulting poor delivery performance had contributed to a progressive deterioration in crop quality and the water users' ability to pay assessments. It is apparent that the Wind River Irrigation System cannot be considered self sufficient.

The condition of the Wind River Irrigation Project sadly continues to deteriorate and little has changed since the 1994 NRCE Wind River Irrigation Project Assessment, the 2006 GAO-06-314 Report or the 2008 HKM Wind River Irrigation Project Engineering Evaluation and Condition Assessment.

In 2003, the Wyoming Legislature passed House Bill 144. House Bill 114 allowed the Tribes to participate in state funding toward water development projects. This bill was strongly supported by both the Joint Business Council and the Wind River Water Resource Control Board.

In 2004 in an effort to facilitate the rehabilitation of the Wind River Irrigation Project, the Eastern Shoshone and Northern Arapaho Tribes through the efforts of the Wind River Water Resource Control Board applied to and were granted a $3.5M grant from the Wyoming Water Development Commission to aid in the rehabilitation of irrigation structures that were in dire need of repair or replacement. This State Appropriation was a 50% grant that required an additional $3.5M in matching funds before the State funds could be used. Once again through the efforts of the Wind River Water Resource Control Board in conjunction with the efforts of Senator Mike Enzi, a Federal Appropriation of $3.72M was secured in 2005 and 2006 as matching funds for the $3.5M in State funds.

To date four major irrigation structures have been replaced and another rehabilitated at a cost of $1.63M. These structures include: the Johnstown and Lefthand Ditch Diversion structures on the Big Wind River, the Lefthand Ditch Waste-way, the Coolidge Canal – Trout Creek Diversions structure and the Mill Creek – Ray Canal Crossing structure.

Currently there are two diversion structures on the Little Wind River that are in the design phase. These structures are the Ray Canal – South Fork and Coolidge Canal – Little Wind Diversion Structures. Incorporated in the design of these structures are Fish Ladders and Fish Screens. The fish passage will mitigate the loss of hundreds of thousands of fish to the irrigation system. The fish passage project is a combined effort among the Tribes, the US Fish and Wildlife Service, the Bureau of Indian Affairs, Trout Unlimited and the State of Wyoming. It is hoped that these structures will be design ready for the fall 2011 construction season.

In April of this year, the WRWRCB selected Engineering Firms to design the remaining 9 structures on the WRIP Priority list that was utilized in the secure the Federal and State funding. This list was compiled by the Bureau of Indian Affairs and the Office of the Tribal Water Engineer. Depending on available funds, as many of these structures will be replaced or rehabilitated. It is hoped that these structures will also be design ready for the fall 2011 construction season.

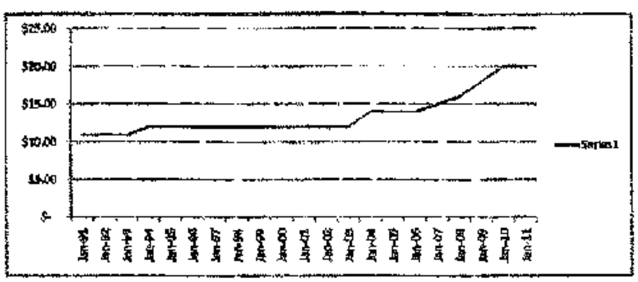
Without the efforts of the Eastern Shoshone and Northern Arapaho Tribes through the Wind River Water Resource Control Board, the current rehabilitation of the Wind River Irrigation Project would not be occurring.

Once the Federal and State Appropriations are depleted, the WRWRCB plans on pursuing additional funds from both the Federal Government and the State of Wyoming. The Tribes and the Wind River Water Resource Control Board request the aid and assistance of both Senators Barrasso and Enzi and the Select Committee on Indian Affairs to help secure future funding for the ongoing rehabilitation of the Wind River Irrigation System. Estimates of the total cost of rehabilitating the system range from a low of $70M to a high in the range of $90M.

Thank you for your time and consideration.

WIND RIVER IRRIGATION OPERATION AND MAINTAINENCE ASSESSMENTS 20 YR PERIOD 1991 - 2011

Jan-91	$	10.90
Jan-92	$	10.90
Jan-93	$	10.90
Jan-94	$	12.00
Jan-95	$	12.00
Jan-96	$	12.00
Jan-97	$	12.00
Jan-98	$	12.00
Jan-99	$	12.00
Jan-00	$	12.00
1-Jan-01	$	12.00
Jan-02	$	12.00
Jan-03	$	12.00
Jan-04	$	14.00
Jan-05	$	14.00
Jan-06	$	14.00
Jan-07	$	15.00
Jan-08	$	16.00
Jan-09	$	18.00
Jan-10	$	20.00
Jan-11	$	20.00



Attachments

April 29, 2011

Senator John Barrasso – Vice Chairman
US Senate Select Committee on Indian Affairs
307 Dirksen-Hart Senate Office Building
Washington, DC 20510

Senator Barrasso:

Thank you for effort in conduction the Senate Field Hearing with regard to the Wind River Irrigation Project (WRIP) at Central Wyoming College on May 20, 2011.

As was apparent from the testimony and comments of the witnesses, the WRIP is in dire need of rehabilitation both physically and administratively. It was also apparent that the Bureau of Indian Affairs has no short term or long term plan to accomplish either task.

At the request of Wyoming State Senator Cale Case and Wyoming State Representative Del McOmie Co-Chairs of the Select Committee on Tribal Relations, I am enclosing a copy of the Wind River Irrigation Rehabilitation Project up-date that was submitted to that committee on April 19, 2011.

Through the efforts of the Shoshone and Arapaho Tribes' Wind River Water Resource Control Board (WRWRCB) a process of rehabilitating irrigation structures on the WRIP that are in critical need of repair or replacement has begun. This is being accomplished by utilizing funds acquired by the WRWRCB through Federal appropriations and State funding through the Wyoming Water Development Commission. The current rehabilitation project is only a band aid approach to rehabilitating the WRIP. The $7M of current funding only scratches the surface of the estimated $70M - $90M that will be required to bring the WRIP to any semblance of an efficient irrigation system.

Once again, the Office of the Tribal Water Engineer and the Wind River Water Resource Control Board would to thank you for your efforts to look into the operation and maintenance of the WRIP. Any help you and your committee can give to find a solution to the problems regarding the Wind River Irrigation Project would be greatly appreciated.

Sincerely,

Mitchel T. Cottenoir

Mitchel T. Cottenoir
Acting Tribal Water Engineer

April 12, 2011

Select Committee on Tribal Relations
Wyoming Legislative Services Office
213 State Capitol
Cheyenne, WY, 82002

Select Committee on Tribal Relations:

The Eastern Shoshone and Northern Arapaho Tribes are pleased to update the Select Committee on Tribal Relations with regard to the Wind River Irrigation Rehabilitation Project. Thus far, 5 structures have been completed utilizing funding from both the Federal Appropriation being overseen by the Bureau of Indian Affairs and the State of Wyoming appropriation thru the WWDC.

These structures include: the Coolidge Canal – Trout Creek Structure, the Johnstown Diversion Structure on the Big Wind River, the Ray Canal – Mill Creek Structure, the Left Hand Diversion Structure on the Big Wind River and the Left Hand Wasteway Structure.

Currently two structures, the Coolidge Canal and the Ray Canal Diversion Structures on the Little Wind River, are under design by Inberg-Miller Engineers. The design of these structures includes fish screens and ladders as each diversion looses hundreds of thousands of fish to the irrigation system annually. These structures will hopefully be ready for construction during the fall 2011 construction season.

On February 16th the WRWRCB selected engineering firms for the next phase of the rehabilitation project. This phase includes the 9 structures remaining on the initial priority list for the rehabilitation project. Attached is a packet that contains photos and a narrative about each structure. The work has been divided into 4 groups. The WRWRCB selected Lowham Walsh Engineering for groups 1 &2, Dowl HKM/Enco Enterprises for group 3 and Inberg-Miller Engineers for group 4.

Based on engineering design estimates, as many of these structures will be put out for bid as our funding sources will allow. It is hoped all of these structures will be design ready for the fall 2011 construction period.

We have also attached a spreadsheet which shows the current funds expended from each funding source. This outlines the funding sources, what has been expended and what remains available for future construction.

The Eastern Shoshone and Northern Arapaho Tribes and the Wind River Water Resource Control board would like to thank you for your support. The Wind River Irrigation Project is perhaps the worst irrigation system in the State. With your continued support, we would hope to steadily bring it into the semblance of an effective and efficient irrigation system for all those within the irrigation project, both tribal and non-tribal water users alike.

Regards,

Mitchel T. Cottenoir

Mitchel T. Cottenoir – Acting Tribal Water Engineer

WIND RIVER IRRIGATION REHABILITATION PROJECT	BIA	WWDC	BIA	USF&W	WWDC	Trout Unl'm.	WWC
	Federal	State	Fish Ladders	Fish Ladders	Fish Ladders	Fish Ladders	Ray Lake
	Appropriation	Appropriation	Screens	Screens	Screens	Screens	Survey
Coolidge Canal - Trout Creek Structure	$ 460,708.00						
Ray Canal - Mill Creek Structure	$ 42,570.00						
		$ 298,195.02					
Left Hand Ditch - Wind River Diversion Structure	$ 38,610.00	$ 168,274.66					
		$ 77,783.09					
Left Hand Ditch Wasteway	$ 35,860.00	$ 240,450.55					
Johnstown Canal - Wind River Diversion	$ 45,650.00						
Bid Documents	$ 4,950.00						
Left Hand Diversion & Wasteway							
Ray Canal-Mill Creek Diversion							
Johnstown Diversion							
Bid Phase Services	$ 9,350.00						
Left Hand Diversion & Wasteway							
Ray Canal-Mill Creek Diversion							
Johnstown Diversion							
Construction Management							
Left Hand Diversion & Wasteway	$ 124,914.00						
Ray Canal-Mill Creek Diversion							
Johnstown Diversion							
Ray Lake Topographic Survey							$ 10,835.00
Ray Canal - South Fork Diversion Structure	$ 43,670.00						
		$ 5,552.65	$ 14,692.64	$ 14,692.64			
		$ 4,217.00	$ 2,165.60	$ 2,165.60			
Coolidge Canal - Little Wind Diversion Structure	$ 25,130.00						
Total	$ 831,412.00	$ 794,472.97	$ 16,858.24	$ 16,858.24	$ -	$ -	$ 10,835.00
Appropriation	$ 3,472,500.00	$ 3,500,000.00	$ 250,000.00	$ 270,000.00	$ 200,000.00	$ 250,000.00	$ 13,200.00
Balance Available	$ 2,641,088.00	$ 2,705,527.03	$ 233,141.76	$ 253,141.76	$ 200,000.00	$ 250,000.00	$ 2,365.00

OFFICE OF THE TRIBAL WATER ENGINEER

OFFICE OF THE TRIBAL WATER ENGINEER

Phone:
FAX:
email:

Friday, September 17, 2010

To: Mitch T. Cottenoir, Tribal Water Engineer
RE: WRIIP Priority List Construction Sites

Field Inspection Report
The upcoming Irrigation Rehabilitation construction work as arranged in 4 groups as requested.

Group #1

1. 39C / Ray Canal Lateral Headgate [including 4 drop structures]. 5 structures total.

- Current condition: Present concrete structure is in usable condition. Deterioration cracks are visible on both wing walls. Concrete stem wall separation is starting to occur. The diversion gate is wood, measuring 3ft.x 4ft. The condition of the 4 concrete drop structures, 3 are washed out, with 1 in working order. A canal access bridge [wood] is provided. Any new structure will require this feature for access. [see photos]

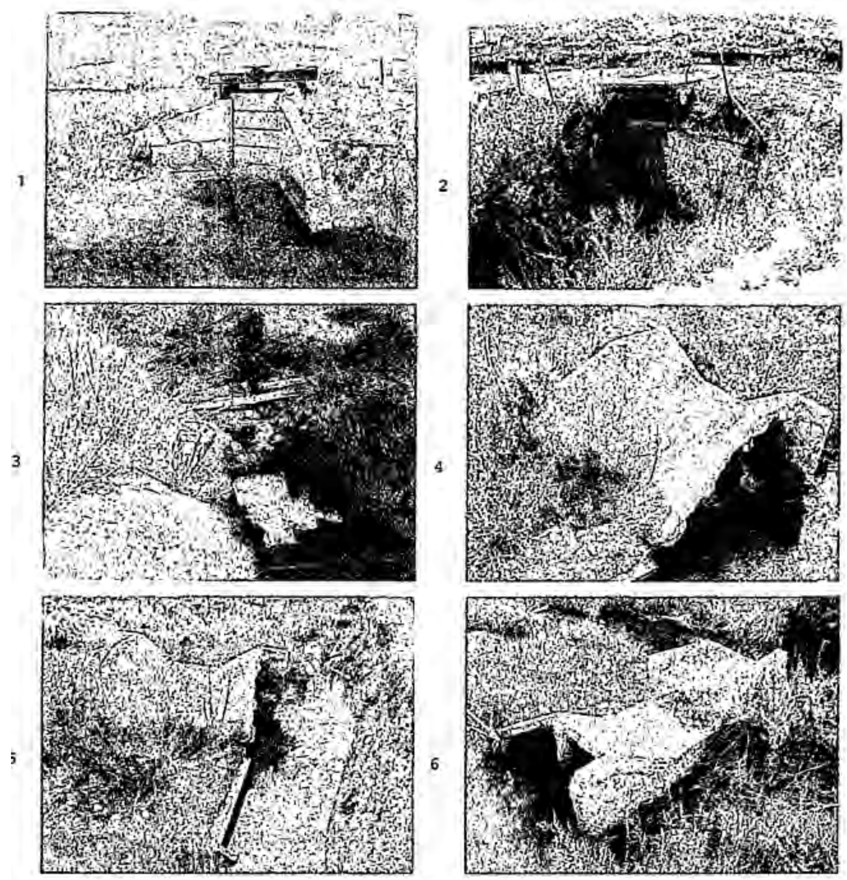
- Function: 39C delivers irrigation water to the area south/west of Ray Lake.

- Location: 2 access roads are available. A) Parker Place lane (opposite of the Mormon Church). Drive in 2 miles over hill to site. B) Enter dirt lane south side of Ray Lake Dam, 2 ½ miles to site. Fence gates will be encountered.

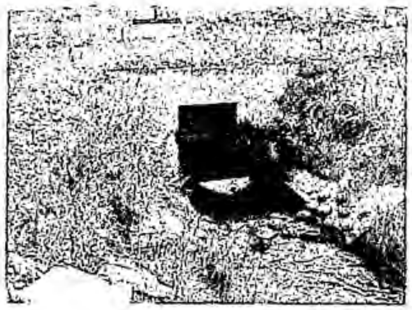
- Photos [6]: Diversion gate, bridge, and 4 drop structures.

2. 13C/ Ray Canal Lateral Diversion Headgate [1 structure].

- Current condition: A non-functioning diversion due to canal eroding down and away from the structure. A temporary 24 inch turn-out has been installed to deliver irrigation water around existing structure. A rock check is existing, however it is in-effective as a water back-check.



39C/Ray Canal Lateral, Fort Washakie area



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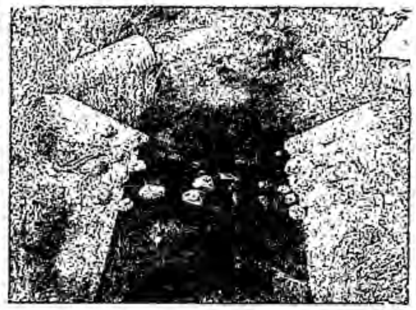

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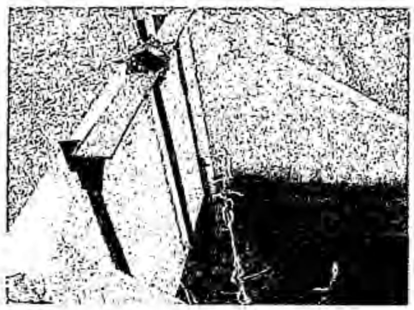

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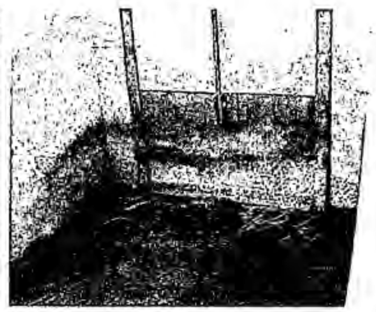

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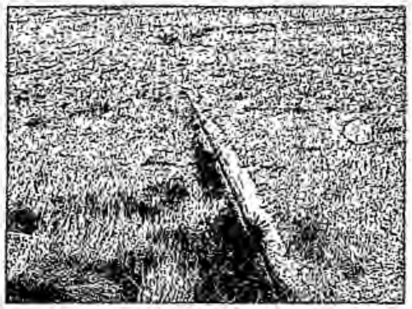
11C/Ray Canal Fort Washakie area



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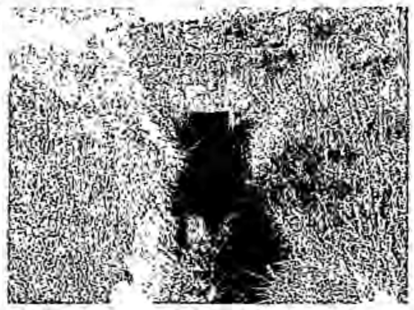

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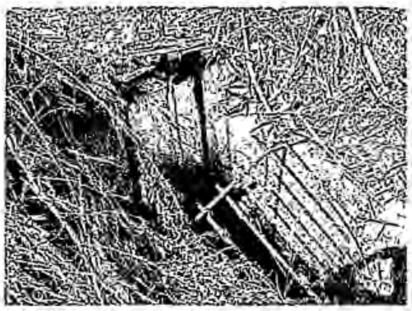

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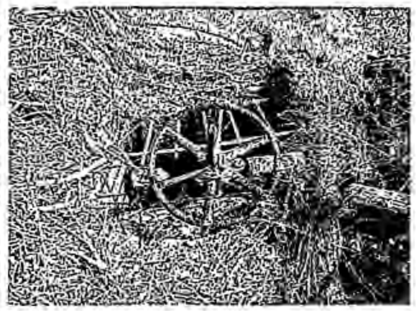

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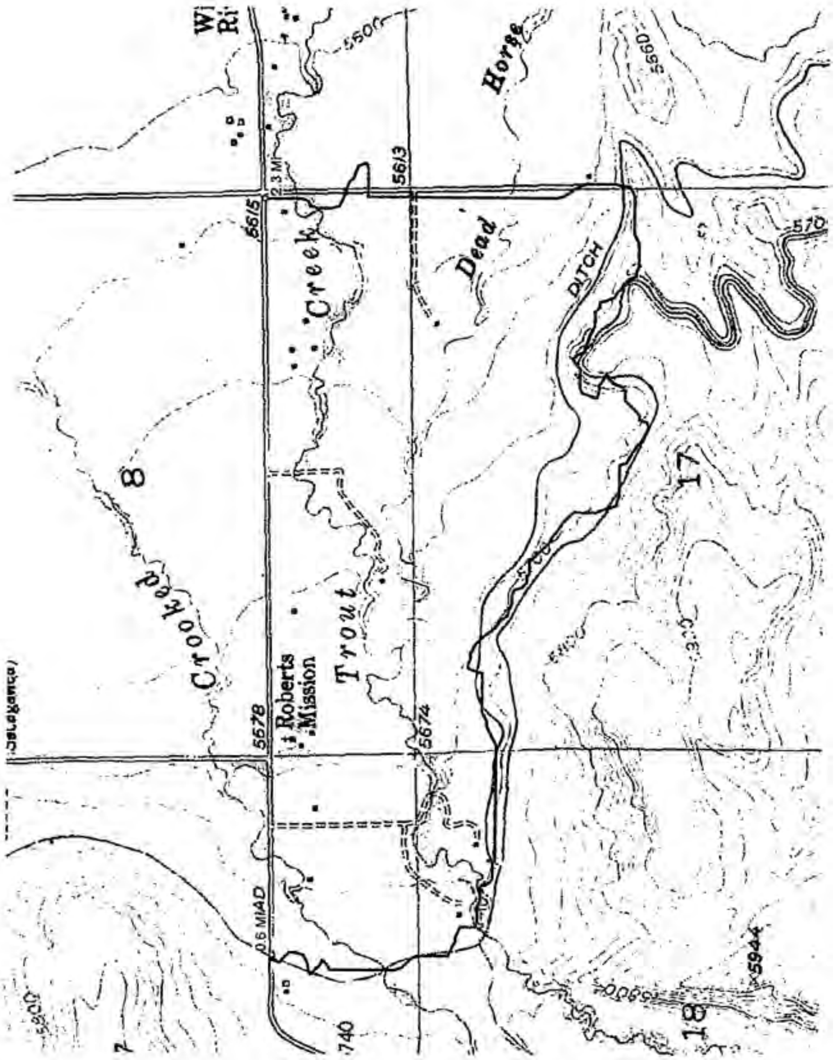
59C/Ray Canal Diversion Structure w/ Chute Drop FT.
Washakie area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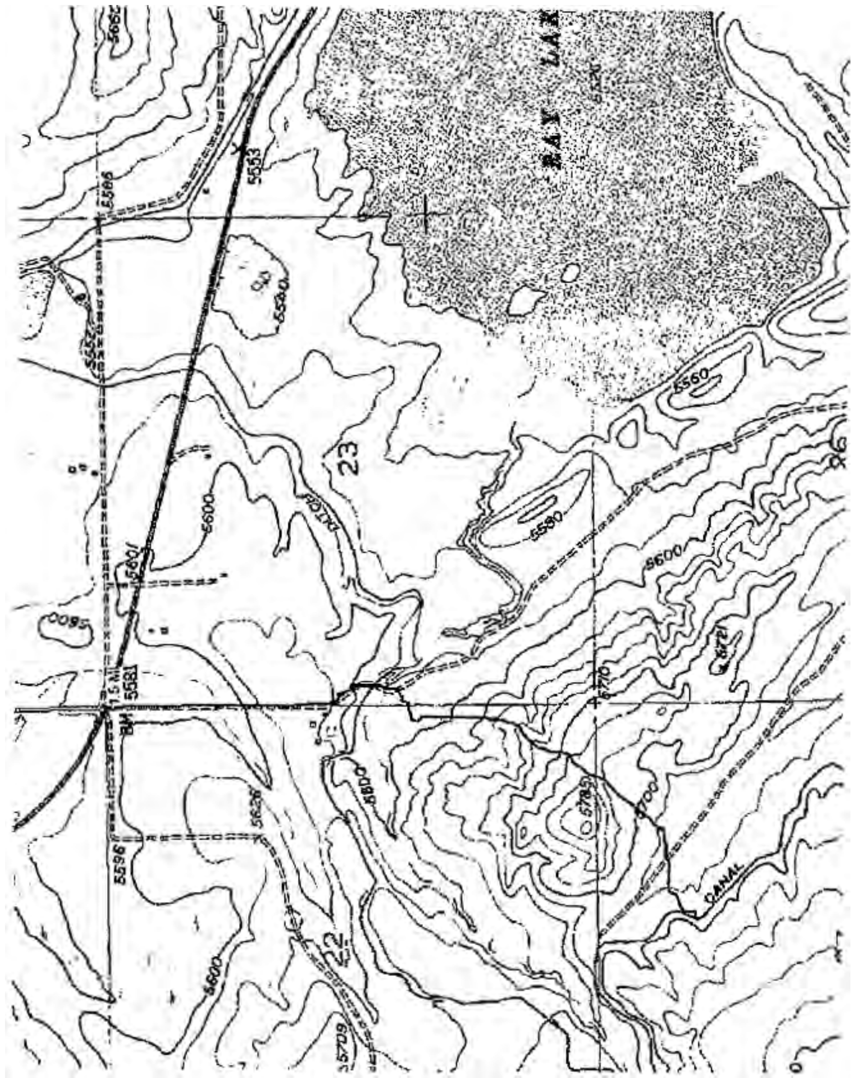
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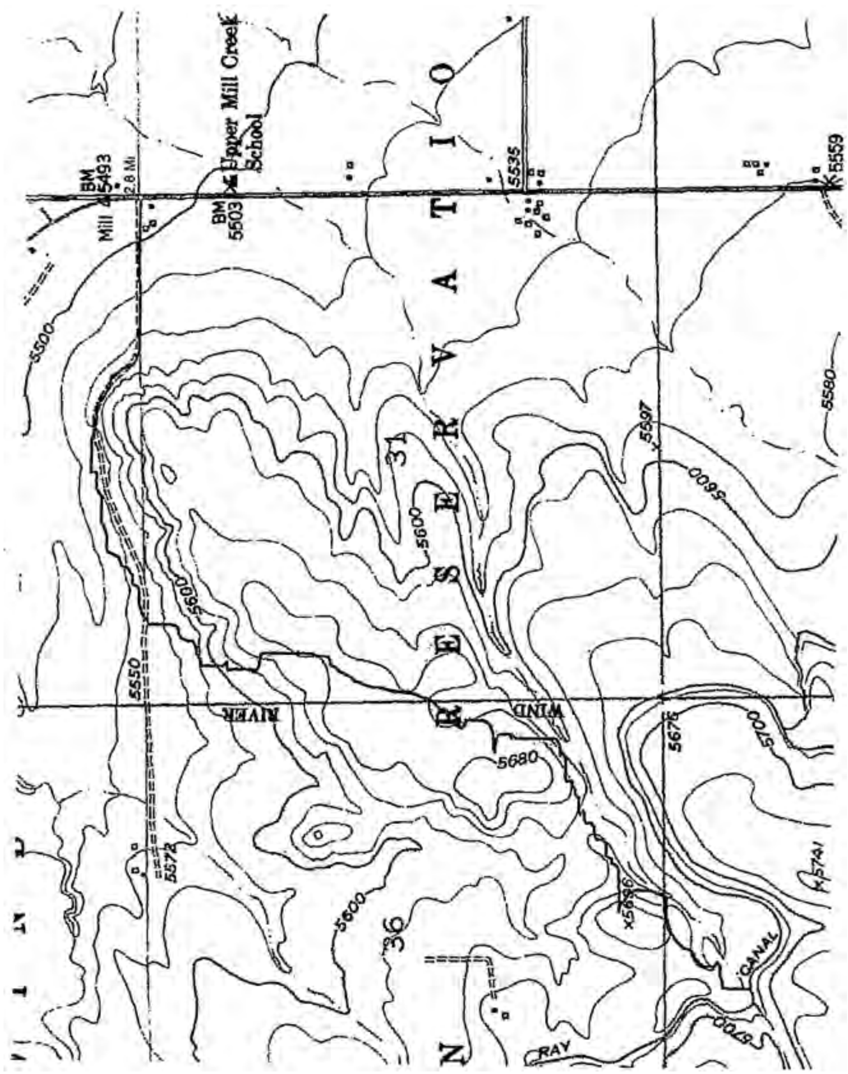
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OFFICE OF THE TRIBAL WATER ENGINEER

OFFICE OF THE TRIBAL WATER ENGINEER

Phone: 307-332-6184
FAX:
email:

Friday, September 17, 2010

To: Mitch T, Cottenoir, Tribal Water Engineer
RE: WRIIP Priority List Construction Sites, Group #2

Field Inspection Report

Group #2

1. Sub-Agency Canal Diversion Structure/Little Wind River. 17 Mile Area.

- Existing Conditions: Concrete deterioration in areas. Spillway ogee has concrete spalling with rebar visible. Wing wall detached, [north side]. Headgate portion has deterioration on the interior buttress walls, [below water line]. The radial gate has leakage from the right side. [REW]

- Function: This canal delivers irrigation water to the whole Sub/Agency project from 17 mile to the Arapahoe area.

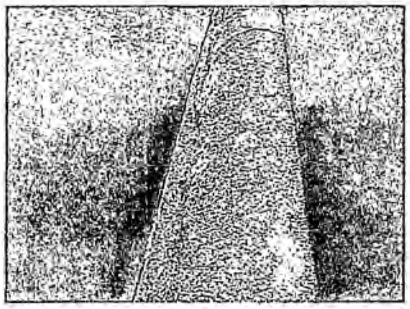
- Location: From 17 mile Road, drive to Given's Road. Turn right at end of pavement, drive down dirt road 2.1 miles, then turn right, drive 8/10ths of a mile along fence line to Headgate. 2.9 miles total from end of pavement. Easy access for trucks and equipment.

- Photos: [6 total] All deterioration.

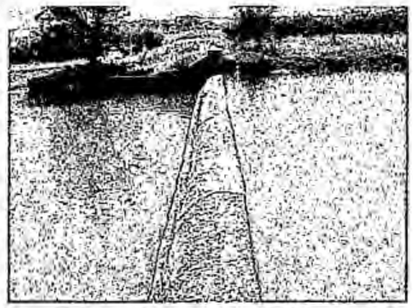
2. 14B Diversion Structure, with chute drop. Ethete Area.

- Location: Coolidge Canal between Thunder Lane and the WIHS area, canal bank road, below water tank hill.

- Current Condition: The diversion structure and metal gates are aged. The irrigation water delivery is thru 2 metal slide gates measuring 2ft x 2ft. The attached chute drop is failing. There is water flowing under the concrete. The chute is washing out and breaking into sections. Length is 154 ft long.



Sub-Agency Canal 17mile area
Photo #1



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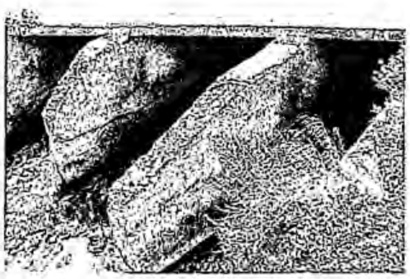

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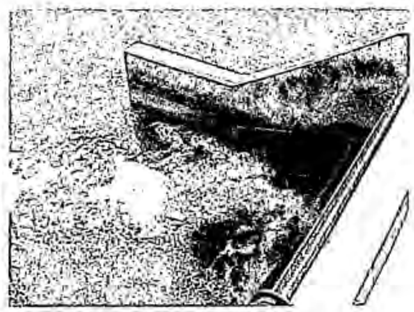

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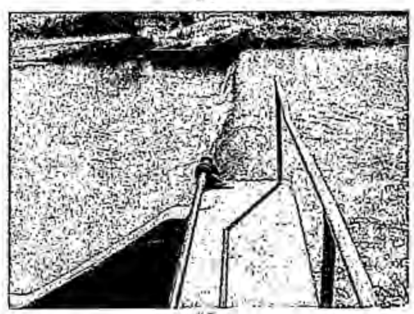

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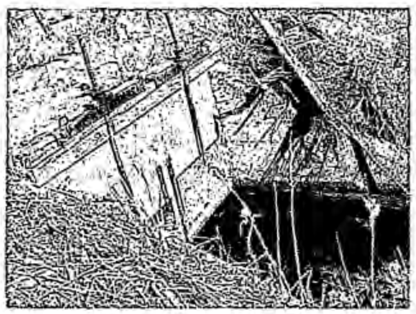
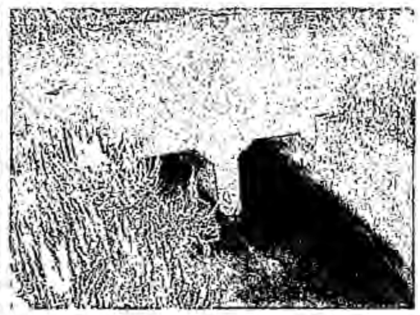


14B Diversion Structure w/ Chute drop
Photo #1



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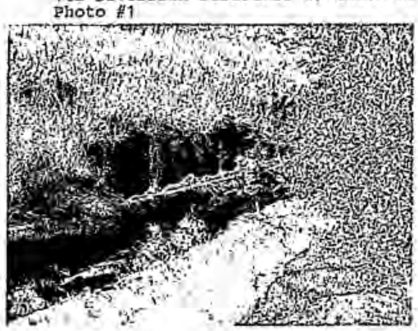

Chute #3

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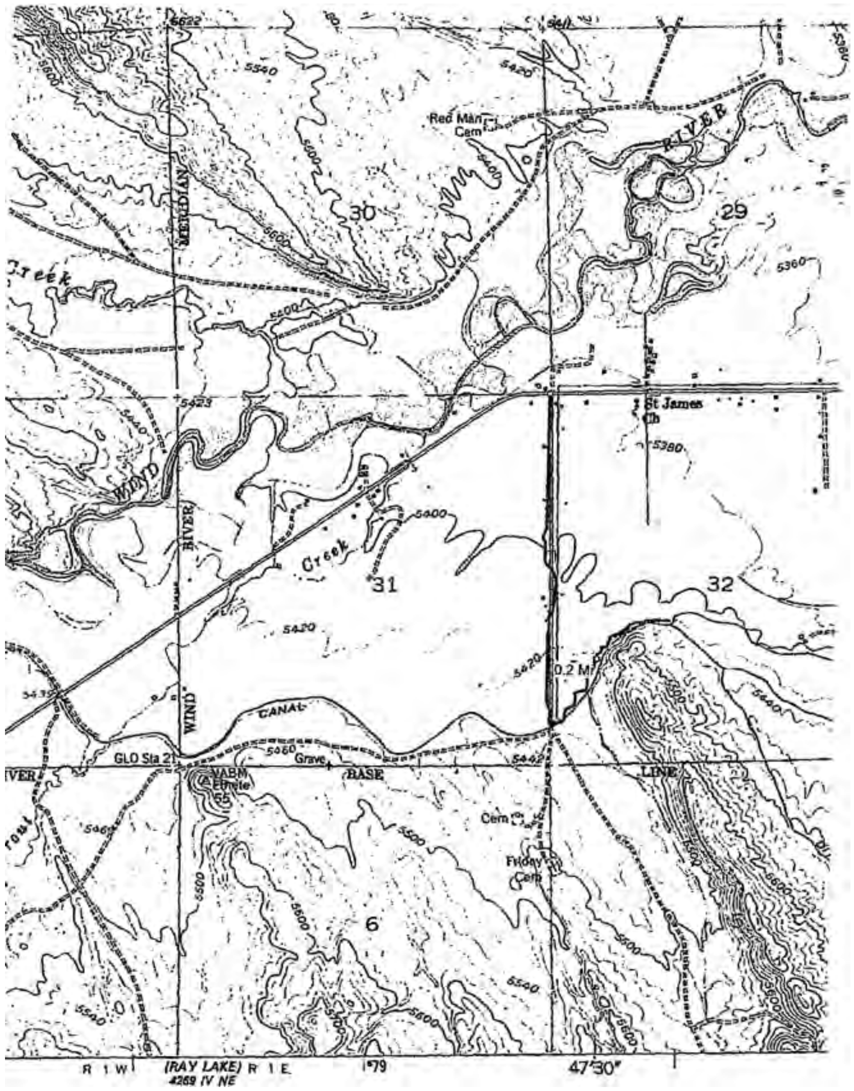

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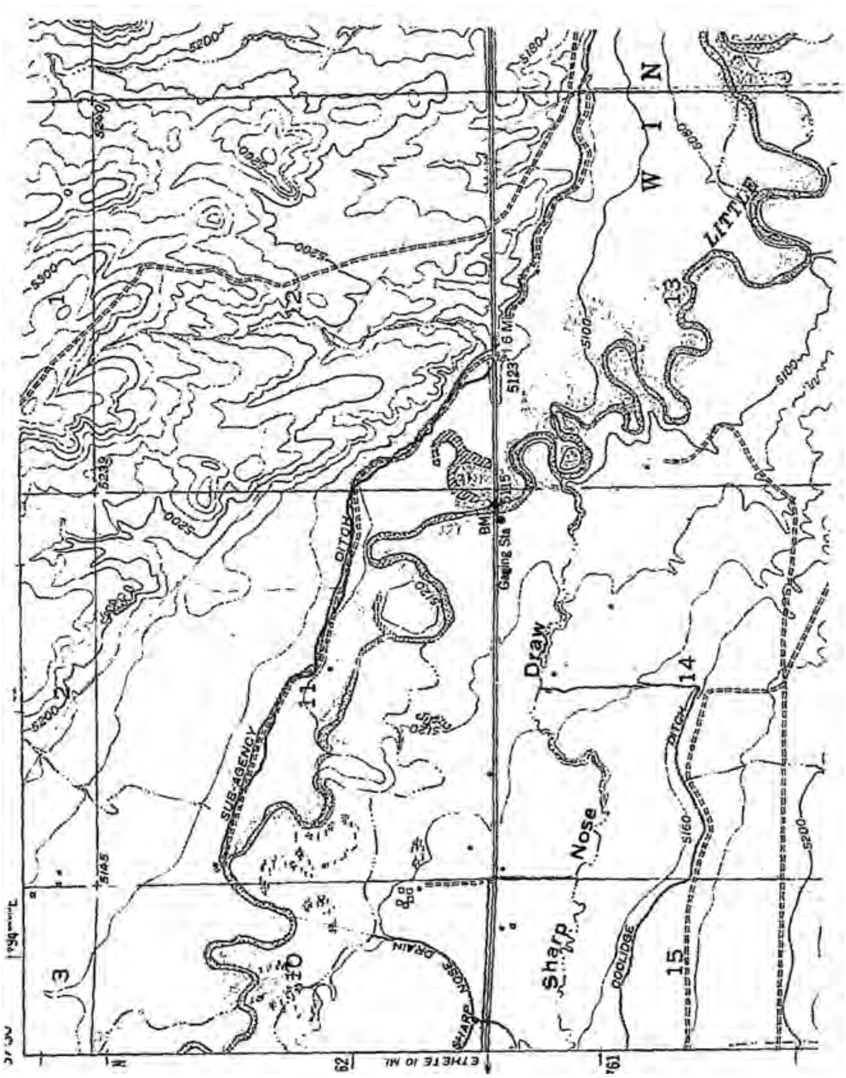
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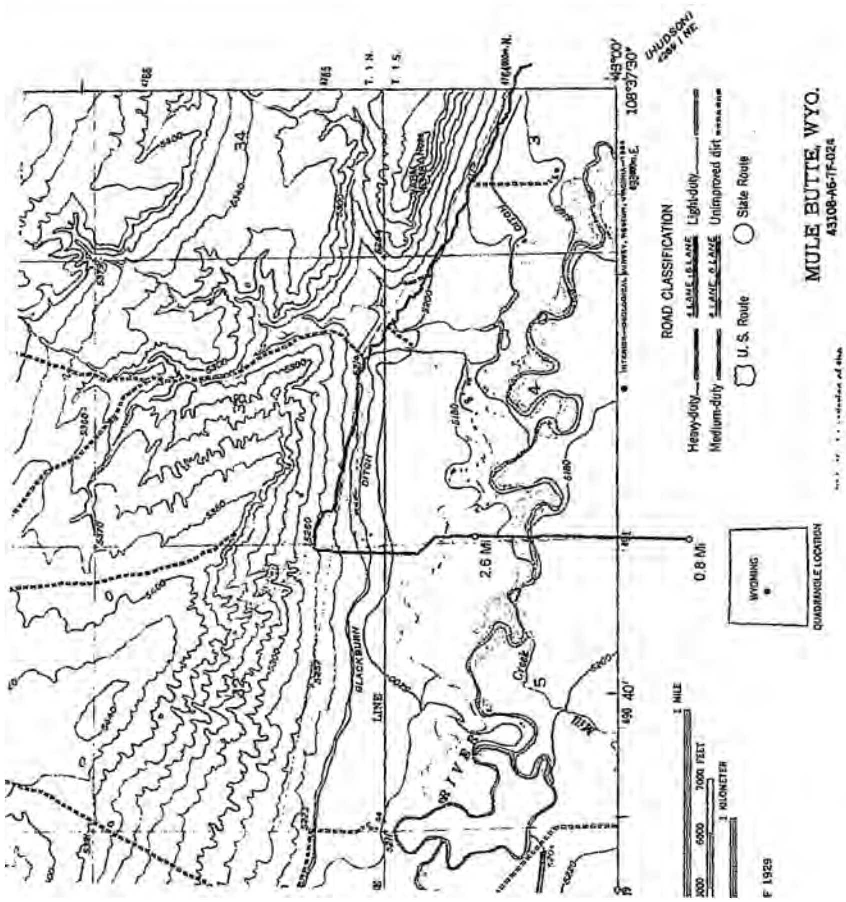

MULE BUTTE, WYO.
43108-A6-TF-024
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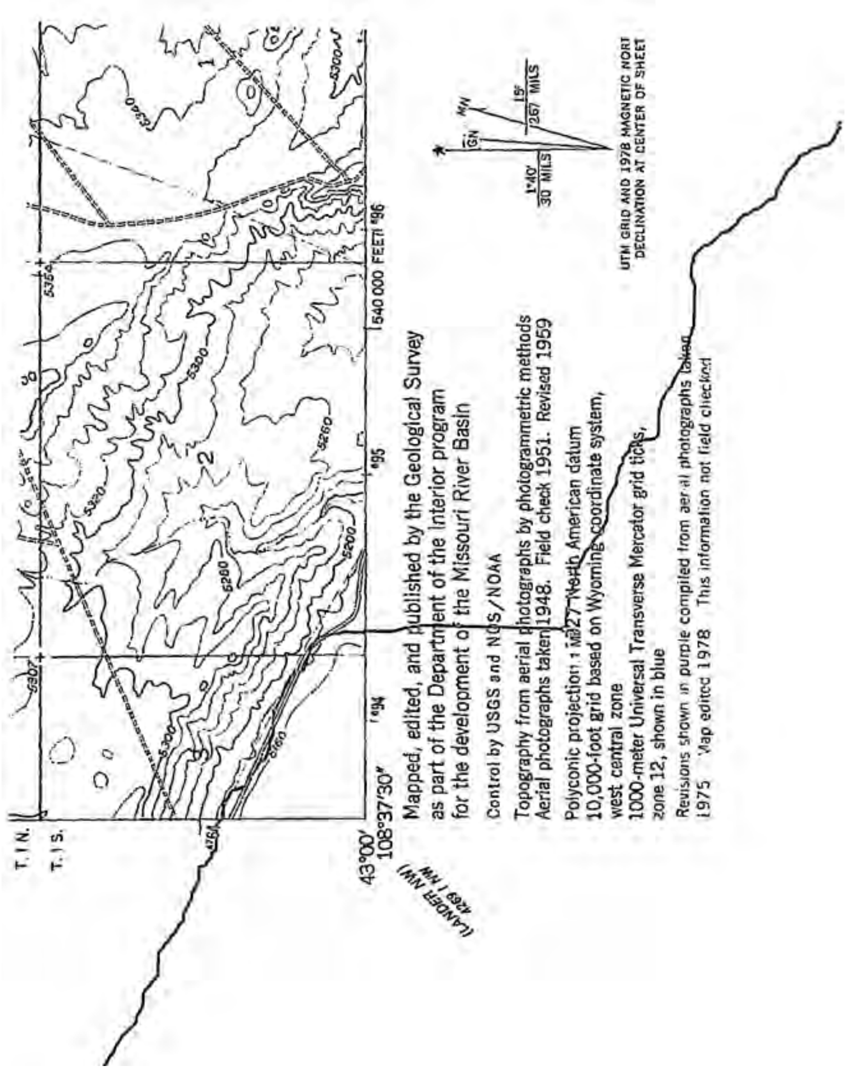
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Mapped, edited, and published by the Geological Survey
as part of the Department of the Interior program
for the development of the Missouri River Basin
Control by USGS and NOS/NOAA
Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1948. Field check 1951. Revised 1959
Polyconic projection. 1927 North American datum
10,000-foot grid based on Wyoming coordinate system,
west central zone
1000-meter Universal Transverse Mercator grid ticks,
zone 12, shown in blue
Revisions shown in purple compiled from aerial photographs taken
1975. Map edited 1978. This information not field checked
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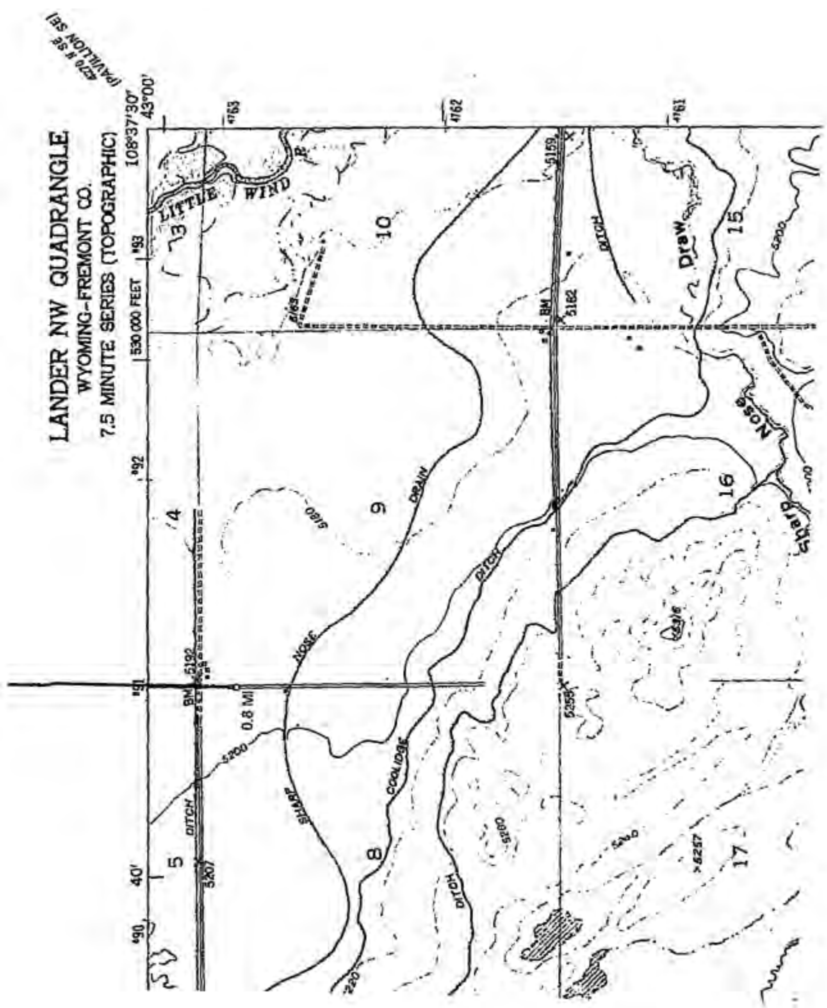
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108°37'30"
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OFFICE OF THE TRIBAL WATER ENGINEER

OFFICE OF THE TRIBAL WATER ENGINEER
Phone: 307-332-6464
FAX:
email:

Monday, September 20, 2010

To: Mitch T. Cottenoir, Tribal Water Engineer
RE: WRIIP Priority List Construction Sites, Group #3

Field Inspection Report
Crowheart Area Priority List Construction Sites

Group #3

Group #3 consists of two main canal diversion gates constructed in 1926, located on Meadow and Willow Creeks as a continuation of the Dinwoody/Dry Creek Canal system. This report includes information given by CBWUA Ditch rider Sherman Hereford. The following points of concern were given in an interview with TWE Technicians on Sept, 20, 2010.

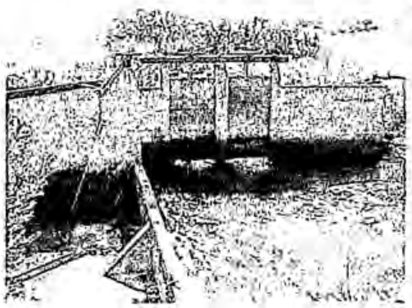
- A vehicle access bridge across and thru both replacement structures to allow access during high water and for backhoe use in case of log jams. Both structures were originally designed with vehicle bridges. They were constructed of wood and metal but degraded and were removed. Later, in the 1970's a foot bridge was installed with only one remaining to date. Vehicle and Equipment access is critical during high water runoff.

- Trash racks (heavy duty plastic) to allow easier cleaning of floating trash. The type that slide on rails, like those installed in Dry Crk Headgate.

- Sluice gate for flushing of sediment and to allow creek water passage during winter.

1. Meadow Creek Diversion Structure. Located ¼ mile south of Old Yellowstone Highway now a dirt road.

- Current Condition: Present structure is servicable but aged. It has wooden gates, the concrete has deteriorated below the water surface. Especially at the gate slide bottoms. To shut leaks, the project personnel has to sandbag or mud in the bottoms with earth moving machinery. This headgate has very limited access for the ditchrider as the footbridge was dismantled. All gate lifting hardware are deteriorated and the slide rails rusted away.



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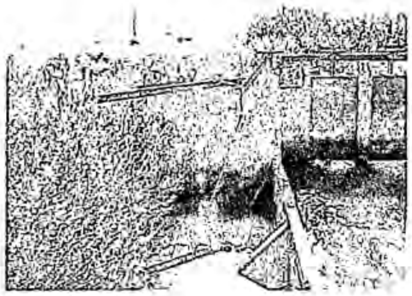
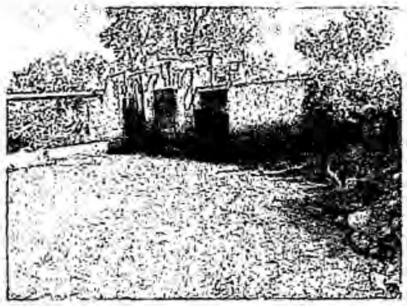


3

Meadow Creek Diversion
Crowheart area



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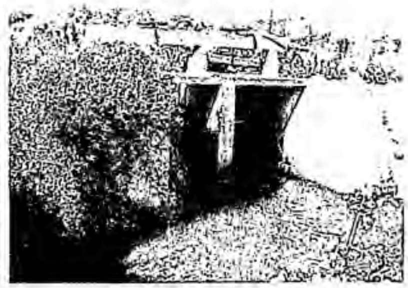

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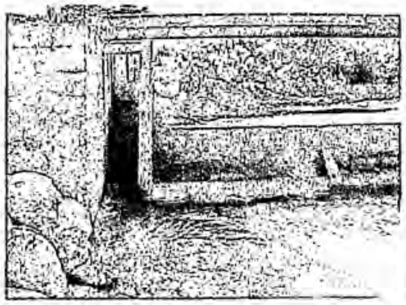

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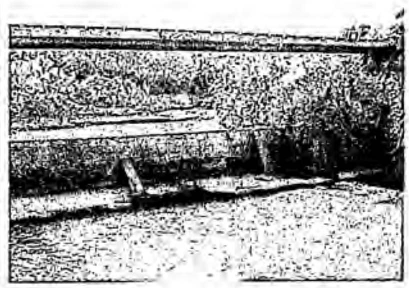

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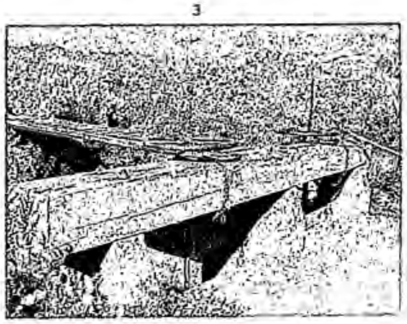

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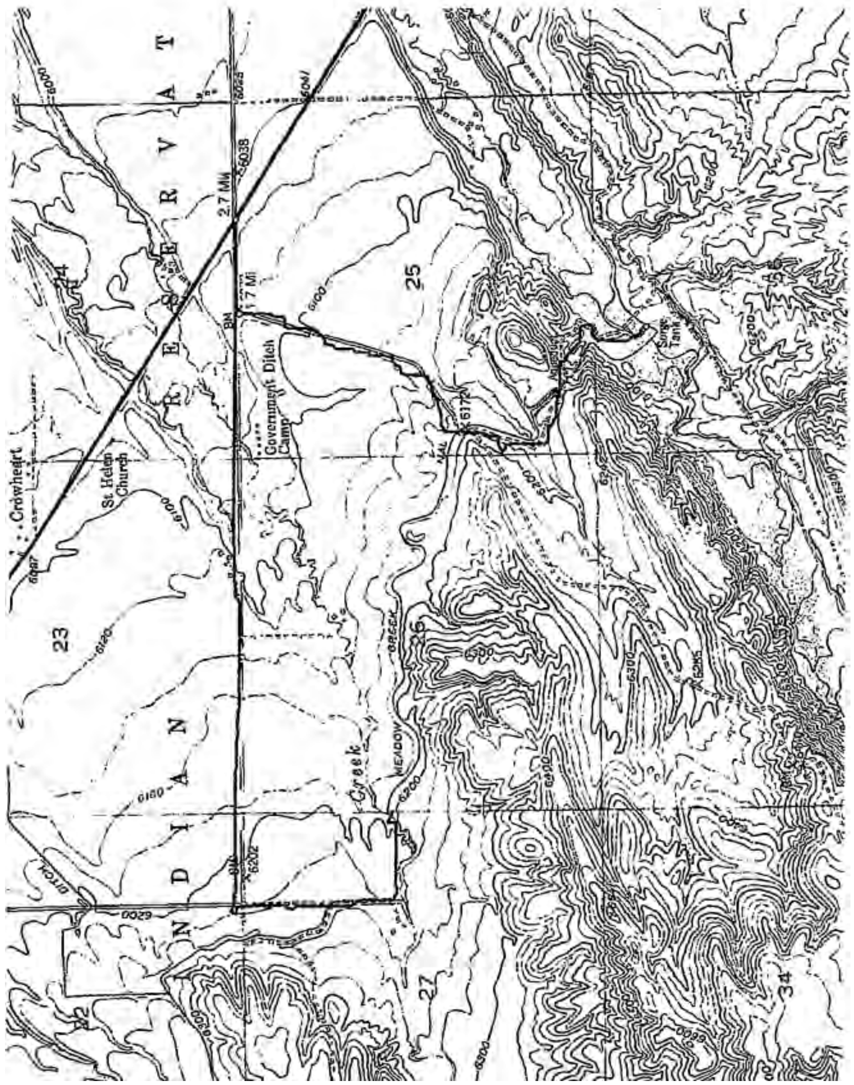
Willow Creek Diversion
Crowheart area


INDIAN RESERVAT
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Creek
MEADOW
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25
27
34
2.7 MI
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6038
6202

OFFICE OF THE TRIBAL WATER ENGINEER

OFFICE OF THE TRIBAL WATER ENGINEER

Phone: [illegible]
FAX:
email:

Wednesday, September 22, 2010

To Mitch T. Cottenoir, Tribal Water Engineer,
RE: WRIIP Priority List Construction Sites, Group #4

Field Inspection Report
North Fork Diversion Chute Drop Structure

Group #4

The North Fork/Little Wind River Diversion Structure.

- Description: The current concrete structure is descibed as an open-channel/super-critical flow drop flume. The drop flume is design rated at 90cfs. [TWE]. Latest information gathered from BIA Project personnel, rate the current condition Total Safe Flow at 60 cfs. [BIA]. The Flow problems mentioned are; A) water over-topping the canal bank upstream of structure. B) Higher Flows produce more spray which blows away from the structure during windy periods. This is evident in photo #4, causing soil washing on the East side of the containment wall. [LBW]. Structure length is 640 ft long. Vertical Elevation Difference is 176ft. T.O.S. Elevation 6103.1 ft. B.O.S. 5927.0 ft.

- Function: Take supplemental irrigation water from North Fork/Little Wind River to South Fork/ Ray Canal.

- Current Condition: Poor, caused by natural occurring attrition. Concrete degradation caused by; A) Cavitation. B) Abrasion, which is indicated by exposed re-bar. East side Velocity Diffusers wearing out. [Dentates]

- Location: North Fork area, Fort Washakie Wyoming. Travel to end of N. Frk Road, cattle guard, turn left to dirt road, open/close wire gate, end of road. Construction site is on side of hill. [See map]

- Access Issues: Construction equipment and cement trucks can access the top of the structure. The Contractor may need to develop road and construction landings to access middle and bottom levels. A secondary access road exists near the Ft. Washakie Municipal Water Intake. An old wood bridge that existed was removed.

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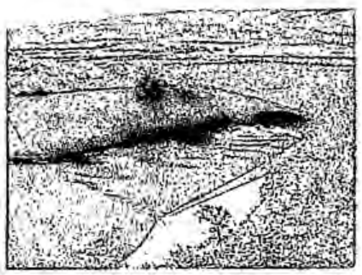

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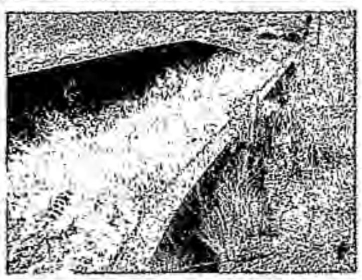

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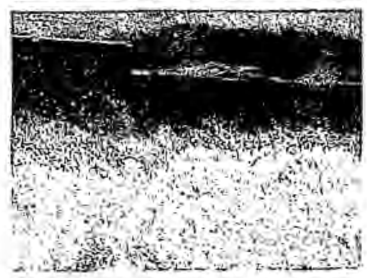

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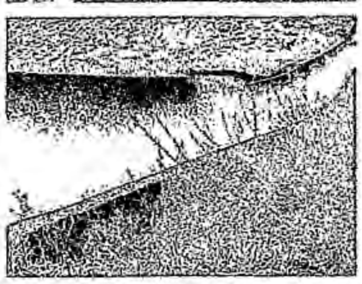

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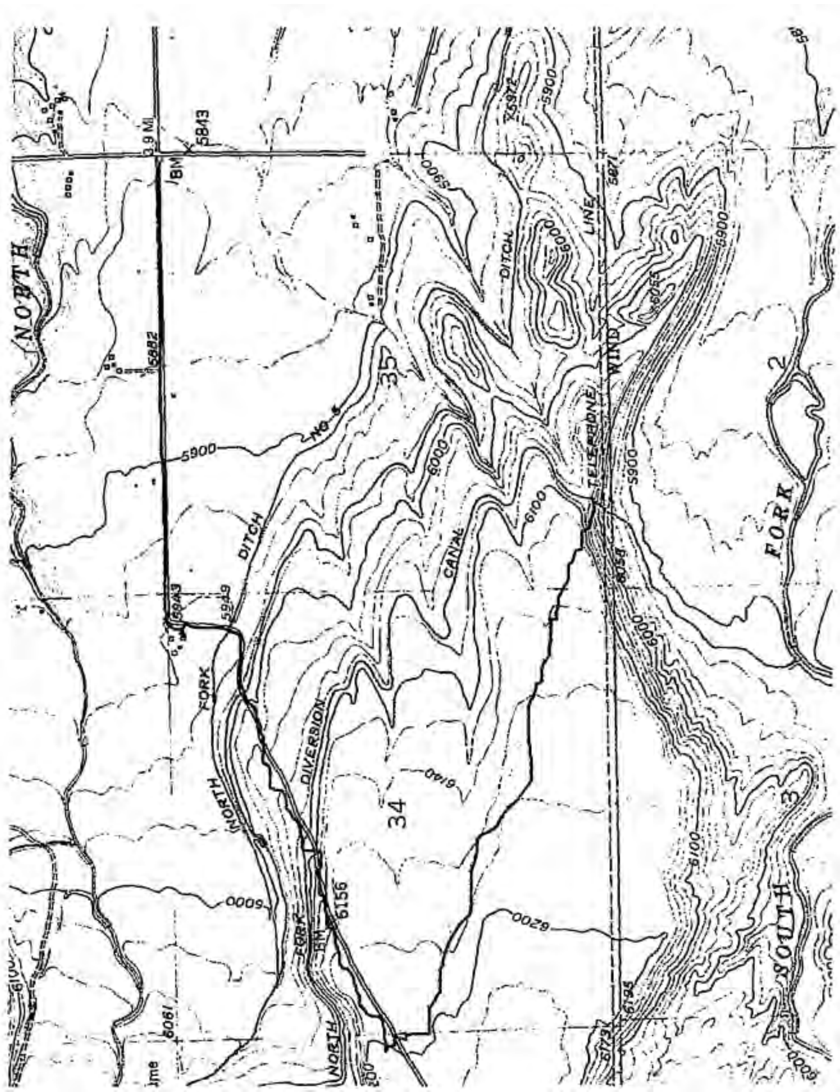
NORTH
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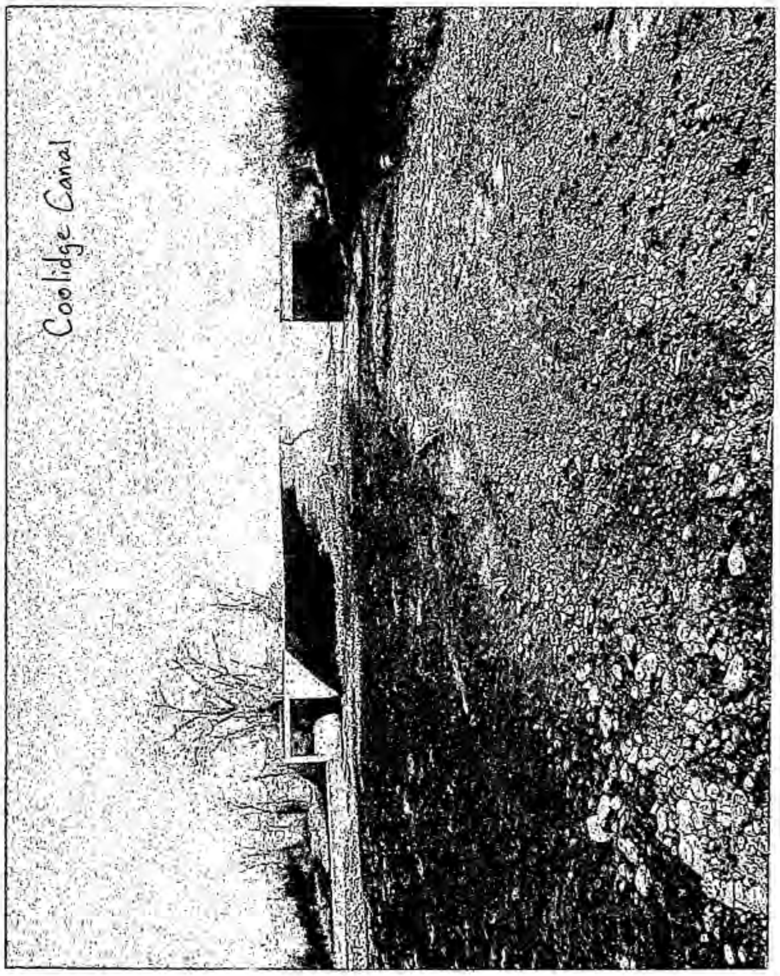
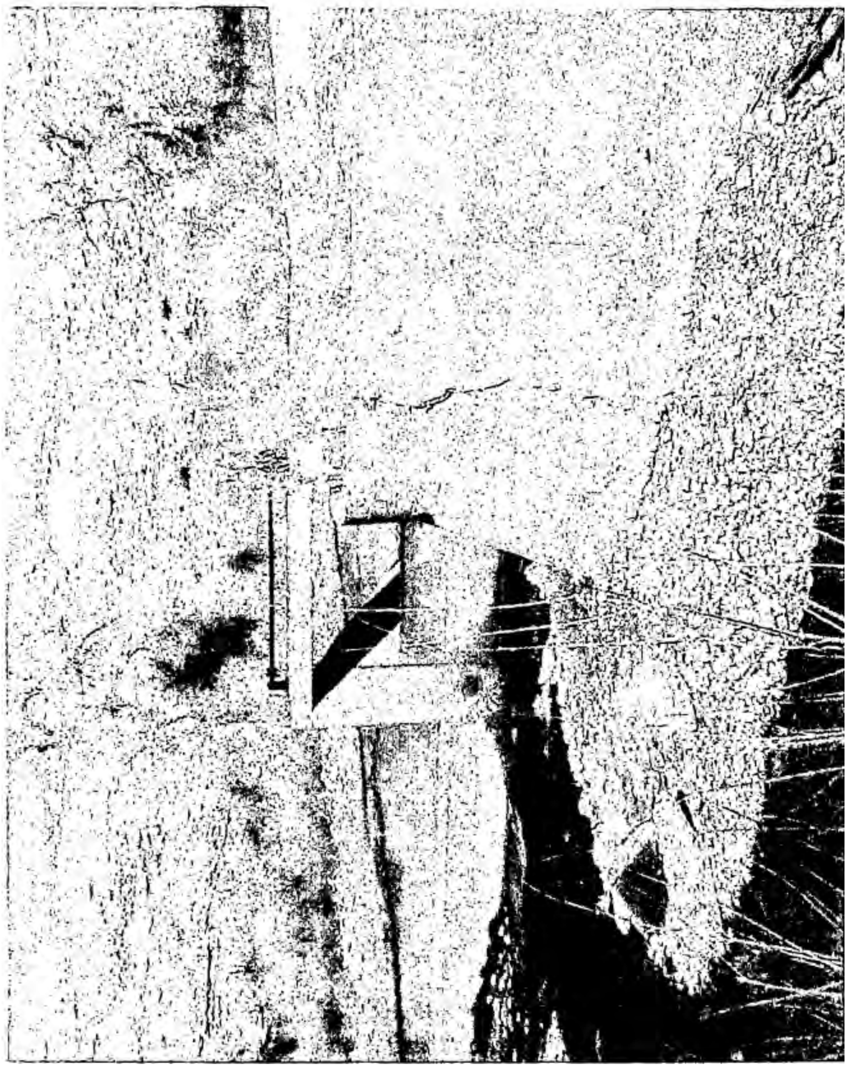
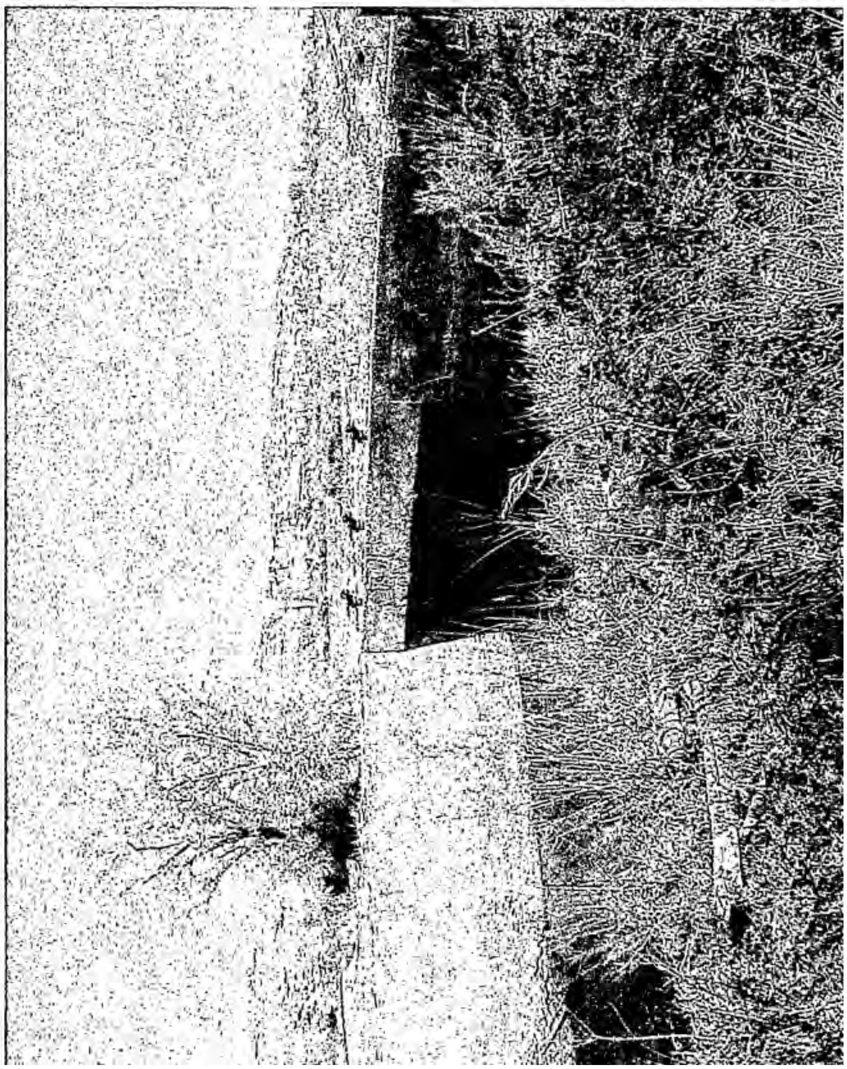
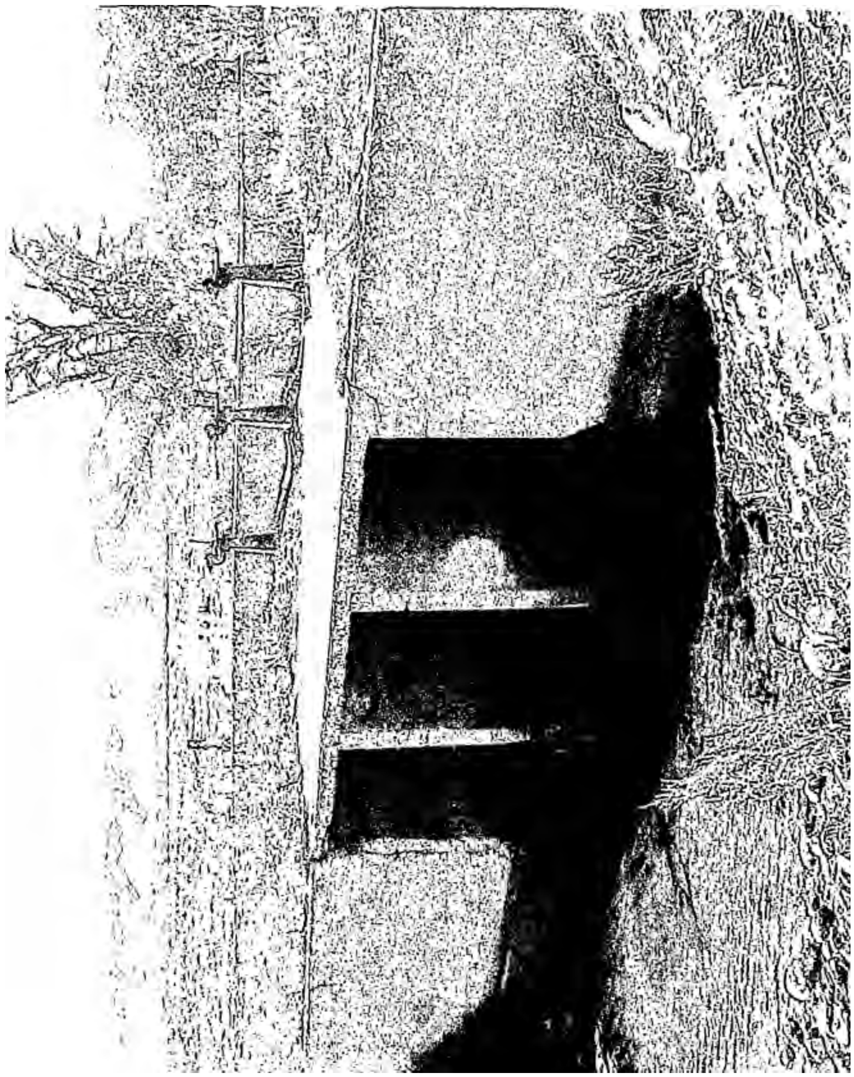
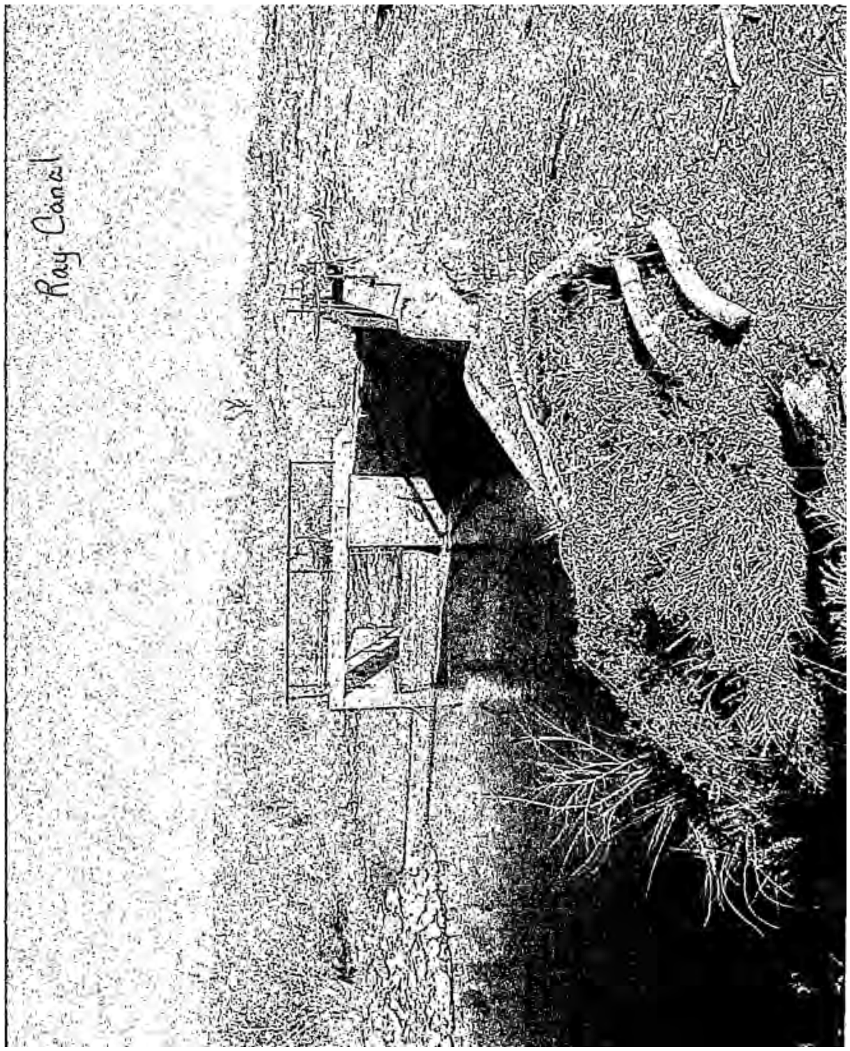
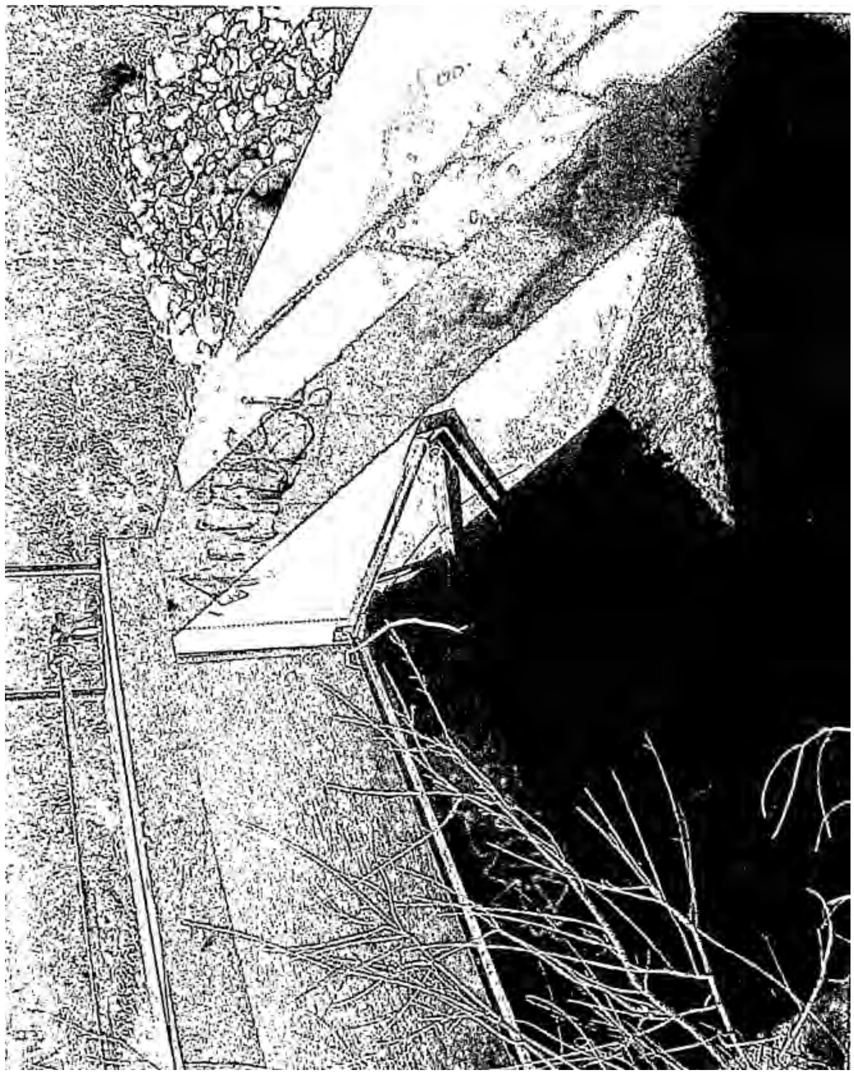

Coolidge Canal

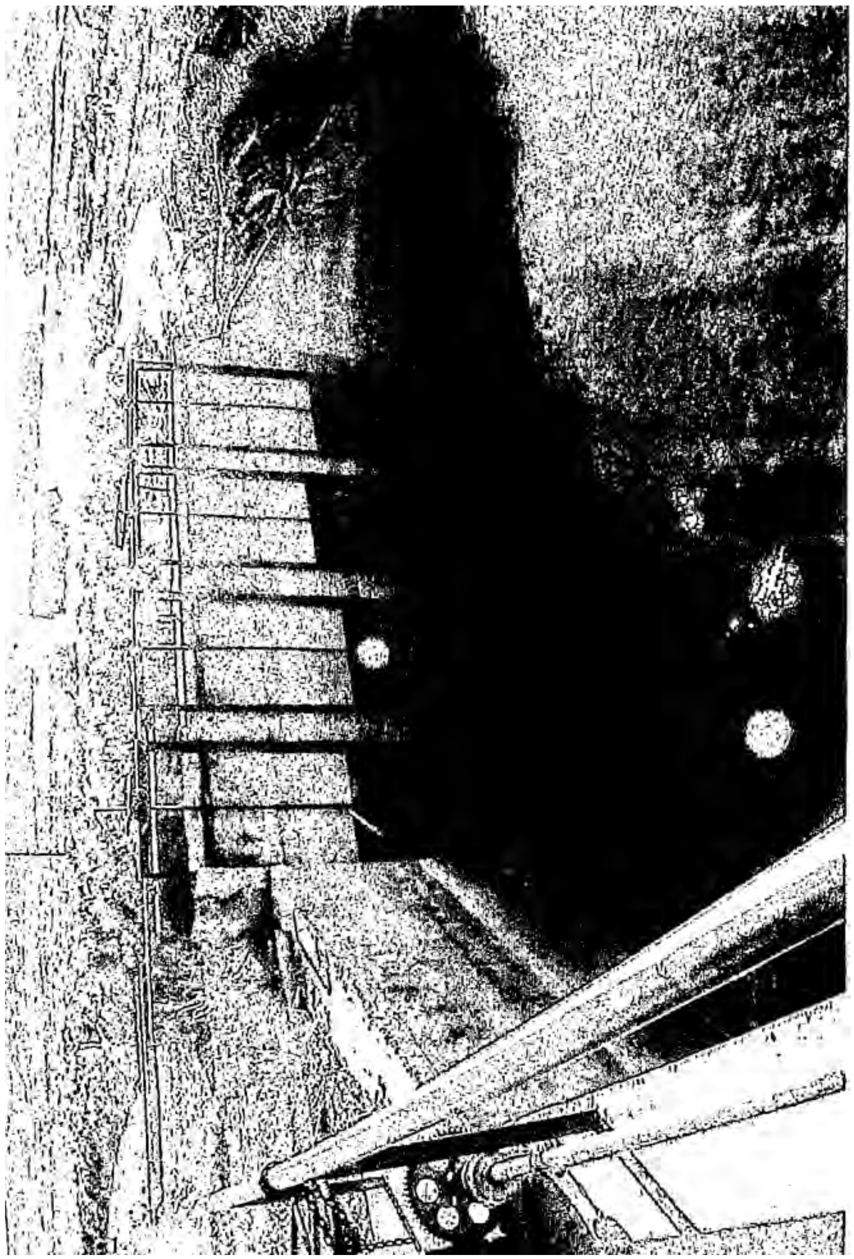







Ray Canal





OFFICE OF THE TRIBAL WATER ENGINEER

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Friday, April 29, 2011

To the Honorable Senator Barrasso.

Regarding the Senate Hearing on the condition of The Wind River Irrigation Project. Open Comment Period on Deficiencys..

My name is James Pogue. I am an Indian Landowner in the Crowheart Area of the Upper Wind River Irrigation Project. I was a Bureau of Indien Affairs employee, Irrigation Department, from 1980's to the 90's. As a former BIA Irrigation System Operator, I am familiar with the whole project, structures, and operation since then. I wish to confer my point of view to you on how the project has deteriorated since that time period. I am currently employed with the Shoshone and Arapaho Joint Tribal Water Engineer's Office.

During my employment with the Bureau of Indian Affairs, I attended a seminar at the BIA Area Office at the Federal Building in Billings. This was a joint presentation by BIA/BOR Irrigation Officials. The focus was on concrete irrigation structure repair. The BOR official giving the presentation had surveyed all irrigation projects in the West. His final consensus was that the Wind River Irrigation Project was the "**Worst Irrigation Project in the Western United States.**" The date of this meeting was April 1986. The Project's condition was known to the Federal Government at this time.

In this time period, the Irrigation, was the only department at the Wind River Agency that was self-sufficient. It used O+M funds to pay for project work, materials, and wages. Later during the late 1990's to 2000's, the Project Manager's had a lower priority on maintenance, replacement, and a higher focus on operation (delivery of irrigation water). I believe that the driver to this situation was the growing percentage of Idle Indian lands with multiple owners.

The Indian Land Owners went from 1 owner per tract in the 1950's to multiple owners in today's situation. In the majority of Allotted lands there could be 50 to 100 different owners. The result is their land goes Idle due to disagreement, lack of operating capital, absentee owners, or the simple fact of not everyone is a farmer. The driver behind this is Federal Indian Land Probate Laws. One owner dies then before probate is settled another heir passes on and the problem compounds itself. The visible aspect of this is apparent when you travel around the Wind River Reservation. Any land that is bare and grazed to the bare ground is either Tribal or Allotted. An effort should be made to bring these idle lands back into production.

Another fact of the WRIP is that the majority of the Project's primary construction occurred during the 1920's to 30's. This means that a large number of concrete structures in the Wind River Project will fail at a given time @ 80+ years of age. In comparison, a modern concrete structure built today should give a life span of 100 to 125 years of service. A large number of studies have been conducted concerning potential storage sites and Tribal Futures Irrigation Projects. The data is collected for future development.

Global Agricultural Economics are visible today. Here on Wind River, many small farms collapsed during the 1980's due to lower cattle prices and farm income. The successful or should I say, surviving agricultural operators were able to get larger thru Agricultural Price In-elasticity which means the more cattle and farm products you produce the more money you make. In the Crowheart area this has led to a shortage of land available. It takes more land to produce more Ag products. Many ranchers are deep in debt to the point that they can't quit with out defaulting on their loans.

The Wind River Water Control Board has recognized this deficiency in the Wind River Irrigation Project. Through the co-operative efforts of the Bureau of Indian Affairs, The Shoshone and Arapaho Tribes, and the State of Wyoming. Some capital construction in the Rehabilitation of the Wind River Irrigation Project has begun. It will be a long road to sustainability. However, If allowed to continue as is, the Wind River Irrigation Project will continue in the downward spiral to in-operability.

In summary, The Wind River Irrigation Project does provide many positive attributes for it's residents. The Homeland of the Shoshone and Arapaho people is a beautiful place to live. This is evident of the many people before us, who spent their lifetime here on the Wind River.

Thank You, Senator Barrasso, and staffers for your time and efforts in finding a resolution to our problem.

James G. Pogue J. G. P.

P.O. Box 595

Crowheart, Wy. 82512

Senator BARRASSO. Thank you. I appreciate you being here. Our next witness is Kenneth J.T. Trosper who is a member of the Wind River Water Resources Control Board for the Northern Arapaho Tribe, Fort Washakie, Wyoming.

STATEMENT OF KENNETH J.T. TROSPER, MEMBER, WIND RIVER WATER RESOURCES CONTROL BOARD, NORTHERN ARAPAHO TRIBE

Mr. TROSPER. I would like to thank you, Honorable John Barrasso, as well as other member of the Unites States Senate Committee on Indian Affairs for allowing us to bring in our issues concerning the Wind River Irrigation Project. My name is Kenneth Trosper. I serve on the Northern Arapaho side of the Wind River Water Resource Control Board.

I would like to offer my testimony on the shortfalls of the irrigation project and the BIA in protecting the natural resources of the Wind River watershed. The project diversions divert more water than is called for simply to push the required water down the canals. This is done because of the terrible condition of the entire system. There has been little conservation attempts or major rehab other than what the water board and tribes have secured funding for.

As a young man, I listened as my grandmother Margaret talked about happier times with my grandfather before the war. She told me of fishing the Little Wind and the great fishing the river provided. She talked of them sitting on the bank of their favorite fishing hole near Ethete and catching enough cutthroat trout to feed the whole family as well as others with nothing more than a willow pole, hook and line, and bait.

Today's a different story. The native Yellowstone cutthroat trout have all disappeared in the Little Wind River. Cutthroat need cold, clean water which is something the lower Little Wind can no longer provide in the summer months due to the inefficiency of the Wind River Irrigation Project as well as a lack of storage and conservation.

If this project is maintained as it should have been, upgraded as other projects are, provided conservation measures like other systems, perhaps then the Little Wind wouldn't be a warm tepid bacteria-laced stream in the summer but instead a clean, living river like the one my grandparents enjoyed.

Another area of concern related to the inefficiency of the irrigation project is that of the native sauger. Although sauger were once found in most of the major Wyoming river basins, according to Craig Amadio of the Wind River Water sauger Study, the Wind River Reservation supports one of the few remaining genetically pure sauger populations in the western United States. And according to the study, the Wind River population is estimated at 4,300 fish. A recent Wyoming Game and Fish State Wildlife Action Plan lists the sauger as one of Wyoming species of greatest conservation need.

This population is threatened because of the bottleneck created by the subagency diversion and the low flows below the diversion in the summer months. There is also the chance of potential kill-offs from flows insufficient to dilute any discharge or accidental contamination. The sauger is already lost above the diversion itself since it can no longer migrate past this diversion.

Along with the sauger, above the diversion a fresh water mussel, lam sillic sole, important to our native culture was once found all along the Little Wind is now only found a few miles below the subagency diversion. The mussel uses the sauger to promulgate and like the sauger has disappeared above the subagency diversion and is threatened below. The Wind River and Little Wind River would benefit greatly from mainstream flows.

Within the tribal water code, mainstream flow is listed as one of the 15 beneficial uses. Not only would fish and wildlife benefit but ground water recharge, municipal and domestic water, as well as water quality. A healthy viable river benefits everyone; however, without full rehab of the system, conservation, and future storage projects, it would be extremely difficult to maintain flows in the Little Wind to protect our fisheries while providing current irrigation needs. Thank you. That concludes my statement.

[The prepared statement of Mr. Trosper follows:]

PREPARED STATEMENT OF KENNETH J.T. TROSPER, MEMBER, WIND RIVER WATER RESOURCES CONTROL BOARD, NORTHERN ARAPAHO TRIBE

I would like to thank the Honorable John Barrasso as well as the other members of the United States Senate Committee on Indian Affairs for allowing us to present our issues concerning the Wind River Irrigation Project

My name is Kenneth Trosper I serve on the Northern Arapaho side of the Wind River Water resource Control Board

I would like to offer my testimony on the shortfalls of the irrigation project and the BIA in protecting the natural resources of the Wind River watershed. The project diversions have to divert more water than is called for simply to push the required water down the canals. This is done because of the terrible condition of the entire system. There has been little conservation attempts or major rehab other then what the Water Board and Tribes secured funding for.

As a young man I listened as my grandmother Margret talked about happier times with my grandfather before the war. She told me of fishing the Little Wind and the great fishing the river provided. She talked of them sitting on the bank of their favorite fishing hole near Ethete and catching enough cutthroat trout to feed the whole family (as well as others) with nothing more than a willow pole, a hook and line, and some bait.

Today is a different story; the native Yellow Stone cutthroat has all but disappeared in the little Wind River. Cutthroat need cold, clean water which is something the lower Little Wind can no longer provide in the summer months due to the inefficacy of the Wind River irrigation project, as well as a lack of storage and conservation.

If this project was maintained as it should have been, upgraded as other projects are, provided conservation measures like other systems, perhaps then the Little Wind wouldn't be warm tepid bacteria laced stream in the summer but instead a clean, living river like the one my grandparents enjoyed.

Another area of concern related to the inefficiency of the irrigation project is that of the native sauger. Although sauger were once found in most of the major river basins in Wyoming, according to Craig Amadio (*Wind River watershed Sauger study*) the Wind River reservation supports one of the few remaining genetically-pure sauger populations in the Western U.S. and according to the study, the Wind River watershed population is estimated at only 4300 fish. A Wyoming Game and Fish State wildlife action plan lists the sauger as one of Wyoming's species of greatest conservation need.

This local population is threatened because of the bottleneck created by the sub agency diversion and low flows below the diversion in the summer months, there is also the chance of potential kill offs from flows insufficient to dilute any discharge or accidental contamination. The sauger is already lost above the diversion since it can no longer migrate past the diversion.

Along with the sauger above the diversion, a fresh water mussel, Lampsilis siliquoidea important to our native culture, once found all along the Little Wind is now only found miles below the sub agency diversion. The mussel uses the sauger to propagate and like the Sauger has disappeared above the Sub Agency diversion and is also threatened below.

The Wind River and Little Wind River would benefit greatly from instream flows. Within the Tribal Water Code, instream flow is listed as one of the fifteen beneficial uses. Not only would fish and wildlife benefit, but groundwater recharge, municipal and domestic water, as well as water quality. A healthy viable river benefits everyone; however without a full rehab of the system, conservation and future storage projects, it would be extremely difficult to maintain flows in the Little Wind to protect our fisheries, while providing current irrigation needs.

Senator BARRASSO. I'd like to ask a couple of questions, and maybe we can start with Council leadership of the Tribes and then go to the specific folks about the water resources. Let's start with the two of you, Mr. Martel and Mr. Willow. For the record, there's been some discussion about the economic development components of this. Explain how the tribes specifically rely on the Wind River Irrigation Project to foster economic growth and generate income for the tribes, and either of you or both of you can answer.

Mr. MARTEL. Well, right now, Senator, economic growth from the river comes through agriculture and livestock. Like I mentioned in my testimony, we have several producers and farmers and ranchers on the project, tribal members and non-tribal members. We believe that storage is on the horizon, has to be, and in previous discussions we have had with the three irrigation districts a few years back, there were two issues we all agreed upon. And one of them was need to rehab the project and number two was storage. I think that's important when we sit down with Midvale, LeClaire, Riverton Valley, and agree on some issues that are going to be good for this basis. We believe that hydropower is going to be part of that economic future. We believe that water leasing in some form is going to be part of that economic progress. Recreation and tourism is not a major source of our economic development, but as we progress with the great country, we're blessed with recreation and tourism would be a big attraction.

Senator BARRASSO. Anything you want to add, Mr. Willow?

Mr. WILLOW. Sorry, I don't have as much air as these guys do. Yes, our waters are being used to capacity due to the poor irrigation system. There's a lot of lands idle that could help the crops. That's one way we can have economic stability there, but it's just that the water is short on our side. And like tourism and recreation, recreation use, we just feel that we own all the water within the reservation and boundaries. You know, I feel personally that Boysen Dam and recreation there, we should be a rich tribe from the water coming off the reservation and going to the irrigators north of Big Wind. We're kind of looking at other structure that's needed because we are the senior right holders; yet, there's no compensation or no recognition that to the tribe. But due to poor irrigation system, we can't use water to full capacity. Thank you.

Senator BARRASSO. That follows my next question for both of you. The GAO report said a couple things. One was that the Bureau of Indian Affairs is not accountable to water users, and I'm wondering what steps the BIA might take to increase involvement of the water users. We heard from the last panel about meetings that are held here and their involvement. So if just you could share with us, is the BIA responsive to the needs and are their ways that we could improve upon that?

Mr. MARTEL. Well, Senator Barrasso, you know, the management of the system on both sides of the river is not beneficial to the overall wide and stable use of our water resource. You know, the funding that has been coming down to the tribes, the BIA management of the system, sometimes there's no rhyme or reason to water levels in our reservoirs, and so we really have to take more control of that. Getting back to your previous question about the economic side of it, we have got to do that, and part of that is our future's land. We have over 50,000 acres of future land that we think the Riverton east project, which is just downstream from us here in Riverton, is a very viable project. The Crowheart north and south projects are very valuable projects, and so in order to be able to get the full beneficial use out of our water, we have to make sure the systems are managed and administered properly. We just think there's got to be a lot more interaction between the BIA and the tribes. I for one think that we as tribes have got to take it to administrative wear-with-all to be able to take that system over and be able to manage it and administer it on our own. But, of course, like Mr. Willow mentioned funding is a very important part of that. So we need to make sure as we continue this dialogue not only with the Committee but also with our congressional delegation.

Senator BARRASSO. Mr. Willow, anything you'd like to add?

Mr. WILLOW. Well, I think it would be more sufficient to have a water crew that we have to use the AFR on the reservations, but, yeah, there's a lot of things said here that aren't happening. You know, there's a lot of good thought but things are just not happening, and we're pretty frustrated. We continue to try to benefit our people in some way to use the water and to respect the water, you know, its life. But, everything revolves around water, and we're trying not to, I guess, disrespect water. But we're running into a lot of trouble, and it would be nice if we could administer all the water in the exterior boundaries but, like I said, put it to use.

Senator BARRASSO. Following with that, I think Mr. Trosper used the word "shortfalls" and "terrible conditions," and it made me think about the idea that the BIA has not produced the long-term plan. What would you like to see in that long-term plan for the system?

Mr. TROSPER. For myself overall, I would like to see the entire project needs to be redone from top to bottom. You have to have conservation. You know, the ditches need to be lined, head gates need to be fixed, structures need to be replaced in order for it to become as sufficient as federal projects across the river. Ours are not very efficient as they are, and then I would like to see that the tribes be given a chance to run this project so that we can eliminate some of these headaches created by the treasury, you know, garnishments and those kinds of things for people not using the water on idle lands that the BIA has trust responsibility to lease, and, you know, they don't do their job so the people get their wages. That's what I'd like to see is the project rebuilt, storage added, and then the tribe be given the chance to actually run this project.

Mr. COTTENOIR. I think as J.T. was saying, the entire project needs to be reworked, and somehow the BIA has to secure funding to help rehabilitate the system, whether it's federal appropriations or whatever, because currently what the O&M rates, even as they continue to increase, that doesn't provide enough funds to do the type of rehabilitation that is necessary. Like I said in my testimony, had it not been for the efforts of the Water Resource Control Board going to the State of Wyoming, WWDC, and also through efforts with Senator Enzi's office, these funds that we're currently using for rehabilitation on the reservation wouldn't even be here. We'd still be back having continued deferred maintenance and no major rehabilitation on reservation. So somehow this irrigation system is not self-sufficient. Somehow federal appropriations, whether it's earmarked funds or whatever, need to be secured in order for rehabilitation to continue because the thought of 638-ing the system and taking over and running it, this is a delipidated system. We can't be expected to take it over and then rehabilitate it on our own. The funds just aren't there. Like I said, the BIA through their O&M fees, there just isn't the funds available for this kind of rehabilitation. So some kind of earmarking or federal funding needs to be secured to continue the rehabilitation process.

Senator BARRASSO. On the next panel, we're going to hear from a member of the Crowheart Bench Water Users Association, and it's my understanding that the association has a memorandum of understanding with the BIA to manage the Crowheart Wind River Irrigation Project. And do you think that Crowheart model or some components of it may be applied to other projects? It just seems the water users are happier with that approach.

Mr. COTTENOIR. I'd like to make a statement on that.

Senator BARRASSO. I'd like to hear from both of you.

Mr. COTTENOIR. But the Crowheart area and the lower irrigation system are completely different. What works up there doesn't necessarily work down here. The situation is completely different. It's a good model, and if we could divide irrigation system into districts of some sort, then, yes, that possibly could be a way to go about it. But currently as it is, the two systems are completely different, and what works in one area doesn't necessarily work in the other.

Senator BARRASSO. J.T., do you have more you want to add?

Mr. TROSPER. Well, yes, the system that they have set up, it works for them, I guess, for a couple reasons. One, because individual landowners and most of the land that is under that project is actually being irrigated and being used and is typically one or two person owned sections of land. Down in the Ethete area or the lower Arapaho area, the Coolidge and a lot of these lands are fractionated where you may have 200 people that have an interest in that land, and there's a lot of idle land. So those little groups taking a little lateral and forming a group would not work down in this area because, you may have 50 percent of the land and little lateral that may be idle. You have to get everybody's agreement to enter into this, and when, like I say, you may have hundreds of people on the lower tract of land instead of one or two that own it. But like he says, it's different situations.

Senator BARRASSO. One of the other things that caught the attention of everyone listening to your testimony, you said the 1994 study which noted Wind River Irrigation Project had only 66 acres of irrigated land per mile of canal?

Mr. COTTENOIR. That's correct.

Senator BARRASSO. So the rule of thumb, I think you said the Bureau of Reclamation is a minimum of 140 acres.

Mr. COTTENOIR. Yes.

Senator BARRASSO. To be self-sustaining? Other thoughts you had on that or maybe both of you as people in resource management would have, what we could do differently, what should go into a master plan, how we ought to be thinking about this

Mr. COTTENOIR. Well, that 66 acres, we've been visiting with both Gary Collins and Bill Russell——

Senator BARRASSO. And Gary is on the next?

Mr. COTTENOIR. Right. They're both former water engineers. Bill was an engineer for the Bureau of Indian Affairs. Over the years since that 1994 study, that acreage on those canals has probably decreased just because a lot of lands have become idle. That is due to nonprofitable operations that lease fees and irrigation assessments have just priced land out of the ability to pay. A farmer can probably buy hay cheaper than he can to lease the land and pay the irrigation assessment. So there's a lot of lands that have gone idle and pulled out of production. Just in 2010, there were approximately 10,000 acres of tribal land allotted and tribal acres that were assessed the irrigation assessment that were not receiving water. So those are lands that have been taken out, and the continuing rise in irrigation assessment can only compound that problem by pricing irrigators and ranchers and farmers out of business where they find that more economical to just purchase rather than actually grow their products.

Senator BARRASSO. Do you have anything you'd like to add, Mr. Trosper?

Mr. TROSPER. Well, it is true that there is a lot of fractionating of land. People cannot afford this anymore. I mean, the big farmers, they can afford it, but the small Indian landowner, he can't afford these with the realty prices. I've dropped my lease. It was cheaper for me to buy hay than to pay for it anymore and have it produced. Like he said, it was cheaper for me to just buy hay. The problem that I have, you know, with some of this on the natural resource side is that even as these lands are dropping out and not diverting that water, the diversion rates are dropping because the BIA still pump these ditches full because of the inefficiency of the system, they have to fill it up whether they have one person irrigating or a hundred. They have to fill these ditches up, and that's where environmental problems come for our fish.

Senator BARRASSO. Well, I appreciate all of you taking the time to be here, to share your thoughts. If there are additional things you'd like to add, we'd be happy to receive that. Thank you very much for being here. Now I would like to call the third panel. Welcome to all three of you. Thank you for being here. The order I have listed is, first, William O'Neal, Wind River Irrigation Project water user, member of the Crowheart Bench Water Users Association.

STATEMENT OF WILLIAM O'NEAL, WIND RIVER IRRIGATION PROJECT WATER USER; MEMBER, CROWHEART BENCH WATER USERS ASSOCIATION

Mr. O'NEAL. Thank you, Senator. On behalf of all our water users, I extend our thanks for being able to provide testimony about the irrigation system we have up there. The Crowheart Bench Water Users Association was founded in 2004 by landowners in the Crowheart area. The bench users associate services approximately 8,800 acres and is composed of Dinwoody reservoir and continue many miles of canals, laterals that are supplied by snow pack and glacier runoff of the Wind River Mountains. The Crowheart Bench Irrigation System and the A canal irrigation system, which is another 1,800 acre system utilizing water from the Wind River, together make up approximately 27 percent of the total acreage managed by the irrigation office of the Bureau of Indian Affairs, Wind River agency. The decision to form the Crowheart Bench Association was driven by the discontent of the water users, increasing water operation and maintenance assessments, and the observed success of the A Canal Irrigators Association. Objectives of the Crowheart Bench Association upon its inception included, one, to be able to deliver water through the system as efficiently and cost effectively as possible; two, maintain a nearly 100-year-old system; number three, we'd like to ensure O&M moneys collected from Crowheart are used to achieve the above-listed objectives in the Crowheart area; four, we'd like to actively participate in the management of our system; and, number five, most importantly, we'd like to reduce the gap between O&M assessments and providing service.

The Crowheart Bench Water Users Association is recognized in the memorandum of agreement with the BIA. This came about as a direct result by the efforts of, one, Crowheart water users; two, Indian Affairs Committee, here then under the late Senator Craig Thomas, Tribal Water Engineers Office, and Joint Business Council, and, of course, the BIA.

This allows the Crowheart Bench to manage the system through a volunteer board of directors elected by the water users, serviced by the Crowheart Bench Irrigation System. The Crowheart Bench Water Users Board has been actively pursuing the above objective, and we have enjoyed the great deal of success in nearly every case.

Current O&M assessments for the Crowheart Water Users is currently at $14 per acre as opposed to $20 an acre on the rest of the system. This reduced rate is a result of the more effective delivery of the local ditch rider hired on a contract basis. The ditch rider provides his own vehicle, covers his own expenses, and works with the Crowheart Bench Water Users board of directors to solve problems throughout the year that occur on the system. The ditch rider works for six days per week and is on call 24/7. Over the past 40 years, actual costs of water delivery to the Crowheart Water Users has been approximately $3 an acre. Approximately $4 per acre is being used for the maintenance and rehabilitation, and the remaining seven has been used for three administrator positions whose duties include billing, collections, and project management. Significant steps have been taken to rehabilitate the system, including cleaning many of miles of canals and laterals, replacement of turnouts, gates, structures, and head gates. Much of the work has been performed by local contractors which has enabled a great deal of work to be done for a fraction of the cost the BIA incurs. Water users have always volunteered a great deal of time and labor in priming laterals, pouring cement, and assisting with various repairs to the system.

We want to understand this is probably not a fix-all for the entire project. It has and continues to work well for a variety of reasons here. One, we have a different water source. We have glacier runoff which in nature's form gives us a certain amount of storage. We have a little better canal conditions up there partly due to the work we've done ourselves, and, second, we have a little faster canal system. I think it keeps its condition a little better. We have smaller working group up there. We have a very strong ag. based economy there. Everyone there or the greater majority of people who irrigate there use ag. as a primary source of income. We don't have a business or anything outside of that to supplement income. So a lot of people work real hard at making this irrigation system work. That's our livelihood basically. Just to give you kind of an idea where we're at right now.

Our next immediate obstacles that we wish to overcome are the administrative costs basically we incur. We're paying about half of that right now in administrative costs that go back. We feel that because of trust responsibilities, BIA to Tribal and allotted lands. We're going to have a hard time to cover that. Right now this project could run 100 percent by the water users' moneys, and as late as 1990 federal moneys were appropriated for construction of cement structures and researching ownership, of heirship/ fractionated lands for O&M assessment on the Wind River Irrigation Project. These figures come from a prior project manager. We don't want to enjoy that luxury. We'd like to get back to us. We as landowners, 100 percent of our properties fee or trust, feel we are forced to take on the trust responsibilities of the BIA that are paying 100 percent of the administrative costs. We thank you and look forward to working with you, Senator Barrasso, and the Indian Affairs Committee.

[The prepared statement of Mr. O'Neil follows:]

PREPARED STATEMENT OF WILLIAM O'NEAL, WIND RIVER IRRIGATION PROJECT WATER USER; MEMBER, CROWHEART BENCH WATER USERS ASSOCIATION

The Crowheart Bench Water Users Association (CBWUA) was founded in 2004 by landowners in the Crowheart area. The Crowheart Bench irrigation system services approximately 8800 acres and is composed of Dinwoody Reservoir and many miles of main canals and laterals that are supplied by snowpack and glacial runoff from the Wind River Mountains and multiple perennial streams. The Crowheart Bench irrigation system and the A Canal irrigations system, (another 1800 acres system) utilizing water from the Wind River, together make approximately 27% of the total acreage managed by the irrigation office of the Bureau of Indian Affairs Wind River Agency. The decision to form the CBWUA was driven by the discontent of water users with the increasing water operations and maintenance (O&M) assessments and the observed success of the A Canal Irrigators Association. Objectives of the CBWUA upon its inception included:

1: To be able to deliver water through the system as efficiently and as cost effective as possible.
2: Maintaining the nearly 100 year old system.
3: Ensuring the O&M monies collected from Crowheart were used to achieve the above listed objectives in Crowheart.
4: Actively participating in the management of the system.
5: Reduce the ever widening gap between O&M assessments and declining service.

The CBWUA is recognized though a memorandum of Agreement with the BIA. This was as the result of efforts by:

1: Crowheart Water Users
2. Indian Affairs Committee (U.S. Senator Craig Thomas)
3. Tribal Water Engineer (TWE)
4. Joint Business Council (JBC)
5. Bureau of Indian Affairs (BIA)

This allows the CBWUA to manage the system through a volunteer seven member board of directors elected by the water user's service by the Crowheart Bench Irrigation system. The CBWUA Board of Directors has actively been pursuing the above objectives and has enjoyed success in nearly every case. Current (O&M assessment for Crowheart Water users is $14.00/acre, as opposed to $20.00/acre. This reduced rate is the result of more efficient delivery of water by a local ditch rider hired on a contract basis. The ditch rider provides his own vehicle and covers his expenses and works with the CBWUA Board of Directors to solve problems that occur on the system. The Ditch rider works 6 days per week and is on call during high water. Over the last 4 years the actual cost of water delivery to the Crowheart water users has been approximately $3.00/acre. Approximately $4.00/acre is used for maintenance and rehabilitation. The remaining $7.00/acre has been used for the three administrative positions whose duties include billing collections and project management. Significant steps have been taken to rehabilitate the system including cleaning of many miles of main canal and laterals, replacement of head gates and structures, and repairs to main supply headgates. Much of the work performed on the Crowheart system has been awarded to local contractors via a competitive bid process, which has enabled a great deal of work to be done for a fraction of the cost the BIA incurs to accomplish the same work. Water users have also volunteered a great deal of time and labor in priming laterals, pouring cement, and assisting with various repairs to the system.

This is not a fix all for the entire project. It has and continues to work well for a variety of reasons.

1. Water supplies
2. Canal conditions
3. Smaller working group
4. Ag Primary Income Source

The next immediate obstacles we wish to overcome are the administrative costs. Because of trust Responsibilities by the BIA to Tribal and allotted lands, we are aware that our input and control will be limited.

1. As late as 1990 Federal monies were appropriated for construction of cement structures and researching ownership of heir ship/fractionated lands for O&M assessment on the Wind River Irrigation Project.
2. We as landowners owning 100% of our properties (fee or trust) feel we are forced to take on the trust responsibility of the BIA by paying 100% of these administrative costs.

We Thank you and look forward to working with Senator Barrasso and the Indian Affairs Committee and finding solutions to these and other irrigation problems.

Senator BARRASSO. Thank you very much, Mr. O'Neal. I would point out for everyone here that I go to a lot of senate hearings, and often the administration, they're gone before the other people testify. I will just tell you the people from the first panel, they're still here down in the front row listening, the BIA are listening to everything you say. So I think it's a great credit to them know that they had stayed to listen to everything that's being said here. With that, let me turn to Mr. Glick, who's a Wind River Irrigation Project water user. Thank you, Mr. Glick.

STATEMENT OF CLINTON GLICK, RANCHER; WIND RIVER IRRIGATION PROJECT WATER USER

Mr. GLICK. Thank you, Senator John Barrasso, Vice Chairman, and Members of the Committee for the opportunity to testify on the Wind River Irrigation Project. I am a water user under the Wind River irrigation Project as I'm a member of the Glick family who runs a small cattle ranch.

The management of the Wind River Irrigation Project has a lack of adequate funding and requires consistent administration, engineers, and bill collectors to succeed and be efficient. If and when consistent appropriated funds are available to pay for administration and management, more operation and maintenance assessed funds can be directed towards deferred maintenance. Eastern Shoshone and Northern Arapaho joint tribes appointed tribal organizations and proposed water users group need to be included in the coordinating and consulting of setting the program's operation and maintenance decisions to allow for and allow for improved planning. The Wind River Irrigation Project needs financial assistance through the construction to complete and rehab the system as to permit the ultimate development of a viable and sustainable irrigation project for our future generations.

Department funding is derived from operation and maintenance charges per irrigatable acre. BIA calculates irrigation assessment rates, and in accordance with 25 CFR 171.1(f), by estimating the cost of normal operation and maintenance at each irrigation project. The cost of normal support or benefit of the irrigation project activities means the expenses they incur to provide direct support of, and benefit for, the administration, operation, maintenance and rehabilitation. I'd like to emphasize the normal part in here where a lot of this administration rehab and stuff should not be included with our O&M charges because it's above and beyond. The administration payroll expenditures consume the majority of the operation funds and keep escalating with federal costs of living increases which are required for federal employees. I believe consistent appropriated funds for administration engineers and bill collectors and management would benefit the district whereas the overall irrigation district's budget would require less assessed charges per acre and nonetheless would allow more funds to be directed towards high priority areas.

Deferred maintenance has been hindered by administration (engineers and bill collectors) expenditures. Water users, and BIA have reported operations of maintenance fees provide insufficient funding for project operations. I believe administration engineers and bill collectors costs should receive consistent appropriated funding since the irrigation district are considered to be BIA owned. Deferred maintenance has turned the BIA maintenance crew into emergency repair crew. All of the major canals have been ignored for so long they can hardly convey water to head gates.

When funds are available, I am very agreeable that the diversion dams, major canals, and head gates are to be placed on top of the Wind River Irrigation System prior to this. At what time the irrigation system receives more maintenance and rehabilitation, the system will become more efficient and conserve water for other beneficial uses such as fisheries, wildlife, pollution control, recreation, cultural, municipal, domestic use and other users down the road.

Along the same lines is Deferred Maintenance. Many of our U.S.G.S. Gauging Stations are no longer funded. In order to build a feasible resource management plan for our water systems, it's imperative to be able to track our water. This would be beneficial to the BIA, Eastern Shoshone and Norther Arapaho Tribes, State of Wyoming, Fremont County, our irrigation districts, and our local water lease.

Coordination between the BIA irrigation department, BIA realty department, Easteren Shoshone and Northern Arapaho Joint Tribes, and appointed Tribal Organizations all need to work together on the government-to-government basis. Also, all of these entities need to include the proposed water users group as cooperators. This will enhance our planning to provide for educated decisions on actions necessary for the proper operation maintenance and administration of our irrigation project and lands.

At one time, irrigation increased the value of our lands and cheapened the price of living in all our local towns within our Wind River Reservation and the state of Wyoming. Without the irrigation project and ag. communities, many industries and towns could not flourish. Anything which affects the success of the many achievements of the irrigation project and agricultural communities not only concerns those engaged in the pursuit but also the progress and welfare of the Wind River Reservation and the state of Wyoming. With the deterioration of our irrigation system, the high cost of assessed charges, our lands have become more of a burden rather than an asset.

With the cattle prices at an all time high, it is now an optimum time to sell. I am afraid many of the existing ranchers and farmers will sell out. It will then take a considerable amount of funding to rebuild the local agricultural community. Right now, there is no feasible way for young families to embark into ranching and farming due to the amount of seed moneys required to start up. We are left with the major dilemma. I feel strongly that our irrigation project should receive consistent appropriate funding for administration, engineering, and building—bill collectors. This will allow us to salvage our situation by allowing more funding to be directed towards high priorities, such as key maintenance. Thank you for the opportunity to testify.

[The prepared statement of Mr. Glick follows:]

PREPARED STATEMENT OF CLINTON GLICK, RANCHER; WIND RIVER IRRIGATION PROJECT WATER USER

Mr. John Barrasso, M.D. Vice Chairman and Members of the Committee:

Thank you for this opportunity to testify on issues pertaining to Operation and Maintenance of the Wind River Irrigation Project.

I am a water user under the Wind River Irrigation Project, as I am a member of the Glick family, who runs a small cattle ranch out side of Fort Washakie.

The Management of the Wind River Irrigation Project has a lack of adequate funding, and requires consistent appropriated funds for Administration (Engineers and Bill Collectors) to succeed and be efficient. If and when consistent appropriated funds are available to pay for Administration and Management, more Operation and Maintenance Assessed Funds can be directed towards Deferred Maintenance. Eastern Shoshone and Northern Arapaho Joint Tribes, Appointed Tribal Organizations, and a Proposed Water Users Group need to be included in the coordinating and consulting of setting the program's priorities, operation, and maintenance decisions, to allow for improved Planning. The Wind River Irrigation Project needs financial assistance through the Construction to Complete and Rehab of the System period, as to permit the ultimate development of a viable and sustainable irrigation project for our future generations.

The BIA Irrigation Department's funding is derived from Operation and Maintenance charges per irrigatable acre. BIA calculates irrigation assessment rates in accordance with *25 CFR 171.1(f) by estimating the cost of normal operation and maintenance at each irrigation project. The cost of normal operation and maintenance means the expenses they incur to provide direct support of benefit for and irrigation project's activities for administration, operation, maintenance, and rehabilitation.* The Administration payroll expenditures consume the majority of the Operation & Maintenance funds, and keep escalating with the Federal Cost of Living Increases, which are required for Federal Employees. I believe consistent appropriated funds for Administration (Engineers and Bill Collectors) and Management would benefit the district, whereas the overall Irrigation District's Budget would require less assessed charges per acre, and nonetheless will allow more funds to be directed towards high priority areas.

Deferred Maintenance has been hindered by Administration (Engineers and Bill Collectors) expenditures. Water Users and BIA have reported that Operations and Maintenance Fees provide insufficient funding for project operations. I believe Administration (Engineers and Bill Collectors) Costs should receive consistent appropriated funding, since the Irrigation Districts are considered to be BIA Owned. Deferred Maintenance has turned the BIA Irrigation Maintenance Crew into an Emergency Repair Crew. All of the major canals have been ignored for so long they can hardly convey water to the aging head gates.

When funds are available, I am very agreeable that Diversion Dams, Major Canals, and Head Gates are to be placed on top of the Wind River Irrigation Systems Priority List. At what time the Irrigation System receives more Maintenance and Rehabilitation; the system will become more efficient and conserve water, for other beneficial uses such as: fisheries, wildlife, pollution control, recreation, cultural, religious, hydropower, industrial, municipal, domestic use, and other users down the road.

Along the same lines as Deferred Maintenance, many of our U.S.G.S. Gauging Stations are no longer funded. In order to build a feasible Resource Management Plan for our water systems, it is imperative to be able to track our water. This would be beneficial to the BIA, Eastern Shoshone and Northern Arapaho Tribes, State of Wyoming, Fremont County, our irrigation districts, and our local water ways.

Coordination between the BIA Irrigation Department, BIA Realty Department, Eastern Shoshone and Northern Arapaho Joint Tribes, Appointed Tribal Organizations all need to work together, on a government-to-government basis. Also, all of these entities need to include the Proposed Water Users Group as cooperators; this will enhance our planning to provide more educated decisions on actions necessary for the proper: operation, maintenance, and administration of our irrigation project and lands.

At one time Irrigation increased the value of our lands and cheapened the price of living in all our local towns within the Wind River Indian Reservation and the State of Wyoming. Without the Irrigation Projects and Agricultural Communities, many industries and towns could not flourish. Any thing which affects the success and many achievements of the Irrigation Projects and Agricultural Communities, not only concerns those engaged in the pursuit, but also the progress and welfare of the Wind River Reservation and the State of Wyoming. With the deterioration of our irrigation systems, the high cost of assessed charges, our lands has become a burden rather than an asset.

With the cattle prices at an all time high, it is an optimum time to sell. I am afraid many of the existing ranchers and farmers will sell out. It will then take a considerable amount of funding to rebuild the local Agricultural Community. Right now there is no feasible way for young families to embark into ranching and farming, due to the amount of seed monies required for startup, so we are left with a major dilemma. I feel strongly that our Irrigation Project should receive consistent appropriated funding for Administration (Engineers and Bill Collectors). This will allow us to salvage our situation, by allowing more funding to be directed toward high priorities, such as Key Maintenance. Thank you for the opportunity to testify.

Attachment

The Honorable John Barrasso, M.D. Vice Chairman and Members of the Committee:

Thank you for this opportunity to comment on issues pertaining to Operation and Maintenance of the Wind River Irrigation Project.

1. We are requesting there be a Congressional Mandate to secure consistent appropriated funds for the Wind River B.I.A. System's Administration (Engineers and Accountant/Secretaries) as to succeed and be efficient, whereas this would permit the ultimate development of a viable and sustainable irrigation project for our future generations.

2. Eastern Shoshone and Northern Arapaho Joint Tribes, Appointed Tribal Organizations, and a Proposed Water Users Group need to be included in the coordinating and consultation of setting the program's priorities, Operation and Maintenance decisions, to allow for improved Planning.

3. The Wind River Irrigation Project needs financial assistance through, Construction to Complete and Rehabilitation Construction, of the System period. Thus, permitting the ultimate development of a viable and sustainable irrigation project for our future generations.

4. The assessed charges per acre for B.I.A. Irrigation Operation and Maintenance is described in *25 CFR 171.1(f) The rates will be based on a carefully prepared estimate of the cost of normal operation and maintenance of the project. Normal operation and maintenance is defined for this purpose as the average per acre cost of all activities involved in delivering irrigation water and maintaining the facilities.* Administration, rehabilitation and deferred maintenance, we believe should not be factored in determining the per acre assessment. Administration and deferred maintenance costs are above and beyond normal operation and maintenance. Due to the fact the Wind River Irrigation Project was never brought to conclusion, thus makes the system incapable of being self supporting.

5. The Administration payroll expenditures consume the majority of the Operation & Maintenance funds, and keep escalating with the Federal Cost of Living Increases, which are required for Federal Employees. We believe consistent appropriated funds for Administration and Management expenses would benefit the district, whereas the overall Irrigation District's Budget would require less assessed charges per acre, and nonetheless will allow more funds to be directed towards high priority areas.

6. We are requesting a congressional mandate to secure consistent funding for the U.S.G.S. Gauging Stations, which would beneficial to the B.I.A., Eastern Shoshone and Northern Arapaho Tribes, State of Wyoming, Fremont County, our irrigation districts, and our local water ways, by working together to build a feasible Resource Management Plan. Thus the irrigation systems will become more efficient and conserve water, for other beneficial uses such as: fisheries, wildlife, pollution control, recreation, cultural, religious, hydro-electric power, industrial, municipal, domestic use, and other users down stream.

7. We need collaboration between the B.I.A. Irrigation Department, B.I.A. Realty Department on setting the appraisals and assessed charges, as to what the market will bear, thus detour the idle land issue.

8. Without the Irrigation Projects and Agricultural Communities, many industries and towns could not flourish. Any thing which affects the success and achievements of the Irrigation Projects and Agricultural Communities, not only impacts those engaged in the pursuit, but also the progress and welfare of the Wind River Reservation, Fremont County, and the State of Wyoming.

Thank you for your time and patience...

Senator BARRASSO. Thank you very much. It was very helpful. And now we have Gary Collins, Wind River Irrigation Project water user. Thank you.

STATEMENT OF GARY COLLINS, WIND RIVER IRRIGATION PROJECT WATER USER

Mr. COLLINS. Thank you, Senator. It's an honor to be here with you, and I appreciate your time to come to this Senate field hearing. Many points that I would like to talk about have been addressed in part before; however, the history of the project was intended for the native Americans, Shoshones and Arapahos, as their homeland. And that focus has been changed over the time because we don't have a very large amount of ag. people in the business. So the intended purpose has been not adequately taken care of, and so the funding with regards to the irrigation project has been less than adequate. It hasn't been kept up with the times, and for a comparison, I would like to identify the Bureau of Indian Affairs project where there's about 66 acres per mile of lateral. Over on Midvale area, north of the Big Wind River and Bureau of Reclamation, also in the Interior Department, is nearly 160 acres of land per mile. So the economics look very dire for the tribal section because we have so many more miles to get an acre of land irrigated.

So it's intriguing to me that under Interior, there's two segments, the Bureau of Indian Affairs and Bureau of Reclamation. And one is very successful and the other is not. So as we move forward, we have found that the funding for the irrigation project just wasn't going to happen through the BIA through their regular process of putting a budget together, going to Congress in their BIA budget. So what the tribes have done to secure funds is actually go to Washington D.C., speak with the Senators, Senator Thomas and Senator Enzi and others, Senator Metcalf. And so there was an effort by the Wind River Water Resources Control Board to do those things, and today we have nearly $7,000,000 that we've received. And a fair amount of that has been expended. Had we not done this, had we not been able to secure those funds, I believe today the system would not be operable. It would have been an economic disaster. We have gone to the diversion structures and rehabilitated those and taken away the bottlenecks, and this is a major challenge during drought conditions in the early part of this century. So the tribes have taken initiative to move forward with doing something to take the bottlenecks away to create an efficiency, even to the tune of hiring professional engineering firms to review the system and validate the inadequacies. We've done that with a firm, NRCC. We've also had HKM Engineering out of Billings. In addition to that, the Wyoming Water Development Commission has come out and reviewed and has corroborated with the number we've identified as 65 and 70 million up to $100,000,000 of rehabilitation money that's needed just to keep the system going. So the inefficiency of the system today has created more idle tracts of land, which means less dollars protected for the system, but it also has caused many families to not be in the ag. business anymore.

The intention of our homeland was to be agriculturally based. Having not had that opportunity to create a homeland with agriculture, the fabric of the community has been unraveled because we don't have the core anymore. Like some of my colleagues mentioned earlier, it's too expensive to get into the business now that we start from scratch. You have to have something handed down from family to family or generational. So the money I mentioned to rehab the system doesn't include anything with regard to future lands.

Mr. Martel mentioned Riverton east, Crowheart north and south. Those dollars in some estimation would be $3,000 an acre to put them at an irrigatable practice scheme. So the O&M as it is identified to sustain the system goes out to all landowners, and that's particularly a difficult situation for landowners who are elderly who are no longer in the irrigation system but they are a landowner, they are penalized because they have to pay for the water that they don't use. And if they get to the point where if they can't pay it, then through the debt collection act, their social security is impacted by this same effort. So 70 percent of the system being operated by non-Indian ag. people, the elders with O&M charges who don't use the land, and many others actually are subsidizing the non-Indian water user on the place that's their homeland. So there's a financial inequity there that causes a big burden for our tribal members. And I know we're trying to facilitate dealing with the fractionated interests, but there are many tribal members who are young who don't know what O&M charges mean and, of course, there becomes lien on any future income they might have through the system as they get older. So that's something we really have to look at is how do we address that O&M so it's not detrimental to the landowner. The area in terms of management is that even though the tribes have their adjudicated water rights, 500,000 plus acre feet of federal reserve right, we need instrumentation and tools to manage that water so we know what the tools are in different drainage.

The Bureau of Indian Affairs has opted to not fund some of our gauging stations, and the concept that I was told, well, you have your water adjudicated. You don't need to know how much you have. You know already how much you have, but that's not applicable on a day-to-day basis of water management. And that has precipitated a letter of some dialogue with the state engineers office to the BIA that they will call in order that would be in breach of the Big Horn Decree if they don't fund those gauging stations. And so I think it's taking a heavy hammer of the State Engineer's Office to talk with the BIA in the central office about reestablishing our gauging stations. It was apparent last year during our flood event that we need gauging stations, and they weren't operable. So the gauging stations is a critical issue. I would hope that the Bureau can seek some way to fund those. There was some attempt to add on the cost of the gauging stations to the O&M rate. So it's easy pickings to go to the water users rather than go through BIA or federal entity up to the Congress for funding.

So with that, I just want to mention that this whole scenario about the irrigation project here at Wind River has many times overreached a trust responsibility to the tribes, and we hope to rectify that. Thank you for your time.

[The prepared statement of Mr. Collins follows:]

PREPARED STATEMENT OF GARY COLLINS, WIND RIVER IRRIGATION PROJECT WATER USER

History of the Project

Inadequate Funding to Sustain Project Viability

Compared to Bureau of Reclamation to Bureau of Indian Affairs 66 acres of land per 1 mile of lateral on BIA vs. 160 acres of land served per mile of Lateral on BOR.

Funding for Irrigation

Rehabilitation on WRIP has been solely Tribal efforts to secure funds from Congress and Wyoming Water Development Commission.

The inefficient system today has caused future ranchers and farmers to opt out due to costs O and M penalizes land owners that do not farm Tribes have secured professional engineering analysis of WRIP and have determined that $70,000,000 to $100,000,000 to rehabilitate the irrigation project , not including any "futures land irrigation."

The "fabric" of the agriculture community is being destroyed due to excessive costs and inefficiency of the system.

The TRUST Responsibility to the Shoshone and Arapaho Tribes has been breached.

Senator BARRASSO. I appreciate the comments from all of you. We hear about the BIA emergency response and that the land is now more of a burden than an asset. You know, looking at the GAO report that said the BIA at that point a number of years ago was not accountable, I'd like to ask all of you with the BIA sitting here, how can BIA increase water users in the project decision-making and how can they boost their accountability to you? I don't know, Gary, if you want to start and go down the isle.

Mr. COLLINS. Well, Senator, I believe that had not the tribe established the Wind River Water Code, which secured the placement of Wind River Resource Control Board members that there would be a lot of things that would be left undone, and I believe the Water Resources Control Board as an entity of tribal government exercises its sovereignty in terms of looking after a very precious resource, and as we all know, some of our water impacts here in Wyoming will be driven by Los Angeles, Phoenix, Albuquerque and so forth, including Denver. So we need to be on top of our game. We need to have gauging stations. We need to have a professional and efficiently run irrigation system to create opportunity for our people and make the economy work here. We have, like I said, 10,000 acres that are idle, 30,000 acres are productive, but with more O&M increases, there's more idle tracts that come in because people can't afford it.

Senator BARRASSO. Mr. O'Neal, anything you'd like to add in order to make the BIA more responsible?

Mr. O'NEAL. Yes. I think we addressed that in Crowheart with the MOU. Before we had this in place, we were under the impression that we had no say whatsoever in our election. Whatever they came up with, that's what we paid, and that's basically wherever they deliver it to us, I don't care, most the time it was only one ditch rider in that particular area, hardly any service. Since we started this, we have a real good relationship working with the office.

Senator BARRASSO. Do you think that Crowheart model components apply to other units?

Mr. O'NEAL. There's some here that I think would fall in that category. I think it would have to be water user driven. We've offered expertise in two other areas, but with very little success. We still have a budget problem. We're not getting all the answers we want.

Senator BARRASSO. Mr. Glick.

Mr. GLICK. Yes, I'd like to add that I'd like to see the BIA and the irrigation department and the BIA realty department collaborate to help us with our land and water issues. They are tied together no matter if they are two different entities under the BIA. The leases and the irrigation charges are what cause a lot of the idle lands out there since nobody can afford to lease a piece of ground with the irrigation charges on this. I'd like to have the BIA irrigation department and the BIA realty department basically coordinate like on a government to government basis with Shoshone Arapaho tribes in the tribal appointed organization water resource control board. The BIA has, what, two meetings a year which I wouldn't consider that coordination. I'd consider that more of a cooperator. That doesn't really include us on some of the budget or the plans. I'd like to see the BIA representatives attend more of the Water Resource Control Board meetings so that they have a better feel for what the individual landowners are going through, what their thoughts might be on planning. That's about it.

Senator BARRASSO. Just for this panel, you've heard a lot today, a couple of hours, is there anything you think was not covered or anything I ought to hear? We would like to get everything in the Senate record that everybody wants to have said on this topic.

Mr. GLICK. I'd like to see congressional mandate to have appropriated funds to cover the administrative costs, the engineers, the portion of the costs for the payroll for the system irrigation operators, and possibly the maintenance crew. That way our assessed charges for the irrigatable acre, which is basically directed towards operation and maintenance, would have more funding that would hit the ground on maintenance and basically sufficient operation methods. On the portion where the USGS gauging stations, I think there could have been possibly 24 in operation five, six years ago, and now there's only four. I think that we need consistent appropriated funds for the USGS gauging stations to stay in function so that we can have the overall better resource management plan and if we could manage our resources better, we'll know where to keep track of our water, like, on the rehab part of the district if we can rehab most—just start up with mainly the main canal, we can work around and actually conserve more water for people down the road.

Senator BARRASSO. Ma'am, if you could identify yourself for the record and what you'd like to say.

STATEMENT OF SANDRA C'BEARING, CO–CHAIR, WATER RESOURCE CONTROL BOARD, NORTHERN ARAPAHO TRIBE

Ms. C'BEARING. Okay. Thank you, Senator Barrasso. My name is Sandra C'Bearing, and I'm the Co-Chair for the Water Resource Control Board for the Northern Arapaho Tribe, and I'm pleased to be here today to give some testimony to the irrigation project.

Senator BARRASSO. We'll make your entire testimony if you'd like it part of the record, but if you'd summarize for us.

Ms. C'BEARING. Okay. Sure. In November 2002, the Northern Arapaho General Council approved a resolution authorizing the Northern Arapaho Business Council to develop a water plan for the reservation water resources. The resolution cited the following reasons for its passage: The Wind River water passed by both general council in 1990 required the development of a plan for the management, administration, use, and protection of tribal water rights and provided guidance for doing so; that water development decisions could not be made without such a plan; and that future growth of the tribe required a development of an organized approach to meeting the needs of the tribal population. The economic development has been vital for both tribes because of the lack of a plan for protection and use of the reservation's resources and that real water supply problems were being experienced, including farmers, households, and water supplies.

With that, in regards to the Wind River—the management of the BIA irrigation project, of considerable concern to all reservation leaders and residents in the rehabilitation and management of the BIA irrigation system and of the effective delivery of 1868 water to tribal water. Given the need for irrigation system rehabilitation, the overall goal of that research effort was to compare how tribal 1868 water is managed under the BIA system 25 CFR part 171 versus the Wind River Water Code, Chapter Nine, of the Eastern Shoshone and Northern Arapaho tribes. Among the many technical funding of this report are that the tribes are not receiving their full allotment of tribal 1868 water and the BIA system in 25 CFR. The tribes receive only 40 to 80 percent of the their 1868 water rights awarded in the Big Horn Decree, and then the tribal water code would deliver the full amount of the 1868 water. The BIA is not following its own procedures in implementing the 25 CFR part 171, specifically the basis for assessing and application of operation and maintenance, O&M fees, delivery of a quantified water right, in this case tribal 1868 water, maintenance of irrigation delivery system, the operation of the project for maximum tribal benefit, and the prevention of waste. The BIA system requires a payment of the O&M fees are prerequisites for water delivery is physically inefficient and legally insufficient in delivering the 1868 water to the 1868 water right holders.

While it might not be beneficial to contract the BIA irrigation project under public law 93–638, there are ways to exert a greater tribal and local control over the systems and tribal organizational office, like irrigation conservation districts. These organizational units can attract outside funds or other resources. And with that being that the largest block of tribal water is used for irrigation in the BIA Irrigation Project on the Wind River Indian Reservation in early 1990s, the BIA reclassified major portions of the Wind River Irrigation Project land from class six to class one lands, meaning an upgrade from lands that could not support themselves to lands that could. And this resulted in a loss of significant funds for maintenance activities and raised the individuals operation and maintenance fees.

The tribes can only effectively use about 100,000 acre feet of the 250,000 acre feet of historical irrigation water to irrigation and cannot make use of the additional 250,000 acre feet of water awarded because of the following: The disrepair and rehabilitation needs of the system, the failure of the BIA to maintain the delivery and storage infrastructure and deferring maintenance, the lack of irrigation water management for the entire project, idle lands that do not receive water but are still charged irrigation O&M fees. Since the 1988 Big Horn Decree, the Bureau of Indian Affairs has wasted and mismanaged the tribes' federal reserve water rights. The BIA has failed to deliver the adjudicated water rights amounts to tribal land in each of the BIA projects on the reservation sometimes by more than half. The BIA has failed to protect the senior tribal water right even in the drought situation by failing to develop an irrigation and water management plan as required in 25 CFR. Management of the BIA system, including storage operations, result in the waste of tribal water to junior water users. The BIA is not allocating operation and maintenance funds collected from water users for maintenance of the project.

Since the 1988 Big Horn Decree, the Bureau of Reclamation has failed to make any adjustments in the water management operation to account for 500,000 acre feet of the tribes federal reserve water rights. This has resulted in the documented diversion and storage of more than 2.1 million acre feet of federal reserve water rights for use or sale in irrigation and power generation. The Bureau of Reclamation has contributed this diversion in all year types including drought without any discussion, advice, nor consent of the tribes. This has prevented the tribes from getting any benefit from their water and has stifled resources planning for and the use of the senior water right, a valuable resource in the Wind River Basin. The ultimate goal of the tribes is full ownership and management of the operational authority, several factors make it unwise at this time. The estimated rehabilitation needs range from 50 to $70,000,000. The lack of sufficient management capability to manage the project given the current organization and the lack of water management planned for the irrigation project and the lack of BOR BIA collaboration to protect the tribes' senior water right and how to compensate for the volume of water wasted since 1868 Big Horn Decree resulting in the failure of the federal trustees to protect the federal reserve water right.

And to conclude, I'd like to include some recommendations that you investigate the BIA BOR's waste and abuse of federal reserve water rights of the Northern Arapaho Eastern Shoshone tribes and conduct an investigation of the BIA's land reclassification and assess the economic productivity of the WRIB lands, conduct a feasibility study for the rehabilitation of the irrigation project whose focus is to reduce cost by investigating different water management alternatives for storage and delivery, irrigation districts, rotation, and scheduling, and land modifications to increase efficient and storage. As part of the study, we would like to include a development of long-term phase program where the tribes enter organizations of water users own, operate, and manage the project. And lastly investigate key questions related to the construction of Riverton reclamation project of the 1905 act lands after meeting with the tribal leaders to present information.

[The prepared statement of Ms. C'Bearing follows:]

PREPARED STATEMENT OF SANDRA C'BEARING, CO-CHAIR, WATER RESOURCE CONTROL BOARD, NORTHERN ARAPAHO TRIBE

- The largest block of Tribal water is used for irrigation in the BIA irrigation project. On the WRIR.
  - In the early 1990's, the BIA reclassified major portions of the Wind River Irrigation Project's land base from Class VI to Class I lands, meaning an upgrade from lands that could not support themselves to lands that could.
    - This resulted in the loss of significant funds to conduct maintenance activities and
    - Raised the Individual's operation and maintenance fees
  - The Tribes can only effectively use about 100,000 acre feet of the 250,000 acre feet of historical irrigation water to irrigation, and cannot make use of the additional 250,000 acre feet of water awarded because of the following factors:
    - The disrepair and rehabilitation needs of the system
    - The failure of the BIA to maintain the delivery and storage infrastructure, deferring maintenance
    - The lack of irrigation water management for the entire project
    - Idle lands that do not receive water but are still charged irrigation O&M fees

- Since the 1988 Big Horn Decree, the Bureau of Indian Affairs has wasted and mismanaged the Tribes' federal reserved water rights.
  - The BIA has failed to deliver the adjudicated water right amount to Tribal lands in each of the BIA projects on the reservation, sometimes by more than half.
  - The BIA has failed to protect the senior Tribal water right even in a drought by failing to develop an irrigation and water management plan as required in 25 CFR
  - Management of the BIA system, including storage operations, results in the waste of Tribal water downstream to junior water users.
  - The BIA is not allocating operation and maintenance funds collected from water users for maintenance of the project.

- Since the 1988 Big Horn Decree, the Bureau of Reclamation has failed to make any adjustments in its water management operations to account for 500,000 acre feet of the Tribes' federal reserved water rights.
  - This has resulted in the documented diversion and storage of more than 2.1 million acre feet of federal reserved water rights for use or sale in irrigation and power generation.

- o The Bureau of Reclamation has continued this diversion in all year types, including drought, without any discussion, advice, nor consent of the Tribes.
- o This has prevented the Tribes from getting any benefit from their water and has stifled resources planning for and the use of a large volume of the most senior water right and valuable resource in the Wind River Basin

- While the ultimate goal of the Tribes is the full ownership, management and operational authority, several factors make it unwise at this time:
  - o The estimated rehabilitation needs range from $50-$70 million dollars
  - o The lack of sufficient management capability to manage the project given its current organization and operation
  - o The lack of a water management plan for the irrigation project
  - o The lack of BOR-BIA collaboration to protect the Tribes' senior water rights
  - o How to compensate for the volume of water wasted and diverted since the 1988 Big Horn Decree resulting from the failure of the federal trustee to protect a federal reserved water right.

RECOMMENDATIONS

- Investigate the BIA and BOR's waste and abuse of the federal reserved water rights of the Northern Arapaho and Eastern Shoshone Tribes.
- Conduct an investigation of the BIA's land reclassification and reassess the economic productivity of WRIP lands.
- Conduct a feasibility study for the rehabilitation of the WRIP whose focus is to reduce costs by investigating different water management alternatives for storage and delivery, irrigation districts, rotation and scheduling, and land modifications to increase efficiency or storage.
  - o As part of this study, develop a long term phased program where the Tribes and/or organizations of water users own, operate, and manage the project.
- Investigate key questions related to the construction of the Riverton Reclamation Project in the 1905 Act lands after a meeting with Tribal leaders to present information.

Senator BARRASSO. Thank you very much for your testimony. Thank you very being here. Mr. Collins, there was a last comment, and I think you were wanting to say one last thing.

Mr. COLLINS. Yes. Thank you, Senator Barrasso. I believe the facts are laid out before all of us as to what we have done and haven't done. So I think there needs to be emphasis added to the BIA to sustain their trust responsibility. Additionally, I believe the tribes can move forward with the Wind River Water Resources Board to protect their natural resources. So there needs to be some government-to-government discussions there, more collaboration, and certainly if we could receive additional funding in whatever manner, preferably go through the chain of issues with the BIA, but having seen that not working, we would probably still approach the congressional congress for those kind of issues like we have been. But we are woefully inadequate in sustaining our economy. That's the big thing. It's not about money fixing the system; it's about money fixing the system and creating opportunity to maintain and sustain the community so we, too, can enjoy the economic benefits.

Senator BARRASSO. Well, thank you. I want to thank all of you from this panel and I want to thank everyone who came to testify today. I want to thank every who has attended the meeting and taking your time to participate. I'm grateful that Central Wyoming College made this wonderful facility available to us, and specifically I want to thank our State of Wyoming Select Committee on Tribal Relations, Kale Case and Dale McOmie who are still here. They've been here the entire duration of this hearing. Thank all of you. The record will stay open another two weeks. Anyway, with that, this hearing is adjourned.

[Whereupon, the Committee was adjourned.]

A P P E N D I X

Representative Jeb Steward
Wyoming House of Representatives

May 4, 2011

Senator John Barrasso
Vice Chairman, Committee on Indian Affairs
307 Dirksen Building
Washington, DC 20510

Dear Senator Barrasso,

Water issues for the Wind River Indian Reservation are of great importance to tribal members as well as the State of Wyoming. As a member of the Wyoming Legislative Select Committee on Tribal Relations, I greatly appreciate your understanding of the significance of this issue by holding a Congressional Field Hearing to receive testimony on the water needs of the Wind River Indian Reservation. This continuing dialog is an important step in the process with regard to understanding the apparent water development deficiencies on the Reservation, and for setting goals to meet the future needs of Tribal members to fully utilize their water on the Reservation. I write this letter to suggest a solution for funding that can begin to address the backlog of maintenance of existing irrigation infrastructure and perhaps allow, and plan, for future water development.

Created by the Reclamation Act of 1902, the Reclamation Fund was envisioned as a means to finance western water and power projects with revenues from western resources. Its receipts are derived from water and power sales, project repayments, and certain receipts from public land sales, leases and rentals in the 17 western states, as well as oil and gas and other mineral related royalties. It is a special fund within the US Treasury, and receipts are only expended pursuant to annual appropriation acts.

In the past, receipts were insufficient to cover large expenditures for the construction of major federal projects such as Grand Coulee and Hoover Dams, which required significant appropriations of general funds from the Treasury. However, today it appears that the Reclamation Fund could serve as a revolving account that would pay for Reclamation and other Federal and related water resource needs in the west. The reason being, the balance in the Reclamation Fund continues to grow as receipts increase (largely due to high energy prices) and expenditures, subject to appropriations, decrease.
Committee: *Appropriations* The latest figures I have available to me show a balance in the Fund that is upwards of $7.8 billion at the end of FY 2008.

I believe that some of this money set aside in the Reclamation Fund could be used to the benefit of the Wind River Indian Reservation to meet water needs for operation and maintenance of existing irrigation infrastructure and also for future water development needs. At this point, however, I am unsure of the process that we would need to undertake to successfully allow expenditures from this fund for these purposes. I believe we can form the partnerships necessary to bring stakeholders together for a formal request at some point. My request of you is to provide an outline of the steps necessary to appropriate moneys from the Reclamation Fund for the Wind River Indian Reservation, provided you would be willing to assist in this endeavor. I am personally dedicated to devote my time and energy to this effort, and hope that you would be also. I believe that what is good for Tribal Lands for water development is also good for Non-Tribal lands and nearby irrigation districts and the State of Wyoming. I stand ready to do what you feel is needed to accomplish this task.

Respectfully,

Representative Jeb Steward

United States Government Accountability Office

GAO

Report to the Chairman, Subcommittee on Interior and Related Agencies, Committee on Appropriations, U.S. Senate

February 2006

INDIAN IRRIGATION PROJECTS

Numerous Issues Need to Be Addressed to Improve Project Management and Financial Sustainability

GAO

Accountability * Integrity * Reliability

GAO-06-314

February 2006

GAO
Accountability-Integrity-Reliability

Highlights

Highlights of GAO-06-314, a report to the Chairman, Subcommittee on Interior and Related Agencies, Committee on Appropriations, U.S. Senate

INDIAN IRRIGATION PROJECTS

Numerous Issues Need to Be Addressed to Improve Project Management and Financial Sustainability

Why GAO Did This Study

The Department of the Interior's Bureau of Indian Affairs (BIA) manages 16 irrigation projects on Indian reservations in the western United States. These projects, which were generally constructed in the late 1800s and early 1900s, include water storage facilities and delivery structures for agricultural purposes. Serious concerns have arisen about their maintenance and management.

GAO was asked to examine (1) BIA's estimated deferred maintenance cost for its 16 irrigation projects, (2) what shortcomings, if any, exist in BIA's current management of its irrigation projects, and (3) any issues that need to be addressed to determine the long-term direction of BIA's irrigation program.

What GAO Recommends

GAO recommends that BIA (1) provide the necessary level of technical support to project managers, (2) require project managers to meet at least twice annually with water users, and (3) conduct studies to determine the financial sustainability of the projects.

Although we requested comments from the Department of the Interior on our findings and recommendations, none were provided in time to be included as part of this report.

www.gao.gov/cgi-bin/getrpt?GAO-06-314.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Robin M. Nazzaro at (202)512-3841 or nazzaror@gao.gov.

What GAO Found

BIA estimated the cost for deferred maintenance at its 16 irrigation projects at about $850 million for 2005, although the agency is in the midst of refining this estimate. BIA acknowledges that this estimate is a work in progress, in part, because some projects incorrectly counted new construction items as deferred maintenance. To further refine its estimate, BIA plans to hire engineering and irrigation experts to conduct thorough condition assessments of all 16 irrigation projects to correctly identify deferred maintenance needs and costs.

BIA's management of some of its irrigation projects has serious shortcomings that undermine effective decisionmaking about project operations and maintenance. First, under BIA's organizational structure, officials with the authority to oversee irrigation project managers generally lack the technical expertise needed to do so effectively, while the staff that have the expertise lack the necessary authority. Second, despite federal regulations that require BIA to consult with project stakeholders in setting project priorities, BIA has not consistently provided project stakeholders with the necessary information or opportunities to participate in project decisionmaking.

The long-term direction of BIA's irrigation program depends on the resolution of several larger issues. Of most importance, BIA does not know to what extent its irrigation projects are capable of financially sustaining themselves, which hinders its ability to address long-standing concerns regarding inadequate funding. Information on financial sustainability, along with accurate deferred maintenance information, are two critical pieces of information that are needed to have a debate on the long-term direction of BIA's irrigation program. Once this information is available, the Congress and interested parties will be able to address how the deferred maintenance will be funded and whether entities other than BIA could more appropriately manage some or all of the projects.

Deferred Maintenance at the Crow Irrigation Project (March 2005)

Source: GAO.

Abandoned Car in Canal

Crumbling Concrete Structure

Contents

Abbreviations

BIA Bureau of Indian Affairs

February 24, 2006

The Honorable Conrad Burns
Chairman
Subcommittee on Interior and Related Agencies
Committee on Appropriations
United States Senate

The scarcity of water in the western part of the United States makes irrigation critical to the continued success of agricultural activities. There are over 100 irrigation works on Indian reservations primarily across the western United States. The Department of the Interior's Bureau of Indian Affairs (BIA), which is responsible for providing social and economic services to Indians, as well as managing land and natural resources held in trust by the United States for Indians, currently refers to these irrigation works as either "irrigation projects" or "irrigation systems." There are 16 irrigation projects where water users are charged for the operation and maintenance of the irrigation works by BIA. The remaining systems, on which BIA does not charge an annual operation and maintenance fee, are operated and maintained through a collaborative effort which generally involves other BIA programs, tribes, and water users.

The 16 irrigation projects, which were generally initiated in the late 1800s and early 1900s by the Department of the Interior, include water storage facilities and delivery structures for agricultural purposes. The projects were constructed as part of the federal government's Indian assimilation policy to foster agricultural opportunities and provide economic benefits to Indian communities. Over time, non-Indians began buying or leasing the land served by the projects for agricultural purposes, and project stakeholders evolved from Indian water users and the tribes within the reservations to include non-Indian water users as well. Many of the water users today are non-Indian.

A number of prior reports on BIA's irrigation projects have documented that the annual operations and maintenance fees have historically been set too low to cover the full cost of running the projects.[1] In addition, problems

[1] U.S. Department of the Interior, Office of the Inspector General, *Indian Irrigation Projects, Bureau of Indian Affairs*, 96-I-641, (Washington D.C.: March 1996); U.S. Department of the Interior, Office of the Inspector General, *Operations and Maintenance Assessments of Indian Irrigation Projects, Bureau of Indian Affairs*, W-IA-BIA-12-86, (Washington D.C.: Feb. 1988).

have been reported with collecting the fees that have been assessed. Because of insufficient funding, project maintenance has been consistently postponed, resulting in an extensive and costly list of deferred maintenance items. The kinds of such deferred maintenance range from repairing or replacing dilapidated irrigation structures to clearing weeds from irrigation ditches. In addition to the deferred maintenance, water users have expressed concern that BIA has been unresponsive in addressing the projects' ongoing operations and maintenance needs.

The 16 irrigation projects are located in 4 of BIA's 12 regions—Rocky Mountain, Northwest, Southwest, and Western. Management of these projects is decentralized, with local or regional BIA offices responsible for project management. Fourteen projects are overseen by local BIA agency superintendents, and the 2 largest projects are overseen directly by regional directors. The agency superintendents that oversee projects report to their respective regional director. BIA's irrigation and engineering experts, who provide technical assistance to the projects, are located in each region as well as in the BIA central Irrigation, Power, and Safety of Dams offices (central irrigation offices) located in Washington, D.C., and other BIA locations in the western United States. The regional irrigation staff and central irrigation office staff do not have line authority over the projects.

Federal regulations specify that in making judgments about the work and actions necessary for the proper operation, maintenance and administration of the projects, the official in charge "... consults with water users and their representatives, and with tribal council representatives, and seeks advice on matters of program priorities and operational policies."[2] Furthermore, the regulations state that "close cooperation between the Indian tribal councils, the project waters users and the Officer-In-Charge [of the project] is necessary and will be to the advantage of the entire project."[3] BIA's irrigation manual and handbook also contain language directing project staff to involve project stakeholders in the management of the projects.

In response to ongoing concerns about maintenance and management of the irrigation projects, in December 2003 Senator Conrad Burns and

[2]25 C.F.R. § 171.1(c).

[3]25 C.F.R. § 171.1(d).

Congressman Dennis Rehberg, both of Montana, sponsored a town hall meeting with local water users and BIA officials to discuss problems at BIA's irrigation projects. In this context, we were asked to examine (1) BIA's estimated deferred maintenance cost for its 16 irrigation projects; (2) what shortcomings, if any, exist in BIA's current management of its irrigation projects; and (3) any issues that need to be addressed to determine the long-term direction of BIA's irrigation program.

To address the objectives of this report, we collected documentation on BIA's 16 irrigation projects from officials in BIA's central irrigation office, and we visited and collected information from each of BIA's four regional offices that oversee the 16 irrigation projects. We also visited 9 of the 16 projects, where we collected project-specific information from BIA officials and project stakeholders. We also met with and collected documentation from the Department of the Interior's Bureau of Reclamation, the primary agency responsible for irrigation management, for comparative purposes. Specifically, to examine estimated deferred maintenance costs, we reviewed BIA's lists of deferred maintenance items and cost estimates, and the methodology BIA used to develop these lists and estimates. We concluded that these data were sufficiently reliable for the purposes of this report based on a review of relevant controls, reliability tests, and interviews with agency officials about the collection and management of the data. We did not develop our own estimate of deferred maintenance. To determine what, if any, management shortcomings exist, we reviewed relevant federal regulations and agency guidance, and analyzed BIA-wide and project-specific management protocols and systems for the 9 projects we visited. Finally, to determine any issues needing to be addressed to determine the long-term direction of the projects, we reviewed prior studies on BIA's irrigation program and we discussed the long-term direction of the program with BIA irrigation officials and project stakeholders. A more detailed description of our objectives, scope and methodology can be found in appendix I. We performed our work between March 2005 and February 2006 in accordance with generally accepted government auditing standards.

Results in Brief

BIA has estimated the cost for deferred maintenance at its 16 irrigation projects at about $850 million for 2005, although the agency is in the midst of refining this estimate. BIA defines deferred maintenance as upkeep, such as removing weeds from irrigation ditches or repairing irrigation structures, that is postponed until some future time. As part of its ongoing strategy to develop a cost figure for the projects' total deferred maintenance, BIA had initially estimated this cost at approximately $1.2 billion in fiscal year 2004. This estimate was based, in part, on preliminary condition assessments of structures and equipment at each of the 16 irrigation projects using a scale of good, fair, poor, critical, and abandoned. The assessment of the structures consisted of visual inspections generally conducted by nonengineers. BIA acknowledged that the 2004 estimate would need revision largely for three reasons: the individuals who conducted the assessments did not have irrigation or engineering expertise, not all projects used the same methodology to develop their deferred maintenance estimates, and some projects incorrectly counted new construction items as deferred maintenance. To improve its estimate in 2005, BIA implemented a facilities management system designed to help projects track and continuously update deferred maintenance information. BIA technical experts from the central irrigation office conducted training for BIA irrigation projects on how to use this system, as well as how to correctly define deferred maintenance. Projects used this system to revise their list of deferred maintenance items and associated cost estimates in fiscal year 2005, resulting in a lower total deferred maintenance estimate of about $850 million. However, some projects continued to classify items as deferred maintenance when they were actually new construction, and some provided BIA with incomplete information. To further refine the cost estimate, BIA plans to hire experts in engineering and irrigation to conduct thorough condition assessments of all 16 irrigation projects every 5 years to identify deferred maintenance needs and costs. The first such assessment was completed in July 2005, with all 16 assessments expected to be completed by 2010.

BIA's management of some of its irrigation projects has serious shortcomings that undermine effective decisionmaking about project operations and maintenance. First, under BIA's organizational structure, in many cases, officials with the authority to oversee project managers' decisionmaking lack the technical expertise needed to do so effectively, while the staff who do have the expertise lack the necessary authority. The BIA regional directors, agency superintendents and deputy superintendents that oversee the projects do not generally have engineering or irrigation expertise and they rely heavily on the project managers to run the projects. However, this process breaks down when the project managers themselves do not have the expertise required for the position—that is, in cases in which BIA has had difficulty filling project manager vacancies and has, as a result, hired less qualified people. For example, at the Crow project in 2002, a project manager with insufficient expertise decided to repair a minor leak in a key water delivery structure by dismantling it and replacing it with a different type of structure. The new structure was subsequently deemed inadequate by BIA's irrigation experts, and the required reconstruction delayed water delivery by about a month. Furthermore, the BIA staff with such expertise—regional irrigation engineers and central irrigation office staff—have no authority over the 16 projects. A second serious management shortcoming involves the extent to which some projects involve stakeholders in decisionmaking. Despite federal regulations that require BIA to consult with project stakeholders in setting project priorities, BIA has not consistently provided the information or opportunities necessary for stakeholders—both Indian and non-Indian water users—to participate in decisionmaking about project operations and maintenance. For example, the Wapato Irrigation Project shares little information on its spending with stakeholders, and the Pine River Irrigation Project does not meet with its non-tribal stakeholders, limiting stakeholders' ability to have an impact on project decisions and BIA's ability to benefit from this input.

The long-term direction of BIA's irrigation program depends on the resolution of several larger issues. Of most importance, BIA does not know to what extent its irrigation projects are capable of financially sustaining themselves, which hinders its ability to address long-standing concerns regarding inadequate funding. The projects were constructed without consideration for whether they could generate adequate income to be self-supporting, yet since the 1960s many have been considered generally self-supporting through fees paid by water users. The future of BIA's irrigation program also depends on the resolution of how the deferred maintenance will be funded. BIA currently has no plan for how it will obtain funding to fix the deferred maintenance items. Regardless of the precise cost estimate for total deferred maintenance, funding deferred maintenance costs in the hundreds of millions of dollars will be a significant challenge in times of tight budgets and competing priorities. In the interim, the Congress has appropriated approximately $7.5 million for some of BIA's irrigation projects for fiscal year 2006. Finally, it might be more appropriate for other entities, including other federal agencies, tribes, and water users, to manage some or all of the projects. Given that BIA must balance irrigation management with its many other missions in support of Indian communities, such as providing education and law enforcement, it may be beneficial to consider whether others for whom irrigation is more of a priority or an area of expertise could better manage some of the projects. Successful management of the projects by other groups, however, would depend on the characteristics of each project and its stakeholders. For example, turning over projects to tribes may be better suited to projects where most of the water users are Indian, whereas turning over projects to water users would be better suited to projects where water users share similar interests and have a desire to organize into an irrigation district or association.

To improve the ongoing day-to-day management of the projects in the short-term, we are recommending that the Secretary of the Interior direct the Assistant Secretary for Indian Affairs to provide the necessary level of technical support for project managers who have less than the desired level of engineering qualifications and to adequately involve project stakeholders in the management of the projects. To address the long-term financial sustainability of the projects, we are recommending that the Secretary direct the Assistant Secretary for Indian Affairs to conduct studies to determine the extent to which projects are capable of sustaining themselves. Information on financial sustainability, along with accurate deferred maintenance information, are two critical pieces of information that are needed to have a debate on the long-term direction of BIA's irrigation program. Once this information is available, the Congress and interested parties will be able to address how the deferred maintenance will be funded and whether entities other than BIA could more appropriately manage some or all of the projects. Since how to fund the deferred maintenance and who should manage the projects are future policy issues for the Congress to decide in collaboration with all interested parties, we are not making any specific recommendations to address them. Although we requested comments from the Department of the Interior on our findings and recommendations, none were provided in time to be included as part of this report.

Background

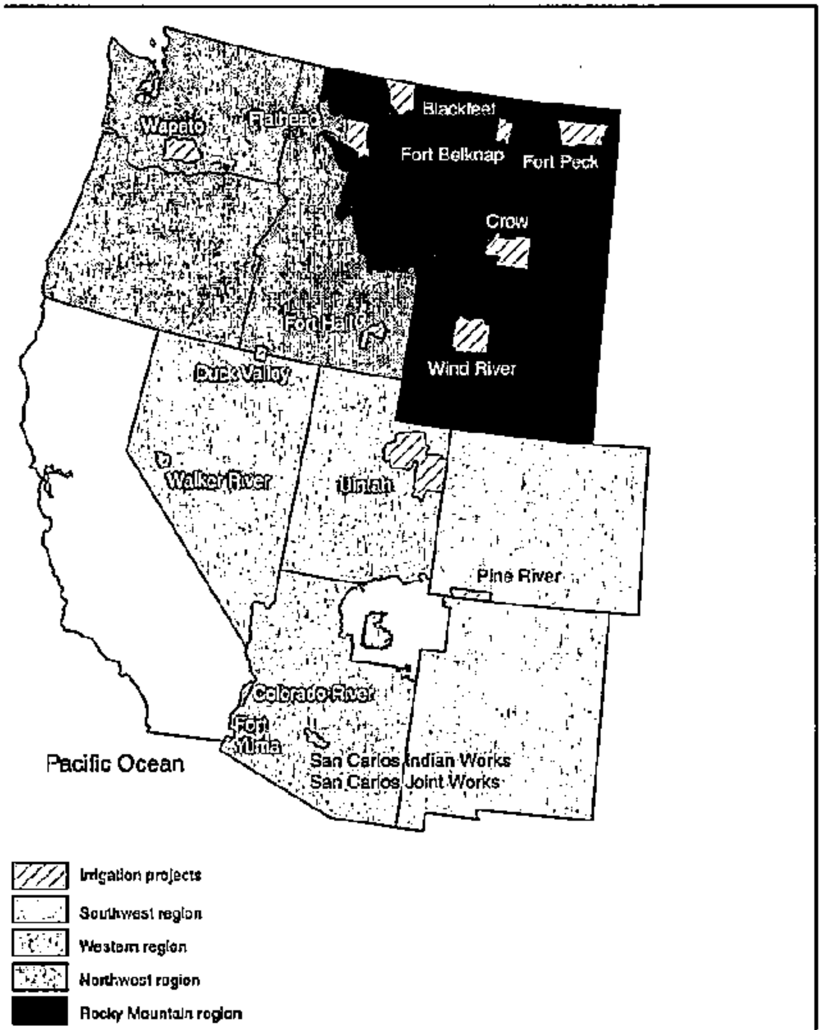
BIA's irrigation program was initiated in the late 1800s, as part of the federal government's Indian assimilation policy, and it was originally designed to provide economic development opportunities for Indians through agriculture. The Act of July 4, 1884, provided the Secretary of the Interior $50,000 for the general development of irrigation on Indian lands.[4] Over the years, the Congress continued to pass additional legislation authorizing and funding irrigation facilities on Indian lands.

[4]Act of July 4, 1884, 23 Stat. 76, 94 (1884).

BIA's irrigation program includes over 100 "irrigation systems" and "irrigation projects" that irrigate approximately 1 million acres primarily across the West. BIA's irrigation systems are non revenue-generating facilities that are primarily used for subsistence gardening and they are operated and maintained through a collaborative effort which generally involves other BIA programs, tribes, and water users. In contrast, BIA's 16 irrigation projects charge their water users an annual operations and maintenance fee to fund the cost of operating and maintaining the project.[6] Most of BIA's irrigation projects are considered self-supporting through these operations and maintenance fees. The 16 irrigation projects are located on Indian reservations across the agency's Rocky Mountain, Northwest, Southwest, and Western regions (see fig. 1).

[6]See 70 *Fed. Reg.* 57889 (Oct. 4, 2005) for the 2005 operations and maintenance fees for the projects as well as the proposed fees for 2006.

Figure 1: Location of BIA's 16 Irrigation Projects by Region



Sources: BIA; GAO.

BIA's management of the 16 irrigation projects is decentralized, with regional and local BIA offices responsible for day-to-day operations and maintenance. Table 1 provides the tribe or tribes served by each of the 16 irrigation projects along with the year each project was originally authorized.

Table 1: Tribe(s) Served and Year Authorized for BIA's 16 Irrigation Projects

Irrigation project	Tribe(s) served	Year authorized
Blackfeet	Blackfeet Tribe of the Blackfeet Indian Reservation of Montana	1907
Colorado River	Colorado River Indian Tribes of the Colorado River Indian Reservation, Arizona and California	1867
Crow	Crow Tribe of Montana	1890
Duck Valley	Shoshone-Paiute Tribes of the Duck Valley Reservation, Nevada	[a]
Flathead	Confederated Salish & Kootenai Tribes of the Flathead Reservation, Montana	1904
Fort Belknap	Fort Belknap Indian Community of the Fort Belknap Reservation of Montana	1895
Fort Hall	Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho	1894
Fort Peck	Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation, Montana	1908
Fort Yuma[b]	Quechan Tribe of the Fort Yuma Indian Reservation, California & Arizona	1904
Pine River	Southern Ute Indian Tribe of the Southern Ute Reservation, Colorado	[a]
San Carlos Indian Works	Gila River Indian Community of the Gila River Indian Reservation, Arizona	1924
San Carlos Joint Works	Gila River Indian Community of the Gila River Indian Reservation, Arizona	1924
Uintah	Ute Indian Tribe of the Uintah & Ouray Reservation, Utah	1906
Walker River	Walker River Paiute Tribe of the Walker River Reservation, Nevada	[a]
Wapato	Confederated Tribes and Bands of the Yakama Nation, Washington	1904
Wind River	Arapahoe Tribe of the Wind River Reservation, Wyoming and the Shoshone Tribe of the Wind River Reservation, Wyoming	1905

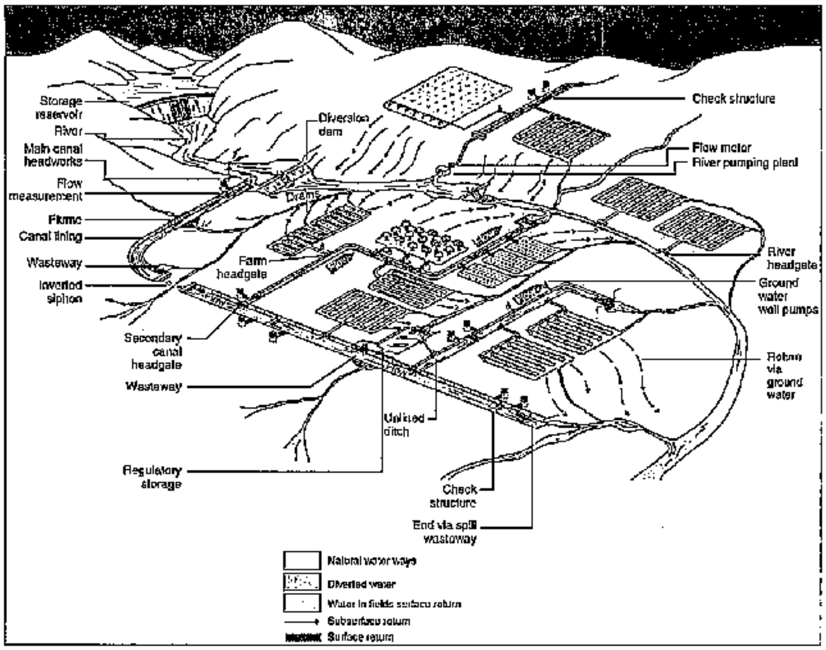
Source: GAO.

[a]No specific authorization data.

[b]The Fort Yuma Irrigation Project is operated and maintained by the Bureau of Reclamation. The operations and maintenance fees collected by BIA for the project are turned over to the Bureau of Reclamation.

The irrigation facilities constructed by BIA included a range of structures for storing and delivering water for agricultural purposes. Figure 2 highlights an example of the key structural features found on BIA's irrigation projects.

Figure 2: Example of an Irrigation Project Operated by BIA



Source: Bureau of Reclamation, GAO.

The beneficiaries of BIA's projects have evolved over time and at present are quite diverse. Over the years, non-Indians have bought or leased a significant portion of the land served by BIA's irrigation program. As a result, current water users on BIA's projects include the tribes, individual

Indian landowners, non-Indian landowners, and non-Indian lessees of Indian lands. The extent of non-Indian landownership and leasing ranges significantly across BIA's irrigation projects (see table 2). For example, 100 percent of the land served by the Colorado River Irrigation Project is Indian owned, while only about 10 percent of the land served by the Flathead Irrigation Project is Indian owned.

Table 2: Land Ownership for BIA's 16 Irrigation Projects

Irrigation project	Total assessed acreage	Percentage of Indian owned land	Percentage of non-Indian owned land
Colorado River	79,350	100	0
Duck Valley	12,923	100	0
Fort Yuma[a]	7,524	100	0
San Carlos Indian Works	50,000[b]	99	1
Fort Belknap	9,900	92	8
Walker River	2,100	90	10
Pine River	11,855	85	15
Fort Hall	72,201	80	20
Wind River	38,300	67	33
Blackfeet	38,300	60	40
Wapato	96,443	60	40
Crow	38,900	56	44
Fort Peck	18,800	53	47
Uintah	62,200	52	48
San Carlos Joint Works	100,000[b]	50	50
Flathead	126,105	10	90
Total	716,901[b]	57	43

Source: GAO analysis of BIA data.

[a]The Fort Yuma Irrigation Project is operated and maintained by the Bureau of Reclamation. The operations and maintenance fees collected by BIA for the project are turned over to the Bureau of Reclamation.

[b]The acreage for the San Carlos Indian Works is also included in the acreage for the San Carlos Joint Works. In calculating the total acreage, the acreage for the San Carlos Indian Works is only counted once.

Federal regulations and internal BIA guidance require that BIA collaborate with water users, both Indian and non-Indian, in managing the irrigation projects. For example, federal regulations state that close cooperation between BIA and water users is necessary and that the BIA official in charge of each project is responsible for consulting with all water users in setting program priorities.[6] In addition, BIA's manual requires that BIA "provide opportunities for water user participation in matters relating to irrigation project operations" and that BIA's officer-in-charge "meet regularly with water users to discuss proposed [operation and maintenance] assessment rates ... [and] general operations and maintenance." Although BIA guidance does not define "regularly," BIA's Irrigation Handbook explicitly recommends that project staff meet at least twice annually to discuss work performed over the course of the year and allow for water user feedback and suggestions for the coming year. Furthermore, BIA's Irrigation Handbook states that, at a minimum, BIA should discuss annual project budgets and work plans with water users.

Since their inception, BIA's 16 irrigation projects have been plagued by maintenance concerns. Construction of the projects was never fully completed, resulting in structural deficiencies that have continually hindered project operations and efficiency. In addition, water users and BIA have reported that operations and maintenance fees provide insufficient funding for project operations. Due to insufficient funding, project maintenance has been consistently postponed, resulting in an extensive and costly list of deferred maintenance items. Such deferred maintenance ranges from repairing or replacing dilapidated irrigation structures to clearing weeds from irrigation ditches.

In addition, concerns regarding BIA's management of the projects have been raised for years, particularly in regard to its financial management practices. For example, problems concerning BIA's billing practices for its operations and maintenance fees have been raised by many, prompting independent review on more than one occasion. We and the Department of the Interior's Inspector General have both identified serious problems with the land use records BIA has used to develop its annual operations and maintenance bills.[7] In response, BIA instituted a new financial management system called the National Irrigation Information Management System,

[6] 25 C.F.R. § 171.1 (c), (d).

[7] GAO, *Indian Programs: BIA's Management of the Wapato Irrigation Project*, GAO/RCED-97-124 (Washington D.C.: May 28, 1997); U.S. Department of the Interior, Office of the Inspector General, *Indian Irrigation Projects, Bureau of Indian Affairs*, 96-I-641, (Washington D.C.: March 1996).

which has begun to address some of the billing errors. However, concerns still exist regarding the accuracy of the data in the billing system. The accuracy of some of the information in the irrigation billing system is dependant on the irrigation program receiving accurate and timely information from other BIA programs, such as land ownership and leasing information from BIA's Real Estate Services program.

In 2001, the Yakama tribe and individual tribal members filed appeals challenging the Wapato Irrigation Project's operation and maintenance fees for the pre-2000 and year 2000 bills. Furthermore, the Wapato Irrigation Project agreed to not send any bills to the tribe or its members since 2001. Although a settlement is under discussion, in the interim the Wapato Irrigation Project has not been able to collect about $2 million, annually, of its expected revenue.

BIA Estimates the Cost of Deferred Maintenance at about $850 Million, but the Estimate Is Being Refined

According to BIA's latest estimate, it will cost about $850 million to complete the deferred maintenance on all of its 16 irrigation projects; but this estimate is still being refined. BIA initially estimated its deferred maintenance costs at over $1 billion in fiscal year 2004, but acknowledged that this estimate was preliminary and would need to be revised largely because it incorrectly included new construction items and was developed by non-engineers. BIA revised this estimate downward in fiscal year 2005 based on the implementation of a new facilities management system. However, BIA plans to further refine this estimate since some projects continued to incorrectly count new construction items as deferred maintenance.

In 2004, BIA Initially Estimated Completing the Deferred Maintenance Would Cost Over $1 Billion

As part of its ongoing effort to identify the needs and costs of deferred maintenance on its 16 irrigation projects, BIA estimated in fiscal year 2004 that it would cost approximately $1.2 billion to complete all deferred maintenance. This initial estimate was based, in part, on preliminary condition assessments of irrigation structures and equipment for each of BIA's 16 irrigation projects. These preliminary condition assessments generally consisted of visual inspections to classify each project's structure and equipment using a scale of good, fair, poor, critical and abandoned based on the apparent level of disrepair. BIA staff then estimated how much it would cost to repair each item based on its condition classification.

BIA generally defines deferred maintenance as upkeep that is postponed until some future time.[8] Deferred maintenance varies from project to project and ranges from cleaning weeds and trees which divert water from irrigation ditches, to repairing leaky or crumbling check gates designed to regulate water flow, to resloping eroded canal banks to optimize water flow. Figure 3 shows examples of deferred maintenance on some of the irrigation projects we visited (clockwise from the upper left, figure 3 shows (1) a defunct check gate and overgrown irrigation ditch at the Fort Belknap Irrigation Project, (2) a cattle-crossing eroding a canal bank and impairing water flow at the Wind River Irrigation Project, (3) a crumbling irrigation structure at the Crow Irrigation Project, and (4) a check gate leaking water at the Colorado River Irrigation Project). For detailed information on key maintenance issues for each of the nine projects we visited, see appendix II.

[8]BIA defines deferred maintenance as "maintenance that was not performed when it should have been or when it was scheduled and which, therefore, was put off or delayed for a future period (adapted from [Federal Accounting Standards Advisory Board Bulletin] No. 6). This includes facility deficiencies where there is non-compliance to codes (e.g., life safety, [Americans with Disabilities Act, Occupational Safety and Health Administration], environmental, etc.) and other regulatory or Executive Order compliance requirements."

Figure 3: Examples of Deferred Maintenance on BIA's Irrigation Projects (c. 2005)

Source: GAO.

BIA officials acknowledged that their fiscal year 2004 deferred maintenance estimate was only a starting point and that it needed to be revised for three key reasons: (1) the individuals who conducted the assessments were not knowledgeable about irrigation projects or infrastructure; (2) not all projects used the same methodology to develop their deferred maintenance cost estimates; and (3) some projects incorrectly counted new construction items as deferred maintenance.

- *BIA's preliminary condition assessments were conducted by computer specialists, rather than by people with the expertise in irrigation or engineering needed to accurately assess project infrastructure.* BIA contracted with geographic information system experts primarily to catalogue the structures on each project. These geographic information system experts also observed the condition of the structures they catalogued and classified the condition of each structure, based on the level of apparent disrepair, as part of the overall effort to inventory and map key structures on each project. Consequently, some items identified as being in "poor" condition may in fact be structurally sound but simply appear cosmetically dilapidated, whereas other structures classified as being in "good" condition may in fact be structurally dilapidated but appear cosmetically sound. For example, according to BIA staff at the Colorado River Irrigation Project, the recent repainting of certain check gates disguised severe rust and structural deterioration of key metal parts.

- *BIA staff used inconsistent methodologies to develop the cost estimates for deferred maintenance.* According to BIA staff, the deferred maintenance cost estimates were developed by different people, sometimes using different or unknown methodologies for assigning cost values to deferred maintenance items. For example, some projects developed their own cost estimates and sent them to BIA's central office for inclusion in its overall figures, while BIA regional staff developed cost estimates for other projects based, in part, on information from BIA's preliminary condition assessments.

- *Some projects incorrectly included new construction items as deferred maintenance.* According to BIA, work that would expand a project or its facilities should not be categorized as deferred maintenance. Therefore, expanding an existing water delivery system or constructing a new building is not deferred maintenance. However, some projects incorrectly counted new construction items as deferred maintenance. For example, the Fort Hall Irrigation Project included increasing the capacity of its main canal for about $15.3 million, the Duck Valley Irrigation Project included building new canals for about $1.3 million, and the Flathead Irrigation Project included building a new warehouse for about $147,000.

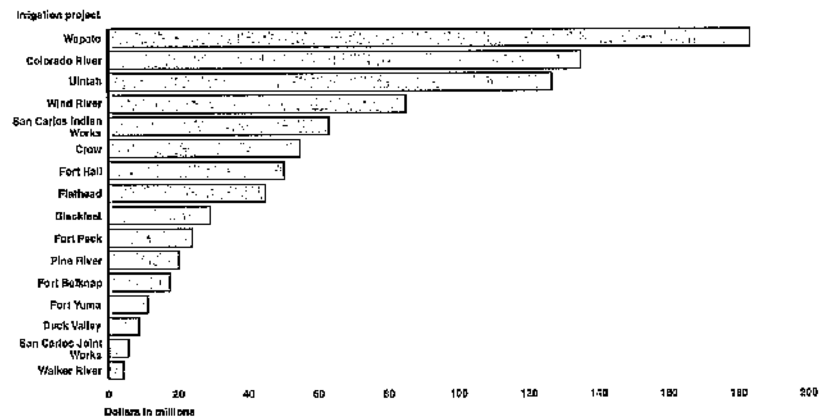
In 2005, BIA Revised the Estimate Downward to about $850 Million, but It Is Still a Work in Progress

To improve the accuracy of its deferred maintenance estimate in 2005 and to help staff develop, track, and continuously update deferred maintenance lists and cost estimates, BIA implemented MAXIMO—a facilities management system linked to the geographic information system mapping inventory developed from its preliminary condition assessments.[9] Using data from MAXIMO, BIA revised its total deferred maintenance estimate for the irrigation projects downward to about $850 million for fiscal year 2005. Figure 4 shows the current deferred maintenance cost estimate for

[9]BIA implemented MAXIMO agencywide, not just for its irrigation projects, to help identify and track deferred maintenance.

each of the 16 projects. In the summer of 2005, BIA technical experts from the central irrigation office conducted training for BIA irrigation projects on how to use MAXIMO to enter information on maintenance needs, and how to correctly define deferred maintenance. Projects used this system to revise their list of deferred maintenance items and associated cost estimates in fiscal year 2005. While MAXIMO is still being tailored to the needs of the irrigation program, its implementation generally standardized the process for identifying and calculating deferred maintenance among projects.

Figure 4: Fiscal Year 2005 Cost Estimate of Deferred Maintenance by Irrigation Project



Source: GAO analysis of BIA data.

Despite the implementation of MAXIMO, BIA's fiscal year 2005 estimate of deferred maintenance is still inaccurate for the following reasons:

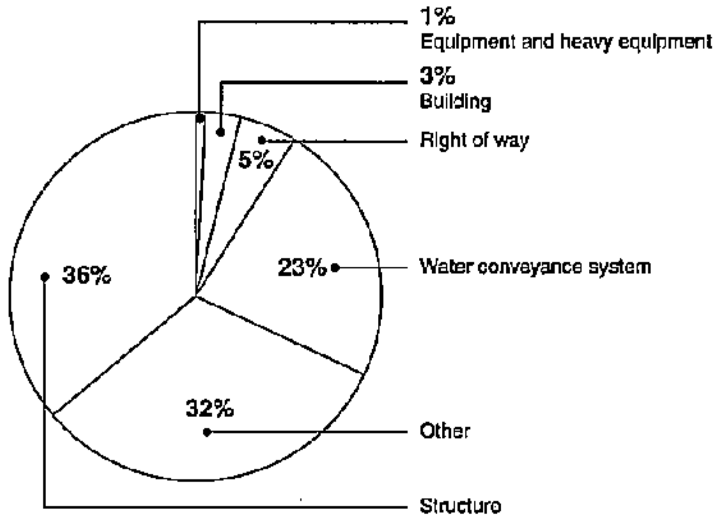
- *Some projects continued to incorrectly count certain items as deferred maintenance.* Despite training, some projects continued to incorrectly count certain items, such as new construction items and vehicles, as deferred maintenance. For example, the Fort Hall Irrigation Project included the installation of permanent diversion structures for about $2.1 million, the Wapato Irrigation Project included constructing reservoirs for about $640,000, and the San Carlos Indian Works Irrigation Project included building a new office for about $286,000. In addition, some projects included the cost of repairing vehicles or buying new ones in their deferred maintenance estimates, despite BIA's new guidance that such items are not deferred maintenance. According to BIA officials, while projects can consider the weed clearing postponed due to broken vehicles as deferred maintenance, the delayed repair of the vehicle itself is not deferred maintenance. For example, the Wind River Irrigation Project included an excavator vehicle for about $500,000 and the Crow Irrigation Project included dump trucks for about $430,000.

- *Some projects provided BIA with incomplete information.* According to BIA officials, some projects did not do thorough assessments of their deferred maintenance needs, and some may not be including legitimate deferred maintenance items, such as re-sloping canal banks that have eroded by crossing cattle or overgrown vegetation. Moreover, both the Walker River and the Uintah Irrigation Projects failed to provide information detailing their deferred maintenance costs, and several projects lumped items together as "other" with little or no explanatory information other than "miscellaneous"—accounting for almost one-third of BIA's total deferred maintenance cost estimate for its irrigation projects (see fig. 5).

- *BIA made errors when compiling the total deferred maintenance cost estimates.* For example, BIA inadvertently double-counted the estimate provided by the Colorado River Irrigation Project when compiling the overall cost estimate, according to BIA officials. Additionally, BIA officials erroneously estimated costs for all structures, such as flumes and check gates, based on the full replacement values even when items were in good or fair condition and needed only repairs. These structures account for over one-third of BIA's total deferred maintenance estimate (see fig. 5).

While the inclusion of incorrect items and calculation errors likely overestimate BIA's total deferred maintenance costs, the incomplete information provided by some projects may underestimate total costs.

Figure 5: Fiscal Year 2005 Cost Estimate of Deferred Maintenance by Type



Source: GAO analysis of BIA data.

To further refine its cost estimate and to develop more comprehensive deferred maintenance lists, BIA plans to hire experts in engineering and irrigation to periodically conduct thorough condition assessments of all 16 irrigation projects to identify deferred maintenance needs and costs. According to BIA officials, these thorough condition assessments are expected to more accurately reflect each project's actual deferred maintenance, in part because experts in engineering and irrigation who can differentiate between structural and cosmetic problems will conduct them. These assessments will also help BIA prioritize the allocation of potential funds to complete deferred maintenance items because they will assign a prioritization rating to each deferred maintenance item based on the estimated repair or replacement cost as well as the overall importance to the project. The first such assessment was completed for the Flathead Irrigation Project in July 2005,[10] and BIA plans to reassess the condition of each project at least once every 5 years, with the first round of such condition assessments completed by the end of 2010.

Shortcomings in BIA's Management of Some Irrigation Projects Undermine Effective Decisionmaking

BIA's management of some of its irrigation projects has serious shortcomings that undermine effective decisionmaking about project operations and maintenance. Under BIA's organizational structure, in many cases, officials with the authority to oversee project managers' decisionmaking lack the technical expertise needed to do so effectively, while the staff who do have the expertise lack the necessary authority. In addition, despite federal regulations that require BIA to consult with project stakeholders in setting project priorities, BIA has not consistently provided the information or opportunities necessary for stakeholders—both Indian and non-Indian water users—to participate in decisionmaking about project operations and maintenance. (See appendix II for detailed information on key management concerns at each of the nine projects we visited.)

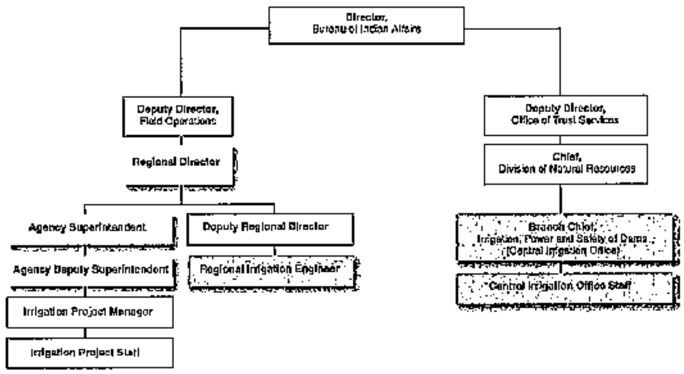
In Many Cases, BIA Officials with Oversight Authority Lack Expertise, While Those with Expertise Lack Authority

Under BIA's organizational structure, in many cases, officials with the authority to oversee project managers' decisionmaking lack the expertise needed to do so effectively, while the staff who do have the expertise lack the necessary authority to oversee project managers' decisionmaking. BIA regional directors, agency superintendents, and agency deputy superintendents who oversee the projects do not generally have engineering or irrigation expertise, and they rely heavily on the project managers to run the projects. (See fig. 6 for an organizational chart showing the lines of authority for providing oversight of a typical BIA irrigation project.) Of the nine projects we visited, only two had managers at the regional or agency levels who are experts in irrigation or engineering. At the same time, BIA staff with the irrigation and engineering expertise—regional irrigation engineers and central irrigation office staff—have no authority over the 16 projects under BIA's current organizational structure. Consequently, key technical decisions about project operations and maintenance, such as when or how to repair critical water delivery

[10]This condition assessment, entitled *Final Report: Engineering Evaluation of Existing Conditions, Flathead Agency Irrigation Division (FAID)* was prepared by HKM Engineering for the Confederated Salish and Kootenai Tribes. BIA did not fund this condition assessment.

infrastructure, do not necessarily get the technical oversight or scrutiny needed.

Figure 6: Misalignment of Expertise and Authority for a Typical BIA Irrigation Project



Source: GAO.

This organizational structure and reliance on the project managers breaks down when the person managing the project lacks the expertise required for the position—that is, in cases in which BIA has had difficulty filling project manager vacancies and has, as a result, hired less qualified people or has the agency deputy superintendent temporarily serving in the project manager position. Of the nine projects we visited, four lacked project managers for all or part of the 2005 irrigation season and five project managers were experts in engineering or irrigation.

The GAO *Internal Control Management and Evaluation Tool* recommends that federal agencies analyze the knowledge and skills needed to perform jobs appropriately and provides guidance on organizational structure and identification of potential risks to the agency in that structure.[11] Specifically, it recommends that adequate mechanisms exist to address risks—such as the risks associated with staff vacancies or hiring less qualified staff.

When the project manager is under-qualified and unchecked by managers who heavily rely on his or her decisionmaking, the potential for adverse impacts on the operations and maintenance of an irrigation project increases. For example, at the Crow Irrigation Project in 2002, a project manager with insufficient expertise decided to repair a minor leak in a key water delivery structure by dismantling it and replacing it with a different type of structure. The new structure was subsequently deemed inadequate by BIA's irrigation experts, and the required reconstruction delayed water delivery by about a month. In addition, at the Blackfeet Irrigation Project in 2000, the accidental flooding and subsequent erosion of a farmer's land was inadequately addressed by project and agency management who decided to use a short-term solution over the objections of the regional irrigation engineer, who lacked the authority to override the project manager and agency superintendent's technical decision, despite their lack of expertise. At the time of this report, the regional irrigation engineer continues to negotiate the implementation of a long-term and technically sound solution.

Furthermore, BIA lacks protocols to ensure that project managers consult with, or get input from, BIA's technical experts before implementing technically complex decisions about project operations and maintenance, further exacerbating problems and undermining management accountability. For example, in the 2002 incident at the Crow Irrigation Project discussed above, the project manager was not required to consult with, notify, or get approval from either the regional irrigation engineer or central irrigation office staff, despite his lack of expertise and the complexity of the flume replacement project he undertook. According to BIA officials, if the project manager had consulted an engineer, his plan to replace the flume with two small culverts would have been rejected before work began because it was technically insufficient and would not have been completed before the start of the approaching irrigation season.

[11]GAO, *Internal Control Standards: Internal Control Management and Evaluation Tool*, GAO-01-1008G (Washington, D.C.: Aug. 2001).

BIA Has Not Consistently Provided Information and Opportunities for Stakeholders to Participate in Setting Project Priorities

A second serious management shortcoming is the extent to which some projects involve water users in decisionmaking. Federal regulations, as well as BIA guidance, call for involving project stakeholders—that is, tribal representatives as well as both Indian and non-Indian water users—in the operations and maintenance of each project. Specifically, federal regulations state that BIA is responsible for consulting with all water users in setting program priorities; BIA's manual requires that BIA provide regular opportunities for project water users to participate in project operations; and BIA's Irrigation Handbook recommends that BIA meet at least twice a year with project water users to discuss project budgets and desired work.

Despite such requirements and recommendations, BIA has not consistently provided the opportunities or information necessary for water users to participate in such decisionmaking about project operations and maintenance. The frequency of meetings between BIA and its project water users varied considerably on the nine projects we visited, from rarely (generally zero meetings per year), to periodically (generally more than one meeting per year), to regularly (generally more than three meetings per year), as shown in figure 9. For example, both the Blackfeet and Colorado River Irrigation Projects hold regular meetings with both tribal and individual water users, with meetings held quarterly at the Blackfeet Irrigation Project and monthly at the Colorado River Irrigation Project. In contrast, BIA officials on the Pine River Irrigation Project do not meet with any non-tribal water users, and BIA officials at the Fort Belknap Irrigation Project have held few water users meetings in recent years. There was no meeting with water users at the Fort Belknap Irrigation Project to kick-off the 2005 irrigation season because the project manager position was vacant, worsening an already adversarial relationship between water users and BIA, according to water users and a local government official. Also, BIA officials on the Crow Irrigation Project have no regularly scheduled meetings with either the tribe or individual water users and, in fact, failed to send a single representative to the meeting it called in 2005 for water users to voice their concerns about project management and operations.

Figure 7: Opportunities for Water Users to Meet with BIA Varies by Project

	BIA communication with					
	Tribes			Individual water users[a]		
Irrigation project	Regular meetings	Periodic meetings	Rare meetings	Regular meetings	Periodic meetings	Rare meetings
Blackfeet	■			■		
Colorado River	■			■		
Crow			■			■
Fort Belknap			■			■
Pine River	■					■
San Carlos Indian Works		■			■	
San Carlos Joint Works		■			■	
Wapato	■				■	
Wind River		■		■		

Source: GAO.

[a]Individual water users include Indians and/or non-Indians, depending on the project.

In addition to a lack of regular meetings with all project water users, BIA has not consistently shared the type of information about project operations and finances that water users need to meaningfully participate in project decisionmaking. Although BIA officials at the Colorado River Irrigation Project share information on their budgets with water users and work collaboratively with water users to develop annual work priorities in accordance with BIA's *Irrigation Handbook*, not all projects we visited provide or solicit this type of information. For example, BIA staff at the Wapato Irrigation Project does not solicit water users' input on project priorities or share information on the project's budget, according to water users we spoke with, and BIA officials at the Crow Irrigation Project do not share this type of critical information. However, some of the projects we visited have recently begun to share information on project spending and involve project water users in developing project priorities, despite not doing so historically. For example, the project management at the Blackfeet Irrigation Project began sharing budget information with its water users during the 2005 season, and the new project management at the Fort Belknap Irrigation Project stated that they plan on involving project water users in setting project priorities in the 2006 season.

Long-Term Direction of BIA's Irrigation Program Depends on Resolution of a Number of Larger Issues

Moreover, although some project managers and their staff are approachable and responsive on an individual basis, according to water users on some projects we visited, others stated that project management on some of BIA's irrigation projects were generally inaccessible and non-responsive. For example, BIA officials acknowledged that a former project manager at the Blackfeet Irrigation Project told water users to sue BIA to get information on project decisionmaking. In addition, some expressed concerns that BIA is less responsive to non-Indians because BIA's mission does not specifically include non-Indians. Consequently, some non-Indian water users have opted to go directly to their congressional representatives to raise their concerns. For example, non-Indian water users at the Wapato Irrigation Project have sought congressional intervention on several occasions to help compel BIA staff to disclose information about project finances, such as information related to proposed operations and maintenance fee debts and data on project land not being billed for operations and maintenance. In addition, Senator Conrad Burns and Congressman Dennis Rehberg of Montana co-sponsored a town hall meeting in 2003 to provide local water users an opportunity to voice project concerns to BIA officials. Requests by non-Indian water users for project management and regional staff to address the lack of water delivery at the Crow Irrigation Project during the month of August 2005 went largely unanswered by BIA, resulting in congressional intervention. Such lack of access and communication about project operations limits the ability of water users to have an impact on project decisions as well as the ability of BIA to benefit from this input.

The long-term direction of BIA's irrigation program depends on the resolution of several larger issues. Of most importance, BIA does not know the extent to which its irrigation projects are capable of financially sustaining themselves, which hinders its ability to address long-standing concerns regarding inadequate funding. The future of BIA's irrigation program also depends on the resolution of how the deferred maintenance will be funded. BIA currently has no plans for how it will obtain funding to fix the deferred maintenance items, and obtaining this funding presents a significant challenge in times of tight budgets and competing priorities. Finally, it might be more appropriate for other entities, including other federal agencies, tribes, and water users, to manage some or all of the projects.

The Extent to Which Projects Are Capable of Sustaining Themselves Is Unknown

BIA does not know the extent to which Indian irrigation projects are capable of sustaining themselves. Reclamation law and associated policy require the Department of the Interior's Bureau of Reclamation to test the financial feasibility of proposed projects comparing estimated reimbursable project costs with anticipated revenues. The Bureau of Reclamation then uses these reimbursable cost estimates to negotiate repayment contracts with water users, where appropriate. In contrast, Indian irrigation projects were authorized to support Indian populations residing on reservations without regard to whether the projects could be financially self-sustaining. As a result, neither the Congress nor project stakeholders have any assurance that these projects can sustain themselves. For example, a comprehensive 1930 study of BIA's irrigation program concluded that the Blackfeet and Fort Peck Irrigation Projects should be abandoned. Specifically, the report noted, "[a]fter a very careful study of all the available data relating to these projects, including a field examination, we are firmly convinced that any further attempts to rehabilitate and to operate and maintain these projects ... can result only in increasing the loss that must be accepted and sustained by the Government. *Adequate preliminary investigations and studies to which every proposed project should be subjected, in our opinion, would have condemned ... these ... projects as unfeasible.*"[12] [Emphasis added.]

Despite this lack of information on the overall financial situation for each of the projects, in the early 1960s BIA classified more than half of its 16 projects as fully self-supporting, on the basis of annual operations and maintenance fees they collected from water users. These self-supporting projects do not receive any ongoing appropriated funds. These projects are subject to full cost recovery despite the absence of financial information to demonstrate that the water users could sustain this financial burden. The Blackfeet and Fort Peck Irrigation Projects were two of the projects classified as fully self-supporting. While the specific financial situations for the Blackfeet and Fort Peck Irrigation Projects have likely changed since the 1920s, BIA does not know if these projects, or any of the other Indian irrigation projects, are financially self-supporting.

The heavy reliance on water users to sustain these projects has created ongoing tension between the water users and BIA. Some water users have

[12] *Survey of Conditions of the Indians in the United States: Hearings Before a Subcommittee of the Senate Committee on Indian Affairs*, 71st Cong., 2d Sess. at 2210-20 (1930).

complained to BIA that they cannot afford the operations and maintenance fees and they pressure BIA to keep the fees as low as possible. The Bureau of Reclamation recently conducted a study of the Pine River Irrigation Project and concluded that some of the water users could not conduct a profitable farming operation with the 2005 operations and maintenance fee of $8.50 per acre. BIA has not responded to the Bureau of Reclamation study, and in October 2005 BIA proposed doubling the rate to $17.00 per acre for the 2006 irrigation season even though water users claim that they cannot afford to pay a higher fee.[13] The operations and maintenance fee has been set at $8.50 at the Pine River Irrigation Project since 1992 and, according to BIA officials, the collections do not provide adequate funds to properly operate and maintain the project. As a result, BIA estimates that the deferred maintenance at the project has grown to over $20 million. Without definitive information on the financial situation of each project, BIA cannot determine what portion of project operations and maintenance costs can be reasonably borne by the water users and to what extent alternative sources of financing, such as congressional appropriations, should be pursued.

There Is No Plan for How to Fund the Deferred Maintenance

Despite the estimated $850 million in deferred maintenance and the degree to which it impedes ongoing operations and maintenance at BIA's irrigation projects, BIA currently has no plan for funding the list of deferred maintenance items. Funding deferred maintenance costs in the hundreds of millions of dollars will be a significant challenge in times of tight budgets and competing priorities. Nonetheless, officials stated that the agency has made little effort to identify options for funding the deferred maintenance. BIA acknowledges that income from ongoing operations and maintenance fees would likely be inadequate to cover the deferred maintenance, yet the agency has done little to identify alternative means of funding. According to officials, BIA has not asked the Congress for supplemental funding to cover the deferred maintenance. For example, water users report that the $7.5 million appropriated for BIA's irrigation projects for fiscal year 2006 resulted from lobbying by concerned water users, not from BIA's efforts.[14] To date, BIA has primarily focused on developing and refining an accurate estimate of the cost to fix the deferred maintenance items. While

[13] 70 *Fed. Reg.* 57880, 57893 (Oct. 4, 2005).

[14] These funds were specifically appropriated for five irrigation projects—Crow, Fort Peck, Fort Belknap, Blackfeet and Wind River—and one irrigation system.

developing an estimate of the projected cost is important, BIA officials believe that the agency also needs to develop a plan for ultimately funding the deferred maintenance.

Developing a plan for funding the deferred maintenance is complicated by competing priorities and a crisis-oriented management style that complicates preventative maintenance, according to BIA officials. The current state of disrepair of most of the irrigation projects results in frequent emergency situations concerning project operations and maintenance. As a result, BIA irrigation staff spends a significant amount of its time addressing emergency maintenance situations, to the detriment of other maintenance needs that are essential to sustaining the projects over the long term. As a result of this "crisis-style" management, BIA has limited time to devote to non-emergency issues such as the list of deferred maintenance items. Furthermore, this "crisis-style" management prevents BIA from devoting adequate time to preventative maintenance. For example, irrigation staff at Wind River Irrigation Project stated that making "band-aid" emergency repairs on a regular basis prevents them from addressing long-standing deferred maintenance needs, as well as from conducting strategic improvements that would help sustain the project over the long term.

It Might Be More Appropriate for Other Entities to Manage Some or All of the Projects

It may be beneficial to consider whether other groups for whom irrigation is a priority or an area of expertise could better manage some of the irrigation projects, including other federal agencies, Indian tribes, and water users. BIA must balance its irrigation management responsibilities with its many other missions in support of Indian communities. As the federal agency charged with supporting Indian communities in the United States, BIA's responsibility is to administer and manage land and natural resources held in trust for Indians by the U.S. government. Administration and management of these trust lands and resources involves a wide variety of responsibilities, including law enforcement, social services, economic development, education and natural resource management. Given the multitude of responsibilities that BIA must balance, there are inherent limits on the resources and knowledge that BIA is able to devote to any one program. As a result of these limitations and competing demands, officials report that irrigation management is not a priority for BIA. The fact that many water users on the irrigation projects are now non-Indian may further encourage BIA to prioritize and devote more resources to other programs before irrigation management.

Successful management of the irrigation projects by other groups would depend on the unique characteristics of each project and its water users. Potential groups who may be able to assume management for some irrigation projects or portions of some irrigation projects include the following:

- *The Bureau of Reclamation.* As the federal agency charged with managing water in the western United States, the Bureau of Reclamation has extensive technical experience in managing irrigation projects and has served in a technical or advisory capacity to BIA's irrigation staff. Furthermore, efforts have been made in the past to turn over some BIA irrigation projects to the Bureau of Reclamation and the Fort Yuma Irrigation Project is currently operated by the Bureau of Reclamation. In addition, the Bureau of Reclamation utilizes management practices for its irrigation projects that maximize information sharing and collaboration with water users. For example, in contrast to BIA, the Bureau of Reclamation delegates responsibility for much of the day-to-day operations and maintenance on its irrigation projects to irrigation districts, which are organized groups of water users.

- *Indian Tribes.* Officials report that some of the tribes have staff with extensive knowledge of irrigation and water management, as well as technical training. Some tribes stated that they have a vested interest in seeing their respective projects succeed, and they would like to assume direct responsibility for their reservation's irrigation project, assuming the deferred maintenance items are fixed before the turnover occurs. Turning over some of the BIA projects to Indian tribes would be an option where tribes have the management and technical capability to assume responsibility for an irrigation project.

- *Water Users.* Water users have extensive familiarity with the day-to-day management of the projects and in some cases already handle many day-to-day operations and maintenance activities. For example, the Crowheart Water Users Association, a group of water users at the Wind River Irrigation Project, have successfully assumed responsibility for most of the maintenance needs on their portion of the project. In exchange for their efforts, BIA refunds to the Crowheart Water Users Association 50 percent of their annual operation and maintenance fees. Through this arrangement, the Crowheart Water Users Association believes it has been able to more effectively address maintenance needs and increase project efficiency. Turning over some of the BIA projects to water users would be an option where water users share similar interests and have positive working relationships, as well as the desire to organize an irrigation district or association.

Any successful alternative management option would have to consider the sometimes disparate interests and priorities among water users. In some cases, a combination of the various alternative management options may be beneficial and feasible. This type of arrangement is currently being considered for the Flathead Irrigation Project, where BIA is currently in the process of turning over the operation and management of the project to a collaborative management group that may include the tribe, individual Indian water users, and non-Indian water users. However, regardless of the alternative management option, water users and tribal officials repeatedly stated that they would not be willing or able to take over project operations and maintenance unless the deferred maintenance had already been addressed or adequate funding was available to address the deferred maintenance needs.

Conclusions

Since BIA historically has not had adequate funds to operate and maintain the projects, the projects are in a serious state of disrepair. BIA is in the process of implementing its plan to develop an accurate list and estimate of the deferred maintenance needs for each project. However, some of the projects also have day-to-day management shortcomings regarding technical support and stakeholder involvement that need to be addressed. BIA's decentralized organizational structure combined with the difficulty in attracting and retaining highly qualified project managers at remote Indian reservations led to some poor decisionmaking at some of the projects. It is critically important that project managers, especially those with less than desirable qualifications, have the necessary level of technical support to prevent poor decisions from being made in the future.

A lack of adequate stakeholder involvement at some projects has also seriously undermined project accountability. Unlike most other BIA programs, the operations and maintenance of the irrigation projects are funded almost entirely by the project beneficiaries—the water users, many of whom are non-Indian. Consequently, BIA is accountable to these water users and these water users expect to have an active voice in project operations and maintenance. Some projects have not fulfilled their obligations to regularly meet with project stakeholders, creating an adversarial environment in which BIA and project water users do not trust each other. This failure to involve stakeholders in the management of their own projects means that BIA does not benefit from water user expertise and has resulted in widespread feelings that BIA is non-responsive and evasive, alienating many water users who feel disenfranchised. Moreover, this failure has limited the ability of stakeholders to hold BIA accountable for its decisions and actions.

In addition to some shortcomings with BIA's ongoing day-to-day management of some of the projects, we also found that information on the financial sustainability of the projects is needed to help address the long-term direction of BIA's irrigation program. BIA's 16 irrigation projects were generally built in the late 1800s and early 1900s to further the federal government's Indian policy of assimilation. The government made the decision to build these projects to support and encourage Indians to become farmers. This decision was generally not based on a thorough analysis designed to ensure that only cost effective projects were built. As a result, the financial sustainability of some of the projects has always been questionable, ultimately creating tension between BIA and its water users. BIA is under constant pressure to raise annual operations and maintenance fees to collect adequate funds to maintain the projects, while many water users contend that they do not have the ability to pay higher fees. Without a clear nnderstanding of the financially sustainability of the projects, BIA does not know whether it is practical to raise operation and maintenance fees, or whether alternative sources of financing should be pursued. Information on financial sustainability, along with accurate deferred maintenance information, are both critical pieces of information needed to have a debate on the long-term direction of BIA's irrigation program. Once this information is available, the Congress and interested parties will be able to address how the deferred maintenance will be funded and whether entities other than BIA could more appropriately manage some or all of the projects.

Recommendations for Executive Action

We recommend that the Secretary of the Interior take the following three actions.

To improve the ongoing management of the projects in the short-term, we recommend that the Secretary direct the Assistant Secretary for Indian Affairs to

- provide the necessary level of technical support for project managers who have less than the desired level of engineering qualifications by putting these projects under the direct supervision of regional or central irrigation office staff or by implementing more stringent protocols for engineer review and approval of actions taken at the projects; and

- require, at a minimum, that irrigation project management meet twice annually with all project stakeholders—once at the end of a season and once before the next season—to provide information on project operations, including budget plans and actual annual expenditures, and to obtain feedback and input.

To obtain information on the long-term financial sustainability of each of the projects, we recommend that the Secretary direct the Assistant Secretary for Indian Affairs to conduct studies to determine both how much it would cost to financially sustain each project, and the extent to which water users on each project have the ability to pay these costs. This information will be useful to congressional decisionmakers and other interested parties in debating the long-term direction of BIA's irrigation program.

Agency Comments and Our Evaluation

We provided the Department of the Interior with a draft of this report for review and comment. However, no comments were provided in time to be included as part of this report.

As agreed with your office, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies of this report to the Secretary of the Interior, the Assistant Secretary for Indian Affairs, as well as to appropriate Congressional Committees, and other interested Members of Congress. We also will make copies available to others upon request. In addition, the report will be available at no charge on the GAO Web site at http://www.gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report.

If you or your staff have questions about this report, please contact me at (202) 512-3841 or nazzaror@gao.gov. Key contributions to this report are listed in appendix III.

Robin M. Nazzaro

Robin M. Nazzaro
Director, Natural Resources and Environment

Appendix I

Objectives, Scope, and Methodology

We were asked to address several issues concerning the Department of the Interior's Bureau of Indian Affairs' (BIA) management of its 16 irrigation projects. Specifically, we were asked to examine (1) BIA's estimated deferred maintenance cost for its 16 irrigation projects; (2) what shortcomings, if any, exist in BIA's current management of its irrigation projects; and (3) any issues that need to be addressed to determine the long-term direction of BIA's irrigation program.

For all three objectives, we collected documentation on BIA's 16 irrigation projects from officials in each of BIA's central Irrigation, Power, and Safety of Dams offices (central irrigation offices) located in Washington, D.C., and other locations in the western United States. We also visited and collected information from each of BIA's four regional offices that oversee the 16 irrigation projects, including the Rocky Mountain, Northwest, Western, and Southwest regions. In addition, we visited 9 of the 16 projects located across all 4 regions. Specifically, we visited: (1) the Blackfeet Irrigation Project, (2) the Colorado River Irrigation Project, (3) the Crow Irrigation Project, (4) the Fort Belknap Irrigation Project, (5) the Pine River Irrigation Project, (6) the San Carlos Indian Works Irrigation Project, (7) the San Carlos Joint Works Irrigation Project, (8) the Wapato Irrigation Project, and (9) the Wind River Irrigation Project. We selected these projects based on a combination of factors aimed at maximizing our total coverage (over 50 percent of the projects), visiting at least one project in each of the regions where irrigation projects are located, visiting the project with the highest deferred maintenance cost estimate in each region using BIA's fiscal year 2004 data, and visiting what BIA considered to be the three best projects and the five worst projects. During the site visits, we collected project-specific information from BIA officials and project stakeholders including tribes and water users. We also met with and collected documentation from the Department of the Interior's Bureau of Reclamation, the federal agency charged with managing water in the western United States, for comparative purposes.

To examine BIA's estimated deferred maintenance cost for its 16 irrigation projects, we toured each of the 9 projects we visited to see examples of deferred maintenance and their impact, and we reviewed BIA's lists of deferred maintenance items and associated cost estimates for both fiscal years 2004 and 2005. We also reviewed the methodology BIA used to develop these lists and estimates and interviewed BIA staff involved in developing these lists and estimates to identify major deficiencies. Although we analyzed the cost estimates provided by BIA, we did not develop our own estimate of deferred maintenance. To assess the reliability of data we received from BIA on deferred maintenance, we interviewed officials most knowledgeable about the collection and management of these data. We reviewed the relevant controls and found them adequate. We also conducted tests of the reliability of the computerized data. On the basis of these interviews, tests, and reviews, we concluded that BIA's estimates of deferred maintenance were sufficiently reliable for the purposes of this report.

To examine what shortcomings, if any, exist in BIA's current management of its irrigation projects, we reviewed relevant federal regulations and agency guidance, and analyzed BIA-wide and project-specific management protocols and systems for the nine projects we visited. We also reviewed general guidance on internal control standards, including risk assessment, monitoring, and information and communication. We interviewed BIA officials from the central irrigation office in Washington, D.C., Colorado, Oregon, Arizona and Montana. We also interviewed BIA regional officials as well as agency and project officials associated with each of the 9 projects we visited for information on key shortcomings in BIA's management of its irrigation projects. Finally, we interviewed a variety of project stakeholders—including tribal representatives, individual Indian water users, and non-Indian water users—at each of the 9 projects we visited for information on key shortcomings in BIA's management.

Finally, to examine any issues that need to be addressed to determine the long-term direction of BIA's irrigation program, we reviewed previous studies highlighting key issues impacting the future of BIA's irrigation program. This included reviewing previous studies conducted by GAO, the Department of the Interior's Office of Inspector General, and the Bureau of Reclamation, as well as other studies conducted at the request of the Congress. We also reviewed relevant federal regulations and agency guidance, as well as historical information relevant to BIA's management of the irrigation program, including budget information and agency memos. Finally, we interviewed BIA officials from the central irrigation office, regional offices, and the 9 projects we visited for information on the key challenges impacting the long-term direction of the program. We also interviewed project stakeholders—including tribal representatives and water users—at the 9 projects we visited for information on the key issues impacting the future direction of BIA's irrigation program.

We performed our work between March 2005 and February 2006 in accordance with generally accepted government auditing standards.

Profiles of the Nine Irrigation Projects GAO Visited

This appendix contains brief profiles of the nine irrigation projects we visited. Each project profile begins with a short overview of basic facts about the project, followed by a set of bullet points describing the key operations and maintenance concerns and the key management concerns expressed to us by BIA officials, tribal officials, or water users during our site visits.

Blackfeet Irrigation Project

The Blackfeet Irrigation Project was authorized for construction in 1907, but construction was never completed. It consists of 38,300 acres being assessed operations and maintenance fees (and 113,100 acres authorized for irrigation). The project is located in Browning, Montana on the Blackfeet Indian Reservation of Montana, home of the Blackfeet Tribe. About 60 percent of the project's land is owned by either the tribe or individual tribal members, and about 40 percent is owned by non-Indians. BIA currently estimates the project's total deferred maintenance costs to be $29,130,222. See figure 8 below for pictures of the Blackfeet Irrigation Project.

Figure 8: Pictures of the Blackfeet Irrigation Project (July 2005)

Source: GAO.

Deteriorating Canal Lining

Leaking Check Gate

Key Operations and Maintenance Concerns Expressed During Our Site Visit

- Fees are insufficient to cover the costs of project operations and maintenance.

- Weeds and overgrown vegetation are problematic and impair water flow.
- Deferring maintenance has led to bigger and more costly maintenance problems.
- Deferring maintenance decreases water efficiency and access to water.
- The project as built cannot meet the increased demand for water.

Key Management Concerns Expressed During Our Site Visit

- Communication between BIA and the water users could be improved, such as enhancing transparency, increasing involvement, and meeting separately with the tribe.
- Lack of training and expertise undermines BIA's management of the project.
- Inadequate oversight within BIA exacerbates problems associated with lack of training and expertise.
- Project staff should report to managers with expertise in irrigation and/or engineering.
- BIA protocols are too vague, such as when project staff should consult with regional or central irrigation office engineers.
- BIA needs to be able to measure water in order to better manage water deliveries and identify critical problems.
- Irrigation is a low priority for BIA.

Colorado River Irrigation Project

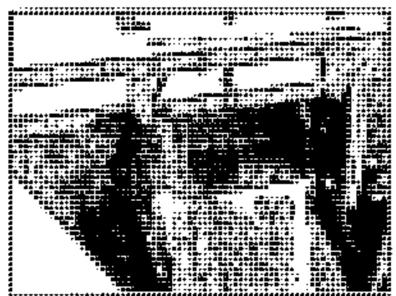
The Colorado River Irrigation Project was the first BIA irrigation project built, authorized for construction in 1867, but construction was never completed. It is now considered the best of BIA's 16 revenue-generating irrigation projects due, in part, to its innovative leadership and customer service attitude. The project has adopted a user fee system that measures and assesses water users based on their actual usage as well as charging water users additional fees for using more water than their individual allotment. The project is located in Parker, Arizona on the Colorado River

Indian Reservation, home of the Colorado River Indian Tribes. The project, which has a 10-month-long irrigation season, consists of 79,350 assessed acres (and 107,588 acres authorized for irrigation), and is composed entirely of Indian land—land owned by the tribe or its members. BIA currently estimates the project's total deferred maintenance costs to be $134,758,664. See figure 9 for pictures of the Colorado River Irrigation Project.

Figure 9: Pictures of the Colorado River Irrigation Project (June 2005)

Source: GAO.

Concrete-lined Irrigation Canal



Leaking Check Gate

Key Operations and Maintenance Concerns Expressed During Our Site Visit

- Development leases may no longer be allowed, potentially resulting in irrigable land going un-irrigated and costing the tribe and project potential revenues.
- Replacement of deteriorating irrigation structures needed.
- Canal needs new lining due to years of deterioration and, in some cases, poor construction.
- Clearing moss and pondweed is needed lest the flow of water be impaired.
- New irrigation structures needed to regulate water flow where ditches converge.

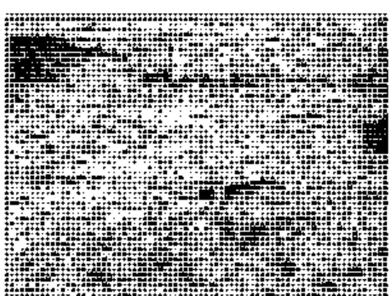
Key Management Concerns Expressed During Our Site Visit

- Understaffing and high turnover of project system operators adversely impact water deliveries in that there are too few system operators to deliver water in a timely manner.
- BIA procurement and contracting is time-consuming and costly.
- Annual project budget may understate actual funding because it does not include possible additional fees.
- Operations and maintenance fees can only be used to address operations and maintenance on the existing project, rather than expand the project.

Crow Irrigation Project

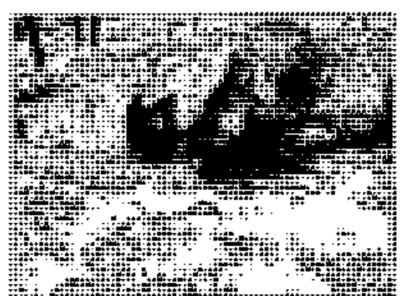
The Crow Irrigation Project was authorized for construction in 1890, but construction was never completed. It is one of the oldest of BIA's 16 revenue-generating irrigation projects with 38,900 acres being assessed operations and maintenance fees (and 46,460 acres authorized for irrigation). The project is located in Crow Agency, Montana on the Crow Reservation, home of the Crow Tribe of Montana. About 56 percent of the project land is owned by either the tribe or individual tribal members, and about 44 percent is owned by individual non-Indians. BIA currently estimates the project's total deferred maintenance costs to be $54,550,496. See figure 10 for pictures of the Crow Irrigation Project.

Figure 10: Pictures of the Crow Irrigation Project (March 2005)



Source: GAO.

Abandoned Car in Deteriorated Canal



Crumbling Irrigation Structure

Key Operations and Maintenance Concerns Expressed During Our Site Visit

- Fees are insufficient to cover the project's operations as well as maintenance costs.
- Weeds, overgrown vegetation, tree roots and garbage impair water flow in the canals and ditches.
- Crumbling or dilapidated irrigation structures impair water delivery.
- The repair of Rotten Grass Flume needs further work.
- Canal erosion causes sink holes and impairs water flow.
- Deferred maintenance of certain structures leads to safety concerns, such as when BIA staff must go into the canal to raise or lower broken check gates.

Key Management Concerns Expressed During Our Site Visit

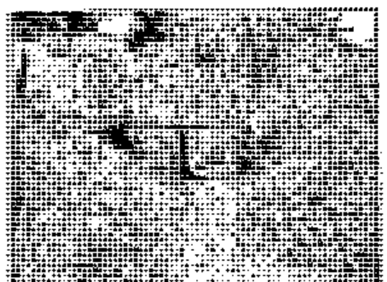
- The project's recently reassigned project manager was under-qualified, resulting in some decisions that hurt the project and undermine water delivery, such as the Rotten Grass Flume incident.
- BIA has inadequate oversight of the project manager and his decisions.
- BIA relies on "crisis-style" management rather than a long-term plan to manager project.
- Allegations that a former project manager inappropriately used fees and was not accountable for financial decisions.[1]
- Communication breakdown between BIA and its water users.
- The project may be better managed if BIA turned over the project's management to water users or tribe.
- Irrigation is a low priority for BIA.

[1]GAO referred these allegations to the Department of the Interior's Office of the Inspector General in August 2005.

Fort Belknap Irrigation Project

The Fort Belknap Irrigation Project was authorized for construction in 1895, but construction was never completed. It is one of the smallest of BIA's 16 revenue-generating irrigation projects with 9,900 acres being assessed operations and maintenance fees (and 13,320 acres authorized for irrigation). The project is located in Harlem, Montana on the Fort Belknap Reservation, home of the Fort Belknap Indian Community of the Fort Belknap Reservation of Montana. About 92 percent of the land is owned by either the tribe or individual tribal members, and about 8 percent is owned by individual non-Indians. BIA currently estimates the project's total deferred maintenance costs to be $17,535,494. See figure 11 for pictures of the Fort Belknap Irrigation Project.

Figure 11: Pictures of the Fort Belknap Irrigation Project (July 2005)



Source: GAO.

Graffiti on Irrigation Structure

Overgrown Vegetation Around Dilapidated Irrigation Check Structure

Key Operations and Maintenance Concerns Expressed During Our Site Visit

- Fees and appropriations are insufficient to cover the project maintenance needs.
- Weeds and overgrowth of vegetation impair water flow.
- Canal erosion caused by cattle-crossings impairs water flow.
- Deteriorated and leaking irrigation structures impair water delivery.
- Additional equipment is needed to conduct maintenance on project.

- Deferred maintenance exacerbates problems of poor farming land and low crop values.

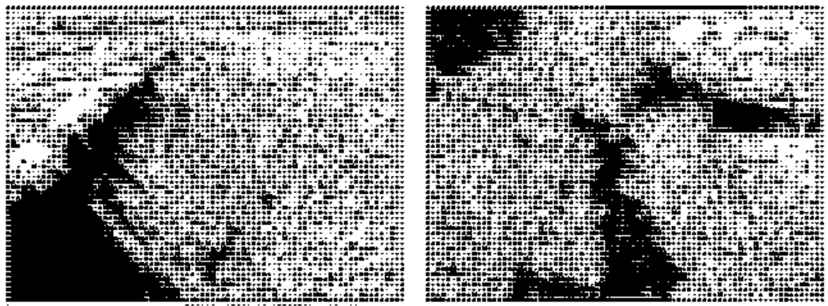
Key Management Concerns Expressed During Our Site Visit

- Poor communication and tense relations between BIA and water users.
- Staff turnover and difficulty finding qualified staff are problematic.
- Some project staff lack adequate expertise and training to manage project.
- Lack of transparency and water management plan limits BIA accountability.
- Some water users want BIA to begin water delivery earlier in season.

Pine River Irrigation Project

The Pine River Irrigation Project is the only one of BIA's 16 revenue-generating irrigation projects located in the Southwest region, with 11,855 acres being assessed operations and maintenance fees. Construction on the project was never completed. The project is located in Ignacio, Colorado on the Southern Ute Reservation, home to the Southern Ute Indian Tribe of the Southern Ute Reservation, Colorado. About 85 percent of the land is owned by either the tribe or individual tribal members, and about 15 percent is owned by individual non-Indians. BIA currently estimates the project's total deferred maintenance costs to be $20,133,950. See figure 12 for pictures of the Pine River Irrigation Project.

Figure 12: Pictures of the Pine River Irrigation Project (August 2005)



Source: GAO.

Irrigation Ditch in Need of Reshaping

Overgrown Vegetation in Irrigation Ditch

Key Operations and Maintenance Concerns Expressed During Our Site Visit

- Collections from operations and maintenance fees do not provide adequate funds to properly operate and maintain the project.

- The project's operations and maintenance fees have not been raised since 1992. BIA has proposed doubling the fees from $8.50 per acre to $17.00 per acre for the 2006 irrigation season.

- The project's cash reserves were depleted in 2004.

- The project has a number of old water delivery contracts, referred to as "carriage contracts," from the 1930s that are at low fixed rates. Under some of the contracts the water users only pay $1.00 per acre to the project.

Key Management Concerns Expressed During Our Site Visit

- The practice of subsidizing the project through other BIA programs, such as Natural Resources, Roads Construction, Roads Maintenance and Realty, was scheduled to end at the end of fiscal year 2005. Alternative sources of funds must be found for the project manager and clerk positions.

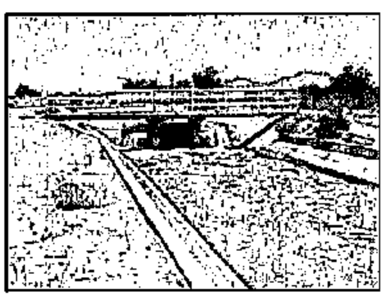
- "Crisis-style" management only, no preventive maintenance.

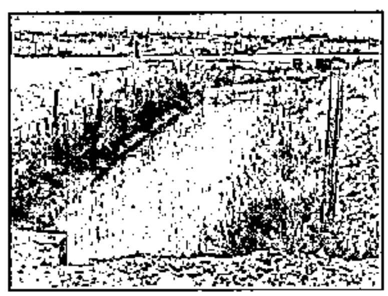
- Project staff does not formally meet with or provide information to individual water users.
- A Bureau of Reclamation study in 1999 found that some of the water users could not afford to pay fees of $8.50 to the project and operate a profitable farming operation. BIA has not responded to the study.
- The former project manager stated that the BIA irrigation projects should be turned over to the Bureau of Reclamation.

San Carlos Indian Works Irrigation Project (Pima)

The San Carlos Indian Works Irrigation Project was authorized for construction in 1924, but construction was never completed. It is one of the newest of BIA's 16 revenue-generating irrigation projects with 50,000 acres being assessed operations and maintenance fees (and 50,546 acres authorized for irrigation). The project, also referred to as Pima, is located in Sacaton, Arizona on the Gila River Indian Reservation, home of the Gila River Indian Community. It is served both by its own infrastructure and by that of the San Carlos Joint Works Irrigation Project. The project land is generally owned by the tribe or tribal members, with about 99 percent of the land owned by either the tribe or individual tribal members, and about 1 percent owned by individual non-Indians. BIA currently estimates Pima's total deferred maintenance costs to be $62,865,503. See figure 13 for pictures of the San Carlos Indian Works Irrigation Project.

Figure 13: Pictures of the San Carlos Indian Works Irrigation Project (June 2005)





Source: GAO.

Concrete-lined Irrigation Canal

Canal with Vegetation Growth

Key Operations and Maintenance Concerns Expressed During Our Site Visit

- Inefficiency in water delivery results in fewer water users being able to receive water, leading to idle acreage in some cases.
- Clearing tumbleweeds and other vegetation that can clog culverts are a recurring problem and represents a large part of the project's spending on operations and maintenance.
- Erosion is a continuing problem, in part, because the canal is used for both water deliveries as well as drainage.
- BIA staff has a "wish list" of items that would bring the project into top condition, extending beyond the basic deferred maintenance.
- Project infrastructure may not have the capacity to deliver water to all potential water users.

Key Management Concerns Expressed During Our Site Visit

- 2007 turnover to water users is still underway.
- Insufficient reserve funds means that project staff may not have enough money to conduct needed maintenance towards the end of the year.
- Vacancies are a constant problem at the project, leaving too few staff to conduct project maintenance.
- BIA is too slow to respond to water users' requests for repairs.

San Carlos Joint Works Irrigation Project (Coolidge)

The San Carlos Joint Works Irrigation Project was authorized for construction in 1924, but construction was never completed. It provides water to non-Indian irrigators as well as the San Carlos Indian Works Irrigation Project. It consists of 100,000 acres being assessed operations and maintenance fees (and 100,546 acres authorized for irrigation), with 50 percent of the land owned by non-Indian irrigators and 50 percent owned by Indian irrigators (in the form of the San Carlos Indian Works Irrigation Project). The project is located in Coolidge, Arizona. BIA currently estimates Coolidge's total deferred maintenance costs to be $5,775,427. See figure 14 for pictures of the San Carlos Joint Works Irrigation Project.

Figure 14: Pictures of the San Carlos Joint Works Irrigation Project (June 2006)

Source: GAO.

Deteriorating China Wash Flume | Concrete that Fell from Flume | Weeds in Irrigation Canal

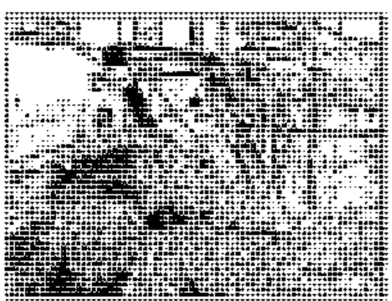
Key Operations and Maintenance Concerns Expressed During Our Site Visit	• Lack of certainty in BIA's ability to deliver requested water to all water users has led some to purchase additional water from outside of the project. • Silt removal from irrigation canals and ditches is a recurring problem, leading BIA to purposefully over-excavate the main canal each year in an attempt to catch excess silt that can clog culverts and prevent water delivery impairments. • Repair of China Wash Flume is an expensive undertaking, but the flume's failure could jeopardize water deliveries for much of the project. • Removal of weeds to prevent clogged culverts is a recurring problem for the project.
Key Management Concerns Expressed During Our Site Visit	• 2007 turnover to water users is under way but not finalized. • Lawsuit against BIA's increase in operations and maintenance fees resulted in some water delivery delays while the lawsuit is pending. • Contracting delays within BIA have resulted in postponed project maintenance.

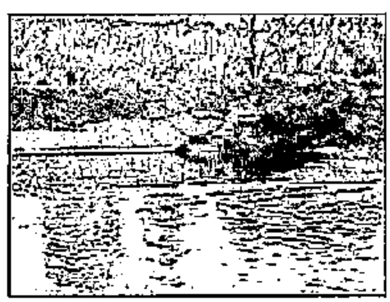
- Turnover of BIA staff and lack of water user inclusion in project decisionmaking impedes effective communication.
- BIA lacks accountability to water users in terms of how it spends operations and maintenance fees.

Wapato Irrigation Project

The Wapato Irrigation Project is one of the oldest and largest of BIA's 16 revenue-generating irrigation projects with 96,443 acres being assessed operations and maintenance fees (and 145,000 acres authorized for irrigation). It was authorized for construction in 1904, but construction was never completed. The project is located in Yakima, Washington on the Yakama Reservation, home of the Confederated Tribes and Bands of the Yakama Nation. About 60 percent of the project land is owned by either the tribe or individual tribal members, and about 40 percent is owned by individual non-Indians. BIA currently estimates the project's total deferred maintenance costs to be $183,128,886. See figure 15 for pictures of the Wapato Irrigation Project.

Figure 15: Pictures of the Wapato Irrigation Project (April 2005)





Source: GAO.

Weed Clearing Machine

Irrigation Canal with Crumbling Concrete Lining

Key Operations and Maintenance Concerns Expressed During Our Site Visit

- Deterioration of project prevents some water users from receiving water.
- Lack of regular project maintenance has led many water users to make repairs on their own in order to irrigate crops.
- Water users claim that project staff performs inadequate or faulty repairs, resulting in wasted operations and maintenance payments or the need for water users to fix the sloppy repairs.
- Fees are insufficient because (a) rates have been set too low, and (b) the tribe's appeal of BIA's operations and maintenance bills since 2001 has decreased income by at least $2 million annually because the agency will not collect on these bills or issue subsequent bills until the matters raised in the appeal are resolved.
- Fees are insufficient to cover both maintenance and administrative costs, such as salaries and benefits, leading to suggestions that BIA cover such costs.

Key Management Concerns Expressed During Our Site Visit

- Understaffing due to inadequate funds and difficulty in finding qualified staff has resulted in too few staff to operate and maintain project.
- BIA relies on "crisis-style" management to manage project, resulting in a lack of planning and preventive maintenance.
- Water users lack voice in project decisionmaking, resulting in concerns about limited accountability of project staff to its water users.
- Alleged errors with operations and maintenance billing—such as BIA billing dead landowners and BIA overbilling living landowners—led the tribe and its members to appeal BIA's billing of operations and maintenance fees. Resolution of these appeals is still pending within the agency. BIA will not collect on these bills or issue subsequent bills until the matters raised in the appeal are resolved.

Wind River Irrigation Project

The Wind River Irrigation Project was authorized for construction in 1905, but construction was never completed. It is one of BIA's 16 revenue-generating irrigation projects with 38,300 acres being assessed operations and maintenance fees (and 51,000 acres authorized for irrigation). The project is located in Fort Washakie, Wyoming on the Wind River Reservation, home of the Arapaho Tribe of the Wind River Reservation and the Shoshone Tribe of the Wind River Reservation. About 67 percent of the project land is owned by either the tribe or individual tribal members, and about 33 percent is owned by individual non-Indians. BIA currently estimates the project's total deferred maintenance costs to be $84,956,540. See figure 16 for pictures of the Wind River Irrigation Project.

Figure 16: Pictures of the Wind River Irrigation Project (July 2005)

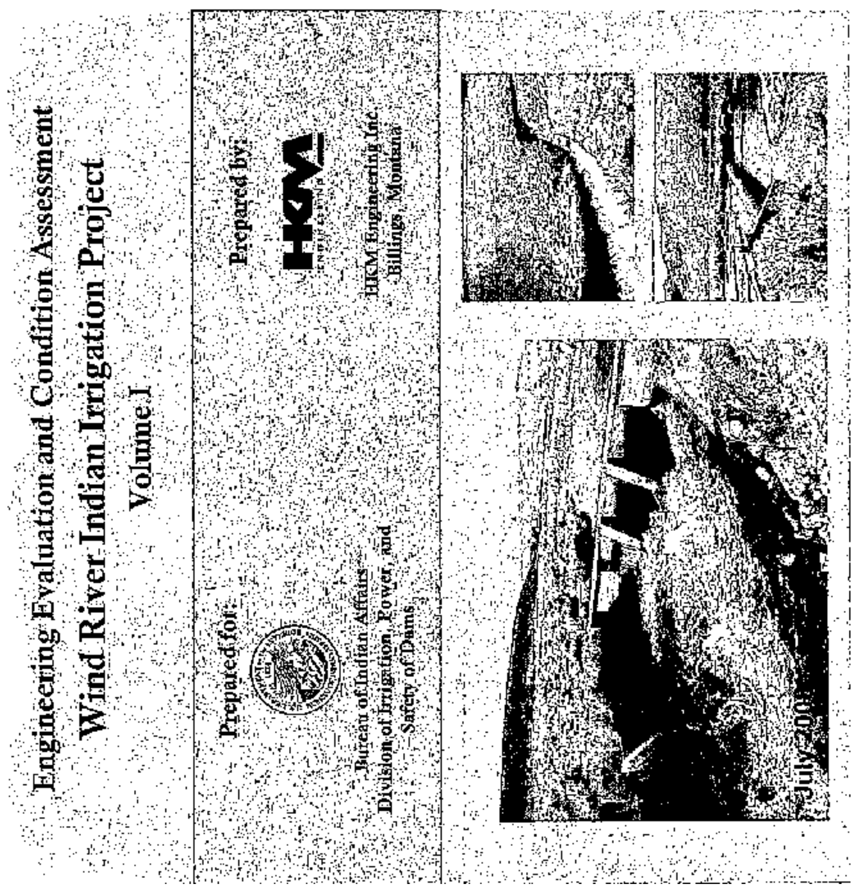
Source: GAO.

Beaver Holes and Overgrown Vegetation in Canal   Cattle-Crossing Eroding Irrigation Canal

Key Operations and Maintenance Concerns Expressed During Our Site Visit

- Weeds and tree roots impair water flow and lead to seepage.
- Cattle-crossings erode canal banks and impair water flow.
- Deteriorating irrigation infrastructure impairs water delivery.
- Additional water storage and improved efficiency needed to meet demand for water.
- Deferring maintenance undermines long-term sustainability of project.
- BIA financial management may limit ability of project staff to conduct needed maintenance in short maintenance season.

Key Management Concerns Expressed During Our Site Visit	• BIA relies on "crisis-style" management and "band-aid" solutions rather than a long-term plan to manage project. • Poor communication between BIA and water users. • Water users are not involved enough in project decisionmaking. • Supervision of project staff is insufficient and BIA is not accountable to water users. • Turnover of BIA staff is problematic. • Some water users want to manage all or part of the project.



ENGINEERING EVALUATION AND CONDITION ASSESSMENT WIND RIVER IRRIGATION PROJECT

FINAL REPORT

Prepared for

Bureau of Indian Affairs
Division of Irrigation, Power, and Safety of Dams

Prepared by

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July 2008

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Executive Summary

HKM completed extensive field evaluations of key structures and facilities of the Wind River Irrigation Project. The condition of the canals and laterals themselves was also evaluated. The purpose of the field evaluations was to assess the condition and to document the type and extent of deficiencies for the scoped canals and associated structures throughout the Project. Data collected through the field evaluations provided the foundation for the development of estimates of rehabilitation costs under current operating conditions, along with priorities for these improvements. The cost estimates and priorities are intended to be used to guide rehabilitation efforts. Remediation cost summaries and priority rankings, as well as remediation reports for individual canals and structures, were developed for each unit of the Project.

HKM worked closely with the Department of the Interior, and in particular, staff of BIA's Irrigation, Power, and Safety of Dams program, to develop a priority ranking system for rehabilitation of irrigation structures. This system has been developed to allow ranking of structures based on several different criteria, including: current condition, importance of the structure type, and the significance of the particular structure to the irrigation project. The result of this ranking system is a Remediation Priority Index for each structure evaluated.

The Wind River Irrigation Project Engineering Evaluation and Condition Assessment report is composed of two separate volumes as follows:

Volume I: Main Report
Volume II: Map Books of Evaluated Irrigation Facilities

Volume I: Cost Estimating and Methodologies

The unit costs used in the cost estimates were primarily based on RSMeans "Site Work and Landscape Cost Data". Additionally, specialty contractor and manufacturer quotes were used as well as bid tabulations from previous projects. Unit costs are reported in 2008 dollars, and are adjusted to account for regional construction trends.

The majority of the field work was completed during the fall of 2007. The assessment included the evaluation of key structures, facilities, and canal condition at the end of the irrigation season when there was little or no water in the canal system and the majority of the items could be visually inspected, as well as an operational review of key facilities and canals during a period of active irrigation in the late summer of 2007, and late spring of 2008.

A summary of the estimated costs for remediating the identified deficiencies of the Wind River Irrigation Project irrigation system infrastructure is provided in the following table. Replacement costs are provided for comparison. The replacement costs of canal items are represented by the corresponding remediation costs for the purposes of this comparison.

Summary of Remediation and Replacement Costs

Description		Rehabilitation	Replacement
Structures			
Structure Rehabilitation for Key Canals and Laterals		$6,012,782	$15,407,647
Structure Rehabilitation for Remaining Laterals		$18,004,118	$43,438,536
	Subtotal	$24,016,900	$58,846,184
Canals			
Cleaning/Reshaping		$5,306,115	$5,306,115
Seepage Area Lining		$5,488,785.40	$5,488,785.40
	Subtotal	$10,794,900	$10,794,900
	Grand Total	**$34,811,800**	**$69,641,084**

Volume I: Appendix E – Remediation Reports

Individual reports have been generated for each key structure, as well as all identified canal deficiencies. Several reports are also created to summarize the project costs. Reports containing information about individual structures indicate the presence of resource issues and operational issues respectively through the use of the symbols and ⚠. The reports are organized into sections by the type of information presented. Organization within Appendix E is arranged as follows:

- Remediation Summaries
- Local Names
- Non-Typical Structures, one tab for each Project Unit/Division
- Typical Structures, one tab for each type, sorted alphabetically
- Other Structures
- Canals, one tab for each Project Unit/Division
- Other Canals
- Index

All structures that could not be represented as a standard or typical structure type are provided in the "Non-Typical" structures section(s). "Non-Typical" structures on the Main canal(s) appear first, with the remaining reports organized alphabetically by canal name and then alphabetically by HKM ID. The typical structure sections are first grouped by Project Unit/Division and then organized in the same manner as the "Non Typical" structures section. The "Other Structures" section contains lists of representative structures evaluated on laterals, as well as structures which were visited but not evaluated, such as siphons at road and railroad crossings and unevaluated structures near key canals but located on laterals. The canal section(s) contain rehabilitation reports for the various identified deficiencies directly relating to the canals themselves.

Locating Information For A Specific Structure or Canal Remediation Location

The information required to locate the report for a specific structure or canal location is as follows: Project Unit/Division, Canal name, approximate structure location on the canal, and HKM identification number.

Locating Specific Structures

The reports in Appendix D, Appendix E: Remediation Summaries, Appendix E: Local Names, and Appendix E: Index include the page number for each individual structure. These listings can be used to determine the page number for the structure, in those cases when the local name or the HKM ID is already known.

Alternatively, the Map Books (Volume II) may be used to find the desired structure as follows:

Step 1: In the Map Books, using the index map in the upper right corner of each page, locate the appropriate map for the desired canal or Unit/Division.

Step 2: Locate the desired structure on the map of the canal. The HKM ID, and local name if known, is listed beside the structure.

Step 3: If a local name is given, the "Local Names" report in Volume I Appendix E can be used to determine the page number for the structure's detailed condition assessment report. If a local name is not given, the index in Volume I Appendix E provides the page number for every structure listed by HKM ID.

Locating Specific Canal Remediation Locations

The reports in Appendix E: Remediation Summaries and Appendix E: Index include the page number for each individual canal remediation location. These listings can be used to determine the page number for the canal remediation location, in those cases when the HKM ID is already known.

Alternatively, the Map Books (Volume II) may be used to find the desired canal remediation locations as follows:

Step 1: In the Map Books, using the index map in the upper right corner of each page, locate the appropriate map for the desired canal or Unit/Division.

Step 2: Locate the desired canal remediation location on the map of the canal. The HKM ID is listed beside the representative cross-section location.

Step 3: The index in Volume I Appendix E provides the page number for every canal remediation location listed by HKM ID.

VOLUME II: MAP BOOKS OF EVALUATED IRRIGATION FACILITIES

Map books were created covering the entire extent of the key canals and laterals within the project area. These maps include the project canals as well as all evaluated structures, canal remediation locations, and local hydrography set on an aerial photo basemap.

COST ESTIMATING

The unit costs used in the cost estimates were primarily based on RSMeans "Site Work and Landscape Cost Data, 24th Edition". Additionally, recent Department of Transportation bid tabulation as well as contractor and manufacturer quotes were referenced to provide additional cost data and serve as a reasonableness check. Bid tabulation from previous HKM heavy construction projects have also been used in development of unit costs. The bulk of the unit costs used in the cost estimation for the current project were compiled for previous irrigation condition assessment projects, additional costs were added as necessary, but these previously estimated costs were perpetuated to maintain consistency. The United States Bureau of Reclamation (USBR) construction cost indices were used to project previously estimated unit costs into the current cost year. **Unit costs are reported in 2008 dollars.** The previous years adjusted unit costs were then reviewed to determine their appropriateness to the current project year given cost escalation. For many items, the adjusted costs are reasonable. In some cases, however, the adjusted costs are no longer representative. Concrete is one of the major items controlling the cost estimation; key emphasis is therefore given to updating this cost each year. Concrete pipe and gate costs are also reviewed more thoroughly, as they result in significant costs within the entire estimate. These unit costs are typically updated, respectively, using Department of Transportation bid tabulation and estimates provided by gate manufacturers. Generally, all of the remaining unit costs used on previous irrigation condition assessment projects were updated using the USBR construction cost indices. A summary table of unit costs can be found in Appendix A. Also included in this appendix are the unit cost calculations for each item. As shown in these cost calculations, several construction items may be used to develop each unit cost. For example, Corrosion Inhibitor includes costs associated with the following items: Sandblasting the surface, applying one coat of an epoxy based primer, and applying two coats of epoxy based paint.

LUMP SUM UNIT COSTS FOR TYPICAL STRUCTURES

Lump sum unit costs were calculated for structures commonly encountered during the field evaluations. These lump sum costs represent the approximate replacement cost for each structure, and include removal of the existing structure. In some cases, the existing structure may differ slightly from the assumed replacement structure; however, costs should be very similar. These lump sum cost estimates were developed using the unit costs described in the preceding section. The quantities associated with each unit cost are based on the quantity estimate for each typical replacement structure. These quantity estimates include all construction items shown on the drawings, as well as estimates for earthwork and related construction tasks. Earthwork quantities were estimated based on adherence to Occupational Safety and Health Administration (OSHA) standards for slope stability. Additionally, overexcavation was assumed to a depth of one foot under all structures, as well as recompaction of this material to provide an adequate foundation. Lump sum cost estimates for each typical structure can be found in Appendix A. Included in these lump sum structure cost estimates are any notes and assumptions made in determination of the cost for each structure.

REGIONAL COST ADJUSTMENT

Unit costs are developed for each item and represent construction costs in the vicinity of Billings, Montana. Since many projects are located far from this location, costs are then adjusted using RSMeans Location Factors. The ratio of the Location Factor for a nearby city to that for Billings, MT is computed and used in the regional cost adjustment. Construction costs on the Wind River Indian Reservation are not anticipated to vary significantly from those in Billings, MT; therefore a regional cost adjustment factor of 1.0 (no adjustment) was used in the cost estimation.

STRUCTURE EVALUATIONS

The BIA recently completed an inventory and mapping of the Wind River Irrigation Project structures and canals. Information available from the inventory includes such things as structure type, location, and canal name. From this inventory, the BIA has developed a GIS coverage of the irrigation system. A unique structure ID was created during the BIA inventory for each structure. This identification number is, however, long and cumbersome. For the purposes of the HKM evaluation of structures, it was necessary to create another unique identifier to facilitate additional data collection and management. HKM identification numbers consist of an abbreviation of the structure type followed by a number. The BIA ID number is also carried forward for BIA's maintenance management purposes.

GPS navigation is utilized, together with the BIA's GIS coverage of the irrigation system, to locate specific facilities and structures on the canals. The GPS units are also used to record the location of identified canal deficiencies and other site-specific observations.

HKM field crews also gathered information regarding structures on the smaller canals of the Wind River Irrigation Project. A representative sample of structures on these laterals and sub-laterals was evaluated to represent the rehabilitation needs of the smaller structures throughout the project.

The structure evaluations are completed in two phases. The Engineering Condition Assessment Phase was completed during the fall of 2007 with little or no water in the canals. The main purpose of this phase was to provide a condition assessment of the existing structures, as well as to develop the preliminary remediation plan for each structure, which provides the basis for the project-wide remediation cost estimate. The Operational Review Phase was completed in two visits. The first review was performed late in the 2007 irrigation season, and the second review was performed early in the 2008 irrigation season, for the purpose of viewing the system facilities during a period of active operation. Tours were conducted with project personnel during each phase of the field work. The individual reports for each structure contain the compilation of information collected through both phases.

Structure evaluations are completed by collecting detailed information for each key facility, including: general notes, sketches, dimensions, photos, and a list of deficiencies and rehabilitation needs. The field crews use vehicular GPS navigation, as well as handheld GPS units, to locate structures previously identified in the BIA's irrigation system inventory. The notes for each structure provide a general description, list of related structures, as well as documentation of any operational issues indicated by Wind River Irrigation Project personnel.

Detailed field sketches are also drawn for each structure. These sketches are created to document the size and configuration of the existing structures. Field crews are equipped with survey instrumentation to supplement the field sketches, as necessary, for structures with large or complicated geometry. This capability was utilized infrequently for the Wind River Irrigation Project, only the long chute/drop on the North Fork Diversion ditch was surveyed.

A list of deficiencies was compiled for each key structure following American Concrete Institute (ACI) condition survey methods and terminology. Specific deficiencies that were identified include: concrete spalling, break-up, honeycombing, cracking, exposed reinforcing bars, corrosion, deterioration, and structural failure. Some structures also had deficiencies associated with erosion, such as undermining, scour, or bank instability. The extent of the deficiencies was documented both in the notes and through photos. In addition to identifying and documenting these deficiencies, remediation and/or replacement quantities were also estimated and recorded in the field books. These quantities were subsequently used in the development of the remediation and replacement cost estimates for each structure. Field notes were recorded by hand during the daily field work and then transcribed digitally each evening, serving as an immediate quality control check of the data collected each day. Survey data and photos were also downloaded in the evenings.

REHABILITATION AND REPLACEMENT ASSESSMENTS

Cost estimates for both rehabilitation and replacement were developed for all structures. The Current Replacement Value (CRV) is the estimated cost to remove the existing structure and replace it. This value is necessary regardless of the condition of the structure, because it provides the basis for comparison to the rehabilitation cost, and a means to determine the relative condition of the structure in relation to other project facilities.

The evaluation of needed rehabilitation and replacement utilizes the data collected in the field including: general notes, sketches, photos, and the list of deficiencies for each structure to develop a budget level estimate of rehabilitation and replacement costs for each structure. Standard USBR and NRCS structure types have been selected as the basis for replacement structures where applicable. Additionally, USBR safety guidelines have been adopted, and rehabilitation and replacement costs reflect compliance with these guidelines.

Methods of cost estimation and the development of unit costs for both rehabilitation and replacement items are discussed in the "Unit Costs" section of this report.

STRUCTURE REHABILITATION

Field teams developed preliminary rehabilitation plans for each structure during the condition assessments. During the field evaluation, if rehabilitation of a structure did not appear to be feasible, the assumption was made that full replacement was necessary. For the majority of structures, however, site specific deficiencies and associated quantities were recorded. These quantities were used to estimate rehabilitation costs.

Individual cost estimates are not intended to represent final design, but to provide the basis for the development of reasonable project-wide rehabilitation and replacement cost estimates under current operating conditions.

The various deficiencies and assumed rehabilitation efforts are described in the following sections.

Safety Concerns

The USBR Safety guidelines that have been adopted are as follows: Stop-logs are not recommended if the velocity is greater than 3.5 ft/s or the flow is over 50 cfs, Operating decks shall be a minimum of 2 ft wide, if the height above the canal invert is under 3.5 ft; for heights of 3.5 ft or greater, the minimum operating deck width is 3 ft. A downstream handrail is required if the height above the canal is 3.5 ft or greater; both upstream and downstream handrails are required if the height is greater than 5 ft. All existing walkways in need of replacement shall be installed per USBR guidelines.

Concrete Deficiencies

Deficiency: Spalling
Rehabilitation: Surface Restoration (SF)
Although this deficiency is part of the natural lifecycle of concrete weathering in the elements, spalling increases the susceptibility of the concrete to the freeze-thaw cycle, and accelerates breakup and deterioration of the structure. The assumed surface restoration required to repair this deficiency is a concrete overlay of at least two inches in thickness. Surface restoration is impractical for some structure types, such as headgates, checks, and similar small structures. In these cases, it is assumed that spalling will not be repaired. For small structures with excessive spalling which affects structural integrity or gate operation, the remediation cost is assumed to be the cost of replacement. Surface restoration to repair spalling is typically only recommended for chutes and the headwalls of large facilities.

Deficiency: Cracking
Rehabilitation: Crack Sealer (FT)
The average width of cracking is approximated as follows: 1/8", 1/4", 1/2", and 1". The cost of crack sealer includes preparatory work to clean the concrete. An epoxy based crack sealer is assumed for small cracks, while concrete filler is used for larger cracks. If a crack is large enough, a portion of the structure may have separated from the rest of the structure. It is assumed that separated sections are rehabilitated by removing and replacing them with cast in place concrete.

Deficiency: Undermining
Rehabilitation: Grout Filler (CF)
Typically, compaction of earthen fill to repair undercutting of drops and chutes is impractical. Rehabilitation for this deficiency includes pumping grout beneath the structure to fill the voids. The extent of voids under structures is estimated in the field. Measurements to estimate an average depth of undermining can often be made through holes in the structure. Typically, some

extent of undermining is observed for chutes, and repair costs are estimated for this deficiency, as well as any deficiency that may be causing the undermining, such as cracking at the headwall or breakup of the upstream apron.

Deficiency: **Concrete Break-up**
Rehabilitation: Concrete Filler (CF) / CIP Concrete (CY)
For structures with crumbling or rotten concrete, field crews made the determination of whether the concrete could be repaired, or whether demolition and reconstruction of a portion of the structure is warranted. Concrete filler can be used to fill voids resulting from popouts, honeycombing, concrete break-up, major spalling, and large cracks.

Operational Deficiencies

Identification of operational deficiencies is dependent on input from ditch riders and other irrigation project personnel. Examples of operational issues encountered are non-functional gates, flow constrictions in the canal, and inadequate capacity. Many of these types of deficiencies cannot immediately be identified during the field investigations, and the input of project staff was heavily relied upon in identifying these deficiencies.

Other Miscellaneous Deficiencies

Deficiency: **No Check Guides**
Rehabilitation: Check Guide Replacement (FT)
HKM has assumed that all check openings should have guides to keep boards in place, provide a tighter seal, and promote ease of operation. Replacement check guides are assumed to be either C-channel cut to a length equal to the notch height and, preferably, installed within the check notch or, alternatively, by bolting angle-iron to the upstream face of the structure. Installation within the check notch provides a good seal, and allows for ease of operation.

Deficiency: **Corrosion**
Rehabilitation: Corrosion Inhibitor (SF)
Corrosion is typical of trash racks, check guides, and many gates. Rehabilitation costs are only estimated for large gates with excessive corrosion.

Deficiency: **Flow Obstruction**
Rehabilitation: Structure Removal (EACH)
The rehabilitation cost for abandoned structures represents the cost of removing the particular type of structure. Structure removal is recommended if the abandon structure constitutes a flow obstruction or could result in leakage from the canal, such as abandoned checks or turnouts, respectively. There is no replacement cost for structures recommended for removal.

Deficiency: **Scour**
Rehabilitation: Riprap / Fill (CY)
Erosion is common at pipe outlets and downstream of check or drop structures. Fill of scour holes for pipe outlets is not estimated unless major scour is observed. Riprap armoring, however, is quantified for all scour holes. Scour below concrete check and drop structures may

result in undermining of the floor slab downstream, and consequent concrete failure. In addition to riprap, fill is quantified to rehabilitate scour below these types of structures.

Deficiency: Turnout Damage / No Flow Measurement Capability
Rehabilitation: Outlet Box (EACH) / Replacement
The major items that should be present at every turnout are a gate, inlet box, and an outlet box. If any one item is damaged or missing, a cost is added to reflect this. If any two of these items are missing or significantly damaged, the entire turnout is assumed to be replaced. The concrete outlet box allows for use of a flow meter, and is necessary for adequate flow measurement. The standard turnout size is an 18-inch headgate and pipe.

Deficiency: Damaged Gate
Rehabilitation: Gate Replacement / No Action
Damaged gates are treated on an all or nothing basis. Entire replacement is assumed unless only minor damage is present, which could be fixed with little effort. In these instances, no rehabilitation cost is included.

Deficiency Categories and Ratings

The deficiencies for each structure are ranked by selection of one of the following United States Department of the Interior categories. The definitions provided are the official DOI definitions. Categories are listed below from highest to lowest priority. All structures have a deficiency category ranking unless the rating is "none".

Critical Health and Safety Deferred Maintenance (CHSdm). A facility deferred maintenance need that poses a significant threat to public or employee safety or health.

Critical Health and Safety Capital Improvement (CHSci). A condition that poses a significant threat to public or employee safety or health and can only be reasonably abated by the construction of some capital improvement.

Critical Resource Protection Deferred Maintenance (CRPdm). A facility deferred maintenance need that poses a serious threat to natural or cultural resources.

Critical Resource Protection Capital Improvement (CRPci). A condition that poses a serious threat to natural or cultural resources.

Critical Mission Deferred Maintenance (CMDM). A facility deferred maintenance need that poses a serious threat to BIA's ability to carry out its assigned mission (Improving the management of land and natural resource assets by ensuring the reliability of water facilities).

Compliance and Other Deferred Maintenance (C&ODM). A facility deferred maintenance need that will improve public or employee safety, health, or accessibility; compliance with codes, standards, laws, complete unmet programmatic needs and mandated programs; protection of natural or cultural resources or to BIA's ability to carry out its assigned mission.

In those cases where several categories are applicable to a given structure, the highest priority category is selected. The difference between deferred maintenance and a capital improvement is based on whether or not the purpose associated with the deficiency has historically been provided by the structure, or if remediating the deficiency would require an additional feature. For example, replacing a handrail which is broken or missing would fall under deferred maintenance, while adding the required handrail to a structure where there has historically never been a handrail would be a capital improvement.

In addition to giving each structure a deficiency ranking category, they are also assigned a work severity rating of critical, serious or minor. The "none" rating should be used if there are no deficiencies, or if removal of the structure is recommended. The highest applicable rating should be selected. Definitions of the ratings are as follows:

Critical – A critical deficiency exists if any one of the following criteria is met:

- There is a threat to the health and/or safety of the user which may occur within two years.
- There is advanced deterioration which has resulted in the failure of the feature or will result in the failure of the feature if not corrected within two years.
- There is accelerated deterioration of adjacent or related materials as a result of the feature's deficiency.
- There is failure to meet a legislated requirement.

Serious – A serious deficiency exists if any one of the following criteria is met:

- A threat to the health and/or safety of the user may occur within 2 – 5 years if the deterioration is not corrected.
- There is deterioration which, if not corrected within 2 – 5 years, will result in the failure of the feature.
- There is deterioration of adjacent or related materials and/or system as a result of the feature's deficiency.

Minor – A Minor deficiency exists if any one of the following criteria is met:

- Standard preventative maintenance practices and conservation methods have not been followed.
- There is a reduced life expectancy of affected or related materials and/or systems.
- There is a condition with long-term impact beyond five years.

Structure Replacement

Final design, including detailed hydraulic and structural analysis, has not been completed for these budget level cost estimates. The assumed replacement structures are based on standard USBR or NRCS structures of similar size, where appropriate. Unique structures are assumed to be replaced "in-kind" with a structure identical to the existing structure, based on field sketches and dimensions. The standard structures selected as the basis for the assumed replacement structure will be discussed for each structure type. These structure types are part of the result of the BIA inventory. During the field evaluations, HKM found that the BIA was not always accurate or consistent in their assignment of structure types. Structure types have, therefore, been adjusted for use in the HKM structure reports to reflect the primary function of the structure.

Standard USBR and NRCS structure drawings have been included and are provided as Appendix B.

It should be noted that cost estimation for all pipe replacement is accomplished assuming Reinforced Concrete Pipe (RCP). This assumption provides a standard replacement cost, as well as a conservative result.

Check
Several types of check structures were encountered through the field evaluations. The cost of replacement is based on standard USBR and NRCS check structures. Several sizes of the USBR standard checks have been selected as shown in the following table, with the replacement structure chosen for any specific location based on the size of the existing structure as well as the canal capacity.

Standard Structure	Max Q (cfs)	Check Opening (ft)	Overall Structure Width
USBR Type 10-9	35	5	19'-9"
USBR Type 10-14	53	6	22'-3"
USBR Type 11-3	98	7	28'-7"
USBR Type 11-17	178	12	34'-4"
USBR Type 11-17 (modified)	NA	24	47'-4"

A lump sum unit cost was developed based on modifications to the standard USBR Type 11-17 to represent replacement of main canal check structures for which the standard Type 11-17 was not adequate. The standard 11-17 has only two bays; the modified 11-17 structure has four bays. As the USBR Type 11-17 (modified) structure was developed to more closely match the geometry and size of large existing canal facilities, the table shown does not list a Max Q.

Additionally, a standard NRCS check structure with a 4-ft by 4-ft notch was selected for checks on smaller canals and laterals.

Check/Cross
The majority of check/cross structures called out on the project are actually wooden headwalls with a canal gate on a CSP culvert crossing. Replacement structure costs have been estimated using a USBR standard check inlet for larger canals, and an NRCS standard pipe inlet for smaller canals. A pipe length of 20 ft has been assumed. Replacement of these structures in many cases could be accomplished using installation of a standard check structure, but installation of a similar structure has been assumed as some of these locations are used for field access. It is not always apparent whether this access is required or not.

Check/Drop
Assumed replacement structures for vertical drops on small laterals or sublaterals are based on typical NRCS Concrete Drops of either 2 or 4 ft. For structures on larger laterals, the assumed

replacement structure is an appropriately sized USBR structure. Some drops include inclined trapezoidal chutes. Replacement of these structures assumes installation of a similarly sized USBR Rectangular Inclined Drop. Several lump sum unit costs were developed to represent drops ranging from 3 to 15 ft, and canal flows up to about 100 cfs. In addition, the USBR Type 14-8 check was added out of a need to have a structure similar to the Type 11-3 check, but with a four foot drop behind the check.

Check/Drop/Cross
This standard GDSC structure type was only encountered three times on the Wind River Irrigation Project. In each case, the structure was called out as a Check/Drop/Cross but each had a unique configuration. Replacement was based on the most appropriate typical structure for the site.

Check/Waste
This standard GDSC structure type was encountered infrequently on the Wind River Irrigation Project. Replacement costs were typically developed on a replace-in-kind basis.

Chute
This standard GDSC structure type was encountered infrequently on the Wind River Irrigation Project. Replacement costs were typically developed on a replace-in-kind basis.

Diversion Dam
All diversion dams on the Wind River Irrigation Project were large unique structures requiring in-kind replacement assessment.

Drop
This standard GDSC structure type was represented by both vertical and inclined drops on the Wind River Irrigation Project. Replacement costs were developed to represent typical USBR and NRCS drop structures which are similar to the existing structure.

Flume
This structure type was infrequently encountered on the Wind River Irrigation Project. A large amount of these structures were out of the project scope. Replacement is typically based on a replace-in-kind basis.

Headgate
The cost of replacement for smaller headgates (24 inches or less) is estimated assuming installation of a precast concrete turnout structure including an inlet, an outlet, and connecting pipe. Replacement costs for larger headgates have been estimated assuming the structure will be replaced with a larger precast headgate structure (36") where appropriate, or, alternatively, replaced "in kind".

Headworks
This standard GDSC structure type was encountered infrequently on the Wind River Irrigation Project. Replacement costs were typically developed on a replace-in-kind basis.

Turnout
The cost of replacement for turnout structures is based on the precast concrete turnout, with a concrete inlet and outlet, in addition to 20 ft of pipe.

Siphon
Replacement of all siphons has been estimated assuming they will be replaced "in kind" with an identical siphon.

Weir
Several standard USBR weir replacement sizes are included in the unit cost table. This structure type was not encountered the Wind River Irrigation Project.

REHABILITATION PRIORITY RANKING

HKM has worked closely with the Department of Interior (DOI), and in particular, staff of BIA's Irrigation, Power, and Safety of Dams (IPSOD) program, to develop a priority ranking system for rehabilitation of irrigation structures. This system has been developed to allow ranking of structures based on several different criteria, such as: Current structure condition, importance of structure type, and the significance of structure to the irrigation project. The cumulative result of these criteria is termed the Remediation Priority Index (RPI). The RPI is based upon two additional indices, the Facilities Condition Index (FCI) and the Asset Priority Index (API).

The FCI, on a 0 – 1 scale, is the ratio of the Total Rehabilitation Cost to the Current Replacement Value. A high FCI corresponds to a larger degree of deterioration (the rehabilitation cost is a high percentage of the replacement cost).

The API, on a 1 – 100 scale, is composed of two separate parameters, weighted equally; the structure function and significance. The structure function ranks the structures based on importance by structure type. The second parameter, structure significance, ranks the structures by their significance to the irrigation project, as determined by the canal capacity. Canal capacities were determined by reviewing Project reports and files as well as through the account of project personnel. A complete list of canal flows is included in Appendix C. API rating criteria for the Wind River Irrigation Project are summarized as follows. API Significance ratings are established on to provide API distribution ratings over the full range from 1 to 50. A high API corresponds to a higher priority structure.

Example: The API ranking of a 250 cfs diversion dam would be 50 (Function) + 50 (Significance) = 100. The FCI, the ratio of the total cost of rehabilitation to the Current Replacement Value, for this structure has been estimated at 0.68. The resulting RPI is then 100 x 0.68 = 68.

A complete listing of the Remediation Priority Rankings is included in Appendix D.

Further details of the Remediation Priority Index (RPI) calculations, including the API and FCI are summarized as follows:

Asset Priority Index (API) Rating

API Function Rating

Rating	Function	Structure Types
50	Primary Diversion	Diversion Dams, Headworks
40	Conveyance	Siphon, Flume, Pump, Drop, Chute
30	Regulation / Fish Protection	Check, Wasteway, Fish Ladder, Fish Screen
20	Lateral Diversion / Flow Measurement	Headgate, Weir
10	Delivery	Turnout

API Significance Rating

Rating	Flow Range (cfs)	
	Minimum	Maximum
10	0	42
20	42	62
30	62	95
40	95	210
50	210	600

Calculation of Remediation Priority Index (RPI)

- Remediation Priority Index (RPI)
  - RPI = API x FCI unless;
  - Non-Project Structures: RPI = N.A.
- Facilities Condition Index (FCI)
  - Scale (0 - 1)
  - FCI = (Repair Cost)/(Replacement Cost), unless;
    - Repair Cost > Replacement Cost: FCI = 1
    - Structure Removal Recommended: FCI=0.01
    - Non- Project Structures: FCI = N.A.
    - Structure Replacement Recommended: FCI = 1
- Asset Priority Index (API)
  - Scale (1 – 100)
  - Based on two parameters weighted equally;
    - Significance: Rated by irrigated acres, as determined by canal capacity. (Scale of 1 – 50)
    - Function: Rated by importance of structure type. (Scale of 0 – 50)
      - Structure Removal Recommended: Function = 0
    - Non-Project Structures: API = N.A.

Key Structure Remediation and Replacement Totals

The final Project-wide totals for both Remediation Cost and Current Replacement Value of all key structures on the major canals and laterals are shown in Table 1.

Table 1 - Total Key Structures Remediation Cost and Current Replacement Value

Total Remediation Cost	Total Current ReplacementValue
$6,012,782	$15,407,647

LATERAL STRUCTURES COST EXTRAPOLATION

Rehabilitation cost estimates have been developed for the key Wind River Irrigation Project facilities associated with the selected canals and laterals. However, in order to develop a reasonable estimate of *Project-wide* remediation costs, a representative group of structures on the other laterals and sub-laterals has also been evaluated to represent the rehabilitation needs of these smaller structures throughout the project. HKM's field crews collected data for a representative sample of structures during the fall of 2007. Data collection, as well as determination of structure rehabilitation costs and Current Replacement Values for the smaller structures, was completed in the same manner as for the key Project facilities. The sample of structures was developed to represent lateral canals of various capacities and locations within the Wind River Irrigation Project. Additionally, the number of structures evaluated of a particular structure type is proportionate to the total number of structures of that type (i.e. the majority of lateral structures are turnout structures, as are the majority of structures within the sample). The total number of structures, broken down by structure type, was obtained from the database developed by the BIA through their recent irrigation system inventory.

Definitions for key terms associated with the extrapolation of cost estimates are provided at the end of this section.

ASSUMPTIONS USED IN EXTRAPOLATED COST ESTIMATES

For each structure type, the Average Rehabilitation Cost, Current Replacement Value, and Immediate Replacement Percentage have been calculated as defined previously. The assumptions used for structures in special instances are as follows:

Turnouts
The lack of flow measurement has been identified as a key deficiency of the project. During the field investigations, it was observed that many headgates were installed on wooden headwalls for turnouts and small headgates, but almost no outlet structures have been installed. A concrete outlet structure will facilitate flow measurement, and HKM has therefore assumed that all turnouts and small headgate structures will be either retrofitted to include installation of a concrete inlet and outlet box, or, if other deficiencies are present, completely replaced. Complete replacement is recommended if both boxes are missing, or if any two features out of the inlet box, outlet box, pipe, or headgate need replaced.

Check/Cross
No major deficiencies were observed of these particular structures. Rehabilitation costs for this structure type have been based on the rehabilitation cost of the similar Check/Cross structure, for which a larger sample of structures was evaluated.

Chute
The majority of the chutes on the project were too large to be replaced with a typical structure. Replacement is based on a replace-in-kind assumption.

Headgate

It was assumed that structures called out as headgates which are less than or equal to 18" are replaced with typical turnouts. The headgate replacement assumes a 36"canal gate with a concrete inlet box on a 36" diameter, 20' length of RCP. Structures called out as headgates which were greater than 18" were replaced with the typical headgate.

SUMMARY OF EXTRAPOLATION RESULTS

The total Extrapolated Remediation Cost and Current Replacement Value for the structures on the smaller laterals and sublateral ditches are in Table 2. Detailed cost information, broken down by structure type, can be found in Table 3 on the following page.

Table 2 - Total Extrapolation Remediation Cost and Current Replacement Value

Total Extrapolated Remediation Cost	Total Extrapolated Current Replacement Value
$18,004,118	$43,438,536

Table 3 - Estimated Remediation Cost for Lateral Structures

Structure Type	Total Structures	Total Visited On Key Ditches	Total Structures Extrapolation	Evaluated For Extrapolation	Average Rehabilitation Cost	Extrapolated Rehabilitation Cost	Average Current Replacement Value	Immediate Replacement Percentage	Extrapolated Immediate Replacement Cost	Extrapolated Remediation Cost	Extrapolated Current Replacement Value
Check	505	52	453	83	$893	$273,908	$9,383	32%	$1,371,160	$1,645,068	$4,250,596
Check/Cross	17	3	14	3	$1,036	$9,672	$13,258	33%	$61,872	$71,544	$185,615
Check/Drop	589	59	530	98	$2,182	$946,306	$15,231	19%	$1,497,942	$2,444,248	$8,072,244
Check/Drop/Cross	6	1	5	2	$0	$0	$41,314	100%	$206,570	$206,570	$206,570
Check/Waste	10	6	4	3	$1,339	$5,355	$8,005	0%	$0	$5,355	$32,019
Chute	31	15	16	5	$34,511	$441,744	$89,763	20%	$287,241	$728,985	$1,436,205
Drop	737	35	702	101	$1,123	$600,886	$23,530	24%	$3,925,034	$4,525,921	$16,517,853
Flume	78	13	65	8	$581	$37,773	$10,620	0%	$0	$37,773	$690,314
Headgate	402	12	390	83	$3,510	$999,634	$11,275	27%	$1,186,600	$2,186,233	$4,397,398
Siphon	25	12	13	3	$760	$6,585	$56,336	33%	$244,123	$250,708	$732,368
Spillway	7	5	2	2	$605	$605	$25,453	50%	$25,453	$26,058	$50,907
Turnout	1150	4	1146	159	$904	$176,054	$5,992	83%	$5,699,600	$5,875,654	$6,866,447
								Total Extrapolated Costs		$18,004,118	$43,438,538

Definition of Terms

Non-Wind River Irrigation Project - Structures:
Structures or facilities which do not fall under Wind River Irrigation Project jurisdiction or maintenance, (i.e. siphons at road or railroad crossings).

Associated Structures:
Items identified by GDSC as a unique structure which HKM Engineering has deemed to be part of a separate structure or facility.

Total Rehabilitation Cost (TRC):
The total rehabilitation cost for a specific structure or facility including the cost of all construction line items, as well as some or all of the following additional percentages: Dewatering, Unlisted Items, Contingencies, Engineering, and Mobilization.

Current Replacement Value (CRV):
The total replacement cost for a specific structure or facility including the cost of all construction line items, as well as some or all of the following additional percentages: Dewatering, Unlisted Items, Contingencies, Engineering, and Mobilization.

Average Rehabilitation Cost (RC_{avg}):
The sum of the Total Rehabilitation Costs of all the structures within a given type, divided by the total number of structures of the type, which are neither Non-Wind River Irrigation Project nor associated with a separate facility.

RC_{avg} = (Sum TRC) / (Total # Structures – Non-Wind River Irrigation Project - Associated)

Extrapolated Rehabilitation Cost (RC_E):
The extrapolated cost of rehabilitating all of the individual structures of a given type, calculated as follows: The product of the average rehabilitation cost, for a specific structure type, and the estimated total number of structures not in need of immediate replacement.

RC_E = RC_{avg} x (1-IR%) x (Total # Structures)

Average Current Replacement Value CRV_{avg}:
The sum of the Current Replacement Values of all the structures within the type, divided by the difference in the total number of structures of the type, which are neither Non-Wind River Irrigation Project nor associated with a separate facility, and the number of structures for which removal has been recommended.

CRV_{avg} = (Sum CRV) / (Total # Structures – Remove – Non-Wind River Irrigation Project - Associated)

Immediate Replacement Percentage (IR%):
The total number of structures identified for immediate replacement within the type, divided by the total number of structures of the type which are neither Non-Wind River Irrigation Project nor associated with a separate facility.

IR% = [(Total # Replace) / (Total # Structures – Non-Wind River Irrigation Project - Associated)] x 100%

Extrapolated Immediate Replacement Cost (IRC_E):
The extrapolated cost of remediating all of the structures of a given structure type identified for immediate replacement, calculated as follows: The product of the Average Current Replacement Value and the estimated total number structures of the type in need of immediate replacement.

IRC_E = CRV_{avg} x IR% x (Total # Structures)

Extrapolated Remediation Cost (RMC_E):
The total extrapolated cost of remediating all of the structures of a given type, calculated as follows: The sum of the Extrapolated Rehabilitation Cost and the Extrapolated Immediate Replacement Cost.

$RMC_E = RC_E + IRC_E$

Extrapolated Current Replacement Value (CRV_E):
The extrapolated replacement value of all of the structures of a given type, calculated as follows: The product of the Average Current Replacement Value and the Total Number of Structures.

CRV_E = CRV_{avg} x (Total # Structures)

CANAL EVALUATIONS

The HKM field crews, accompanied at times by Wind River Irrigation Project staff members, completed the condition evaluation in the fall of 2007. The main canals and laterals were evaluated for deficiencies such as seepage, bank instability, and flow capacity limitations. Additionally, surveys of representative canal cross-sections were completed.

During the canal portion of the investigation, Wind River Irrigation Project personnel were heavily relied upon to identify deficient areas, as well as to provide insight into obstacles or difficulties associated with the day-to-day operation of the canal system, facilities, and structures.

Where possible, the field crews drove each of the scoped canals and laterals from beginning to end, documenting deficiencies through field notes, photographs, and GPS coordinate locations. Field notes were made by hand during the day, and transcribed to a digital format each evening. Additionally, survey information and photos were downloaded each evening. Specific deficiencies that were documented include seepage, and bank instability. Seepage areas were identified primarily through the knowledge and historical accounts of the Wind River Irrigation Project staff, and also by observing differences in the density, color, and type of vegetation adjacent to the canal. In locations where deficiencies are present over a large area, GPS coordinates identifying the beginning and end of each impacted reach were recorded as waypoints in the navigational program.

Cross-section surveys were performed, where necessary, to more accurately quantify required remediation of problem areas. In general, these canal surveys were not tied to unique features or structures, but rather, were located in areas considered representative of the typical canal geometry. Canal cross-sections were surveyed using total station survey instruments. Orientation, with respect to true north, was determined at each survey by using a hand held GPS unit to measure the azimuth from the total station to the backsight point. Upon completion of each survey, quality control was performed by reoccupying the backsight point, comparing, and recording the differences in the circle, horizontal, and vertical measurements. The approximate coordinates of each cross-section location were recorded as waypoints using the navigational program.

CANAL SYSTEM REMEDIATION

Canal Cleaning/Reshaping

The cost to clean each of the key canals and laterals has been estimated. Cross-section surveys were performed as previously described. Survey data was downloaded and processed within AutoCAD to develop graphical cross-sections representative of canal geometry at various locations along the length of the canal. These cross-sections were used to estimate remediation quantities.

Additionally, canal cleaning/reshaping costs include removal of point bars from specifically identified locations within the canals.

Lack of adequate maintenance road access has been identified as a significant deficiency on the Wind River Irrigation Project. Therefore, the cost of resurfacing the operation and maintenance roads has been estimated assuming application of a 4 inch compacted gravel surface and a 12 ft minimum roadway width.

Livestock Damage Repair

Livestock damage was seen in portions of the project. General cleaning and reshaping is enough to correct the problems in these areas.

Seepage Area Remediation

HKM field crews identified areas of seepage during the field investigations. Seepage areas were identified primarily through the historical accounts of the Wind River Irrigation Project staff, but additionally by observing differences in the density, color, and type of vegetation adjacent to the canal. GPS coordinates identifying the beginning and end of seepage areas were recorded.

Several canal lining systems were evaluated for remediation of seepage area including: Concrete, buried geomembrane, and exposed geomembrane liners. Concrete liners are costly and require significant subgrade preparation. Buried geomembranes require mild side slopes of no more than approximately 2.5:1 (H:V) to keep the cover material from slumping into the canal. The side slopes for the Wind River Irrigation Project canals are typically between 1.5:1 to 3.0:1 (H:V). Flattening the slopes is not practical in many cases due to adjacent side-hills or slopes. Exposed geomembrane liners were selected for remediation of seepage areas as cattle impacts were not determined to be significant enough to warrant the cost of concrete lining.

Remediation efforts for identified seepage areas include placement of exposed geomembrane lining. Canal cleaning and subgrade preparation is required for removal of organic material from the canal banks prior to liner placement and to provide a suitable foundation. The estimated cost for the exposed geomembrane lining includes the installed cost of the liner as well as site preparation. Site preparation includes excavation, backfill, and soil compaction.

These descriptions are intended to provide an understanding of the basis for the budget level cost estimate associated with lining of seepage areas, and is not intended to be a guideline for construction. All exposed geomembrane lining should be designed to site-specific canal geometry and characteristics.

Repair/Replacement of Existing Canal Liners

HKM field crews did not identify any existing canal liners on the evaluated canals and laterals of the Wind River Irrigation Project during the field evaluation.

Bank Instability

One instance of bank instability was encountered by the field teams during the evaluation. In general, bed-slope instability characterized by head-cutting is assumed to be remediated by reconstruction of the ditch to the appropriate grade as well as through canal lining. Side-slope instability due to seepage is assumed to be remediated through ditch lining, assuming placement of concrete lining. In this case, it was determined that the instability had happened quite some time ago, and the system is currently stable. No action is needed.

Canal Capacity Constraints

Typically, overtopping locations are assumed to be remediated by raising the height of the embankment; however, no capacity issues were identified on the project.

SUMMARY OF CANAL REMEDIATION COSTS

The cost of canal remediation is summarized in Table 4.

Table 4 - Canal Remediation Costs

Cleaning/Reshaping	$5,306,115
Seepage Area Lining	$5,488,785
Total Canal Remediation	$10,794,900

SUMMARY OF ESTIMATED COSTS FOR NEEDED REMEDIATION

A summary of the estimated costs for remediating the identified deficiencies of the Wind River Irrigation Project irrigation system infrastructure is provided in Table 5. Additionally, the total current replacement value of all Project structures and canal repairs is provided as well.

Table 5 - Summary of Remediation and Replacement Costs

Description	Remediation	Replacement
Structures		
Structure Rehabilitation for Key Canals and Laterals	$6,012,782	$15,407,647
Structure Rehabilitation for Remaining Laterals	$18,004,118	$43,438,536
Subtotal	$24,016,900	$58,846,184
Canals		
Cleaning/Reshaping	$5,306,115	$5,306,115
Seepage Area Lining	$5,488,785	$5,488,785
Subtotal	$10,794,900	$10,794,900
Grand Total	**$34,811,800**	**$69,641,084**

PREPARED STATEMENT OF OWEN GOGGLES, NORTHERN ARAPAHO TRIBAL MEMBER AND HONORED VIETNAM VETERAN

As a landowner and shareholder, I am very upset and unsatisfied. I was unaware that there are three (3) administrators and during the meeting that was conducted at CWC, the three (3) administrators had no future plan. At this time, we, I do not receive any information from the BIA here on the Wind River Reservation. When the few of us do attempt to obtain any information as a person, tribal member, individual, etc. we are continually given the run around. Why do I have to pay more into irrigation for no kind of water use? As it is we are already paying enough sovereignty tax into the state. Not to mention our land lease is unaffordable for the native use. I had stated to personnel about my Vietnam experiences with the value of clean, clear water. We Native Americans have hardly any say with our water. The people's voice should be heard. We could have the wrong people speaking for the Arapahos and Shoshones. As a Vietnam Veteran, I've seen many young men die. Their voices will never be heard. Some of the Little Wind River has contamination from uranium and maybe radiation. I live approximately 100 yards from this contamination. The Big Wind River becomes a trickle during the summer months. I understand that a non-native diverted the flow of water from his personal property years ago. The river water could be run off from used irrigation water and human waste. Again these are just of few of my comments and concerns regarding the water and irrigation problems.

I thank you for your time to read this,

PREPARED STATEMENT OF EDWARD LEONARDI, PRESIDENT, DOUBLE L RANCH, INC.

I do believe our water system is in major despair and needs attention as a result of mismanagement of water allocations and repair to the entire system.

The major issue, in my opinion, is the need for Washakie Reservoir and Ray Lake to be drawn upon and emptied at the same time, as Ray Lake has no drainage. The Washakie Reservoir services the majority of water users and Ray Lake services only a few at Arapahoe (sub-agency). Presently, management drains Washakie Reservoir and continues to allow Ray Lake users to irrigate for three to four weeks longer than the Washakie Reservoir users. Basically, when Washakie Reservoir is emptied the Ray Canal is out of water and yet Ray Lake is still full. I think this is a highly unfair distribution of water.

I believe in fairness to all users of Washakie Reservoir and Ray Lake water should be drawn on at the same time with Arapahoe (sub-agency) users not having water for a longer irrigating season than the upper water users of the Washakie Reservoir. We all pay the same water fees. It is unfair for only a select few to benefit from Ray Lake for an extended irrigation season; management needs to draw on Ray Lake and Washakie Reservoir at the same time so all users have water usage for the same time. Our system needs to treat all users fairly.

Thank you for your interest in our irrigation system and the need to repair our system and alleviate mismanagement.

PREPARED STATEMENT OF BRETT, EDNA, LORI, AND RUSSELL WEBER

Edna Weber

Honorable Senator John Barrasso,

I am a non-native landowner on the Sub-Agency Canal of the Wind River Irrigation Project. I am opposed to the BIA turning over control of the irrigation project to the tribes for the following reasons:

1. I am a tax-paying citizen of the United States of America and purchased my property at a time when it was definitely a portion of the United States. Over the past 60 years I have watched the U.S. government turn more authority over to the tribes and try to back away from jurisdictional issues on the reservation. I feel like my government is moving away from me. If it decides to leave the area and relinquish authority to a different sovereign nation, I would hope that it would compensate me for the damage that such a change will cause.

2. If control of the irrigation system is turned over to the tribes, taxation issues will soon follow. The tribes want to tax entities on the reservation which will mean that there will be taxation without representation for those of us who are non-native.

3. Since I am not a native, I would have no unbiased recourse in any potential disputes over irrigation issues. If an enrolled member steals my irrigation water, who would I be able to turn to for help? There would be a lack of justice if the tribes were in control since many of the native users have relatives in authority positions in the tribe.

4. In order for an irrigation system to be effective it is imperative that the delivery be exact and timely. Over the years, the tribal councils have struggled to hold business meetings for lack of a quorum. I don't want that type of administration overseeing my livelihood.

Please do not turn over control of the system to the tribes unless the federal government would be able to buy us out.

Lori Weber

Honorable Senator John Barrasso,

I trust you have received ample testimony on the state of disrepair of the Wind River Irrigation Project. However, a very pertinent issue has not been addressed: Would the inhabitants of the project be better served by using some of the estimated 90 million dollars in renovation expenditures to retire some of the irrigation project and divert funding to other investment opportunities?

The federal government made 3 errors approximately 100 years ago when it developed the Wind River Irrigation Project:

1. 100 years ago the federal government assumed that the native people *wanted* to become farmers and ranchers. If a survey were taken given the Native Americans a choice of developing agriculture or developing other industry, they would probably choose other industry. Over the 100 year history of the irrigation project, the vast majority of users of the system have been non-native farmers and ranchers. Very few natives have become irrigators themselves; most rent their land to the non-native users.

2. 100 years ago the federal government apparently thought it would be a good idea to develop this area for farming. Over the past 100 years it has proven to be an incredible challenge. If a study were conducted today to determine whether to develop this region for farming, it probably would not be advised. This region is very arid and the lower portion of the project often gets by-passed by the rare moisture-producing storms that come this way. Furthermore, it routinely has late spring killing frosts (often as late as June) and very early fall killing frosts (often by the end of August). Therefore the region has an incredibly short growing season. The conditions are compounded by the fact that the region routinely has extremely high winds which are not conducive to good cropping or harvesting conditions. Finally, since there is not a lot of natural vegetation in the area due to the above circumstances, the crops that are raised are very susceptible to predators, whether wildlife or insects.

3. 100 years ago the federal government gave out water rights twice: once to the tribes and once to the homesteaders. This led to the costly and lengthy Big Horn Water Rights Adjudication that still has ramifications today. The tribes want to administer their portion of the water rights, but the non-native landowners do not want to be subject to a sovereign nation that they are not a part of.

There is a tremendous opportunity to remedy all of the above conditions. For the rest of this letter I will refer to a plan called the:

"RETURN TO NATIVE INITIATIVE".

The federal government would assist the tribes in developing other industry instead of renovating the irrigation project. It could be tried by concentrating on redeveloping the eastern portion of the project from approximately the 17-Mile bridge to the east. The riparian habitat along the Little Wind River is astonishingly beautiful and could be returned to its native condition and used as a wildlife preserve and as a destination for tourists. Furthermore, the existing fee lands in the area could be purchased and converted to a Jerky Manufacturing facility for a value-added option for the tribe's beef and buffalo. The jerky produced could be sold in the tribe's casinos. Here is a proposal for how it would work:

1. The U.S. & tribes would buy out or trade land with the Native Americans who reside in the area, giving the current occupants of any existing residences a life-tenancy in the homes. That way they would not be adversely affected by having the non-native farmers stop renting their land because they would either trade for land in other areas, or they could buy fee land elsewhere. Either way, they would still have property and would not have to move.

2. The U.S. & tribes would buy out the fee land in the region, paying the equivalent of replacement property on the Midvale Irrigation system. The predominantly non-native fee owners could relocate to an irrigation system that is more conducive to crop production.

3. The U.S. & tribes would remove all barb-wire fences that cross the Little Wind River and establish a KOA-style campground and rafting company at one of the riverfront properties such as the Lucas residence at the western end of Little Wind River Bottom Road. Then the tribes could charter rafting trips for Wildlife Rafting Tours. The native wildlife that exists in that area include bald eagles, sand hill crane, Canadian geese, pelicans, deer, bobcat, coyote, fox, raccoons, beaver, skunk, porcupines, mountain lions, and occasional black bear and moose, among others.

4. The U.S. & tribes would convert the nearby Givens ranch with its picturesque log cabin & barn into a dude ranch. Tourists could rent lodging in a traditional Native American Teepee and go on horseback riding tours along the unfenced Little Wind River.

5. The U.S. & tribes would build a slaughter-house and convert Weber's feedlot into a facility to retain ownership of the Arapahoe Ranch calves in the fall and feed them through the winter. Then they would be butchered and sold to the casino restaurants and to the general public. The meat could also be contracted as part of the commodity program.

6. The U.S. & tribes would build a jerky manufacturing plant on the property owned by Brad Bath. Mr. Bath has several large buildings that might be possible sites to convert into a jerky processing facility. The facility could use Arapahoe Ranch beef and sell the "Native Jerky" to gift shops in the casino's and the tribal convenience stores.

7. All cross fences between the Little Wind River Bottom Road and the 17-Mile Road could be taken out. The water-thirsty crops could be replaced with water-conserving native species of grass and the entire area could be converted into native pasture. The area is large and would be conducive to re-establishing large roaming herds of buffalo which would be established in the area in order to enhance tourism and would go hand in hand with the jerky factory.

8. If the high water use demand for introduced crop species is replaced with water conserving native species, the water conserved could either be used to irrigate more effectively up the canal, or it could be diverted to in-stream flow in an attempt to refurbish the native fish and mussel populations.

I believe the tribes could solicit financial support from several wild-life groups to help them and the federal government to develop this plan. In essence, the "Return to Native" plan would return the region to native sun-scorched, wind-swept, wild plains and it would return the region to the native peoples who first inhabited the area while giving them other more viable industry for economic development.

Finally, the overall costs for the "Return to Native" plan would probably be considerable less than renovating the decrepit irrigation system. It would take seed money to convert one section of the system, but after that, if it is successful, funds from the new industry could be used to retire or renovate other sections of the system.

Thank you for your consideration of this Return to Native Initiative.

Russell Weber & Brett Weber

Honorable Senator John Barraso,

We are probably the single largest irrigators on the Wind River Irrigation Project with no voice or representation.

We are opposed to tribal control of the system.

PREPARED STATEMENT OF TOM NORWOOD

Honorable Senator John Barrasso,

I have owned property on 17 Mile Road for almost 19 years. I am a non-Indian resident that was born and raised in Riverton, WY. I have lived in Wyoming all of my life of 50 years. I oppose the idea of the BIA turning over control of the Irrigation project for many reasons:

Over the years I have used the Irrigation system I have experienced many difficulties in the way the system is operated. I believe that if the tribes were to take over control of the system these difficulties will be compounded.

We have experienced various levels of threats to require us to obtain permits that are imposed on Native Americans such as burning permits. I believe taxation will follow if the tribes were to take over this project. I have deeded property in the midst of the reservation and I believe we will end up with taxation without representation. I would say we already have a certain level of that right now. The County Sheriff is hesitant to respond here because we are on the reservation and the BIA doesn't like to respond because we are non-natives.

We pay more in fees each year and do not receive any more service for it. There are so few repairs being done that it is all just reactive to major problems and many of the small problems just remain untouched.

I would like to be able to comment on some history. I have experienced lack of response to major crisis situations that resulted in washing out of a major diversion structure that is located on my property. I called the BIA multiple times during the flood that was happening over a matter of about 4 days and there was no response. I warned them that they were going to wash out the entire structure if they did not come down and open up the head gates. To no avail, the structure washed out and now I am plagued with them damming up Mill creek with large boulders to "check" the water level up so that it can feed the ditch 14 B. I have lost many feet of property into the creek due to this manor of damming the creek to such a level that the banks keep falling in.

We have major problems with the drain ditch that runs through my property, (Hanson drain I believe) for years we have struggled with it having collapsed culverts and plugging up causing major flooding issues and property damage. The BIA has claimed in the past that it was not their problem but I disagree with that. The drain is basically the return system for the irrigation project and it requires upkeep as well as the rest of the system.

At previous water meetings we were told about $7 million dollars in funds that were secured for the project but instead of getting to work using that money to repair the system the BIA told the State officials that they needed to do some more studies to decide where they were going to devote the money to. They have been doing studies such as these for the past 10 – 15 years at least. The water users at the meeting right then could identify enough projects that really needed work to get started on. I wonder if you can tell me what has ever happened to that 7 million dollars? I sure think that it would be more obvious if it were being used towards the project. If I had to guess I would think the structure that washed out on my property was a 500 thousand dollar project. It could still be functional today if the BIA had only responded to our request for them to come and open it up.

I ask that you do not turn over control of the system to the tribes. I believe we would have less input and less control of our own property needs if this were to happen. The way it is now the non-native population does not really have much to speak of for representation.

PREPARED STATEMENT OF RAY PARKHURST

Hon. John Barrasso,

Thank you for looking into the problems of this irrigation project.

There is no question that this project is in need of repair. If not repaired, portions will not receive water in the near future. In fact, I understand there are fields that do not receive water at this time.

I don't think an irrigation project can pay the wages of the federal scale. Certainly federal employees are not worth any more than private employees! And it seems like the federal government can not operate anything efficiently!

There are many problems but I think that they come from one main problem, which is lack of ownership pride.

This reservation needs to be ended and the ownership sorted out so the people own the land and then bring the project up to standard and turn it over to the water users.

You can continue to keep the Indians in bondage as wards of the government or set them free to be productive citizens.

Thank you,