

FINAL TECHNICAL REPORT

RECOVERY ACT: INSTALLATION OF A LOW FLOW UNIT AT THE ABIQUIU HYDROELECTRIC FACILITY

**INCORPORATED COUNTY OF LOS ALAMOS
NEW MEXICO**

Prepared for the

United States Department of Energy (DOE)

Office of Energy Efficiency and Renewable Energy (EERE)

Wind & Water Power Program (WWPP)

Award No. DE-EE0002673

17 May 2012

{Unlimited Distribution Rights}

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APPENDIX - PROJECT CLOSE OUT FORMS

❖ Patent Certification

❖ Property Certification

❖ Final Federal Financial Report SF - 425

Final Technical Report

COVER PAGE

Federal Agency to which Report is submitted: DOE - EERE - Wind & Water Power Program

Recipient: Incorporated County of Los Alamos, New Mexico DUNS: 069423424

Award Number: DE-EE0002673

Project Title: Installation of a Low Flow Unit at the Abiquiu Hydroelectric Facility

Project Period: November 1, 2009 through March 31, 2012

Principle Investigator: James Alarid, Deputy Utilities Manager - Engineering
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Report Submitted by: Jack Richardson, Senior Engineer
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Date of Report: 28 June 2012

Covering Period: 01 November 2009 through 31 March 2012

Report Frequency: Final Report

Consortium/Team Members:

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Cost-Sharing Partners: US Department of Energy & Incorporated County of Los Alamos

DOE Project Team: DOE HQ Program Manager – Jose Zayas
DOE Field Contract Officer – Pamela Brodie
DOE Field Grants Management Specialist – Jane Sanders
DOE Field Project Officer – Matthew A. Hess
DOE/CNJV Project Monitor – Erik Mauer
DOE HQ Technology Lead - Rajesh Dham
DOE HQ Team Lead - Mike Reed

Signature of Submitting Official:

(electronic signature is acceptable)



Jack Q. Richardson, PE

Senior Engineer, Abiquiu LFTG Project Manager

EXECUTIVE SUMMARY

The objective of this project was to construct a powerhouse addition to the existing Abiquiu hydroelectric facility (FERC No. 7396) and to increase the power generated at this facility with the addition of a low flow turbine-generator. This straight forward and shovel-ready project was successfully completed on time and within the planned budget; including commissioning of the low flow turbine-generator for commercial operation. This project was funded in part by the American Recovery and Reinvestment Act (Recovery Act) through the Department of Energy (DOE) Office of Energy, Efficiency and Renewable Energy (EERE) Wind and Water Power Program (WWPP). All program and project goals and objectives have been met or exceeded.

The existing hydroelectric power plant located in Abiquiu, New Mexico, was placed into commercial operation in 1990. The original Abiquiu plant's total power generation capacity was 13.8 MW (Mega Watts) through two identical 6.9 MW Francis turbine-generators. With the addition of the new 3.1 MW low flow turbine-generator the total plant power generation capacity is now increased over 22% to 16.9 MW. For the first year of operation that included the new low flow turbine-generator the Abiquiu plant power generation, during the traditional low flow period of November through February, increased from 355 MW-hours to 6,274 MW-hours. This 1,700% increase, and the 22% increase in total plant capacity, both far exceeded the 5% increase goal stated in the DOE Funding Opportunity Announcement DE-FOA-0000120.

The pre-project flow range of the existing Abiquiu power plant was between 250 and 1,300 cfs. Adding the low flow turbine-generator, with an effective flow range between 75 and 250 cfs, increased the total flow range from which the Abiquiu plant is able to capture energy 40%. The Abiquiu plant total energy capture flow range is now from 75 to 1,550 cfs.

Overall Abiquiu plant efficiency is improved with the addition of the low flow turbine-generator. The water to power efficiency of the low flow turbine-generator is 35% better than the larger existing turbine-generators at 250 cfs. Plant efficiency is also increased due to the flexibility to mix and match flows through one, two or all three of the turbine-generators to generate power at each turbine-generators' most efficient point of operation.

Fifty FTE (Full Time Equivalent) in-the-field construction jobs were created during the course of this project with support for numerous other jobs in engineering design, construction inspection, materials testing, manufacturing and administration. In addition, local businesses benefited from this project through the increased presence of project personnel in the area over the 24 month construction period; particularly Bode's General Store, The Abiquiu Inn & Restaurant and Trujillo's Market. Rio Arriba County was the recipient of 100% of the New Mexico Gross Receipts Tax generated by this project.

The Rio Chama environment benefits from this project by the addition of new equipment to add dissolved oxygen to the water leaving the power plant during the low flow period. Before this project, during the low flow period, water bypassed the power plant. Now low river flows are run through the new power plant low flow turbine -generator and, if low dissolved oxygen is

detected, the power plant equipment can be activated to add dissolved oxygen to the river thereby improving the aquatic environment downstream of Abiquiu Dam.

This project significantly increased operational flexibility, power generation and power generation efficiency at the existing Abiquiu plant, improved the downstream aquatic environment, created and helped preserve jobs, provided increased revenues to a rural New Mexico County and moved Los Alamos County, and America, closer to the goal of total sustainable energy production and use.

GOALS, OBJECTIVES AND ACCOMPLISHMENTS

This section is separated into three parts: Technical, Administrative and Special Accomplishments. Where possible; actual project results are compared to proposed estimated goals. Any technical or administrative barriers that needed to be overcome to complete this project were done so in large part due to the constant communication and assistance rendered between all parties throughout the course of the project.

TECHNICAL GOALS, OBJECTIVES AND ACCOMPLISHMENTS

The peak power generation capacity of the installed low flow turbine-generator, under performance testing conditions, was found to be 3.15 MW. This exceeded the original goal of 3.0 MW. The addition of 3.1 MW (name plate) capacity to the existing 13.8 MW capacity creates a more than 22% increase to a total 16.9 MW generating capacity at the Abiquiu hydroelectric plant.

Prior to this project, during the traditional low flow period of November through February of the previous 12 months, power generated at the Abiquiu plant was 355 MW-hours. The power generated during the traditional low flow period, for the first 12 months of operation after the low flow turbine-generator start up, was 6,274 MW-hours equaling a total plant power generation increase of 1,700%. The 22% increase in total plant capacity and the 1,700% increase in low flow period power generation both far exceeded the 5% increase goal stated in the DOE Funding Opportunity Announcement DE-FOA-0000120.

The 19,792 MW-hours of power generated exclusively by the low flow turbine-generator recorded during the first 12 months of operation far exceeded the estimate of 6,468 MW-hours. This was due, to a great extent, to the flow conditions of the Chama River over the past year. Because of the varying nature of river flows (weather related runoff, irrigation demands, San Juan-Chama Project water calls, etc.) this variance in power generated by the low flow turbine-generator will not be consistent from year to year. However, as additional flows of river water are added during the traditional low flow period because more downstream entities are starting to utilize more San Juan-Chama Water as base flow water supplies, and because of the Memorandum of Understanding between the US Army Corps of Engineers and Los Alamos County that provides for river flow releases compatible with power generation whenever possible, the power generated by this low flow turbine-generator is anticipated to far exceed the power generation estimates proposed in the project application.

The performance test results for the new low flow turbine-generator indicate the equipment performance (flow range, power generation, efficiency, etc.) all hit the expected marks for each category. The turbine-generator can be run at flows lower than the originally anticipated 75 cfs (down to 50 cfs); however, at those lower flows the turbine-generator efficiency drops off from 60% to 33%.

Each larger Abiquiu turbine-generator is limited to flows within a range of 250 to 650 cfs. The low flow turbine-generator generates power within an effective flow range of 75 to 250 cfs thereby expanding the Abiquiu plant's total flow range to between 75 and 1,550 cfs. The water to power efficiency of the low flow turbine-generator is 35% better than the larger existing turbine-generators at 250 cfs flows. The addition of the low flow turbine-generator allows for improved plant efficiency through more efficient equipment at low flows plus the flexibility to mix and match flows through one, two or all three of the turbine-generators to generate power at each turbine-generators' most efficient point of operation.

The original schedule deadline for start of commercial operation was met with 5 days to spare. Commercial operation of the low flow turbine-generator began 15.5 months after the signing of the Assistance Agreement for Award No. DE-EE0002673 which exceeds the preferred goal of substantial project completion within 24 months of project approval stated in the DOE Funding Opportunity Announcement DE-FOA-0000120. Ultimately a project time extension was requested to accommodate the manufacture and delivery of a new main plant transformer that was determined necessary due to the satisfactory outcome of the power generation figures of the newly installed low flow turbine-generator equipment.

All environmental permitting and protection measures were successfully completed. All plant outages and in-the-river work occurred during a single low flow period with the advice, consent and approval of the US Army Corps of Engineers and the New Mexico Fish and Game Department. Fish capture and release was completed before final dewatering in the immediate vicinity of the power plant during the initial construction of the new coffer dam and power house structure.

All electrical, mechanical and control connections between the existing power house building and the new building were completed successfully. The new expanded power plant is running efficiently as a unified plant with all three turbine-generators operating together when flows allow. All equipment start-up and testing went according to plan.

One of the technical challenges that had to be overcome was the requirement to complete all in-the-river work for construction of the permanent coffer dam during the low flow periods; which occur during the very cold and snowy winter months. The temperature never rose above freezing for the 90 days of coffer dam construction. The initial concept of entering the river twice during consecutive year low flow periods to install and then remove a temporary coffer dam was revised when the design-build team (RMCI and AECOM) developed the idea of incorporating the permanent coffer dam into the powerhouse structure itself. This allowed for a single instance of in-the-river work and dewatering of the river thereby limiting environmental impacts to the

maximum extent possible. An added benefit in meeting this aggressive construction schedule was that no Abiquiu plant sustainable energy production time (or revenue) was lost.

A second technical challenge that had to be overcome was the timeline required to finish final design and permitting in order to meet the first year's low flow period and sustain the aggressive project schedule. Final design and permitting through FERC, from a starting point of 60% design, was accomplished within 90 days.

The existing larger turbine-generators are vertical flow Francis turbines. The existing penstock piping that was available for the new low flow turbine-generator was positioned such that a similar vertical flow turbine layout would be impractical. This challenge was met with the decision to utilize a horizontal flow Francis turbine which allowed for a smaller more cost effective draft tube and powerhouse structure.

ADMINISTRATIVE GOALS, OBJECTIVES AND ACCOMPLISHMENTS

The project, in its entirety, funded 50 construction job FTEs (Full Time Equivalents). The project was funded with a 50/50 percent cost share split between the Incorporated County of Los Alamos and the Department of Energy, through funding provided by the American Recovery and Reinvestment Act (Recovery Act). While the entire federalized project funded 50 job FTEs, the official Recovery Act job creation figure reported on FederalReporting.gov was 25 FTEs. All of the reported jobs were direct in-the-field construction related jobs. The project also required other jobs (engineering design, construction inspection, materials testing, manufacturing and administration) but these jobs were not credited either because they had been expended prior to receipt of the project grant or not directly incorporated into the single design-build construction contract and were thus not eligible to be included in the official job creating accounting for this project. The Los Alamos County application to DOE for this project proposed the creation of 20 construction jobs for 15 months and 11 engineering jobs for 3 months within New Mexico and 10 engineering jobs for 3 months outside New Mexico. The job creation portion of this project has exceeded expectations.

The project team (Engineers, Contractors, Sub-Contractors, County Staff, Agency Staff) cooperatively developed a full set of as-built drawings (full size, half size and digital pdf) and O&M Manuals (3 sets with 14 volumes in each set).

All project administration, agency reporting and regulatory compliance requirements were met. All Special Terms and Conditions from the Department of Energy Assistance Agreement were complied with: including; NEPA, Federal Reporting, Buy American Regulations, American Recovery and Reinvestment Act Provisions, Wage Rate Requirements, etc.

Local government, Rio Arriba County (the physical location of the project), benefitted by the project in that \$543,329.53 in New Mexico Gross Receipts Taxes was apportioned for Rio Arriba County as a result of NM GRT on the project's construction activities. This compares favorably to the original estimate of \$492,208.00. Rio Arriba County will further benefit from this project by an estimated \$90,000.00 per year in increased property taxes owing to the increased assessed

valuation of the Abiquiu Hydroelectric Facility because of the addition of the new powerhouse and low flow turbine-generator equipment.

Based on the project cost of \$9,116,688, which was the basis of the DOE 50% grant contribution in the amount of \$4,558,344, the project application proposed an estimated annual power generation total of 6,468 MW-hours with a corresponding levelized cost of energy of \$0.085 per KW-hour at then current market interest rates. After operating the new turbine-generator for a year with financing terms known and new minimum river flows established by the U.S. Corps of Engineers (USACE), the resulting project economics are more favorable than projected.

At the time the grant application was prepared, the project financing had not been finalized. The project realized significant financial benefit by only having to finance half of the project cost and at a secured interest rate of 3.0% which was considerably less than market rates.

Another benefit realized was the added generation from the 3.1 MW turbine-generator versus the 3.0 MW turbine-generator that was evaluated in the planning stages of the project.

While preparing the grant application the County presented a conservative analysis because no potential generation that could not be represented with certainty was included in the analysis. Minimum winter river releases in Abiquiu have increased to 75 cfs due to downstream municipalities releasing water from upstream reservoirs after developing river diversions and treatment works for domestic supply. This will result in a minimum average additional 1,520 MW-hours annually. Increased generation for running the new unit in combination with an existing unit when flows are too low to run the two large units at the same time was not included in the analysis due to the uncertainty in quantifying this value. After running the new turbine-generator for a year in series with the existing units this has begun to be quantified. After one year of operating the new turbine-generator and knowing recent river flow conditions and applying the same economic model with actual financing terms the total annual production is expected to be 8,840 MW-hours with a corresponding levelized cost of energy of \$0.035 per KW-hour. Current thinking is that a minimum of 5 years of data will be required before a true perspective on the total plant power generated annual averages comparison is possible.

The final cost of all project components directly related to the new turbine-generator was \$8,458,841.30; including NM GRT. An additional \$771,154.98 was expended for project items not directly related to the installation of the new turbine-generator; in particular a new higher capacity main plant transformer and enhanced safety items. Total DOE funding was expended at the cap amount of \$4,558,344.00.

One administrative challenge was the extensive reporting required for Recovery Act funding compliance as well as for FERC, US ACE and other agency reporting requirements. This challenge was significantly less difficult than anticipated due to the tremendous level of cooperation and assistance received from all of the agencies and agency affiliated staff. Very close and daily coordination and cooperation between the Abiquiu plant staff and the design-build team enabled the contractor to complete the project with no down time of the existing Abiquiu plant, no disruption of power generation and no lost revenue.

SPECIAL ACCOMPLISHMENT

This project provided the opportunity for the Incorporated County of Los Alamos and the US Army Corps of Engineers to develop a first in the Nation Memorandum of Understanding regarding the operation of the Abiquiu Dam and Reservoir Project. Per the Energy Policy Act of 2005, all of the power generated by the low flow turbine-generator qualifies for Renewable Energy Credits (RECs). A REC is quantified as 1 MW-hour of power generated. Furthermore, 80% of the power generated from the new unit qualifies for double RECs since the power is generated on federal property and consumed on federal property by our largest customer; Los Alamos National Laboratory. Los Alamos County has agreed to transfer RECs from the Abiquiu hydroelectric plant to the US Army Corps of Engineers' Abiquiu Facility in adequate quantity to meet Federal renewable energy regulations enabling the US Army Corps of Engineers' Abiquiu Facility to be 100% powered from a renewable energy source.

In exchange for the transfer of these RECs, the US Army Corps of Engineers has agreed to operate the Abiquiu Dam and Reservoir system, in coordination with Los Alamos County, to maximize power generation at the County's Abiquiu hydroelectric plant. This agreement is constrained by the understanding that the US Army Corps of Engineers' basic function of flood control (with the lesser function of recreation) is not to be compromised. However, within that constraint, the US Army Corps of Engineers will coordinate Rio Chama flows with Los Alamos County to maximize the power generation potential at the Abiquiu hydroelectric plant.

The major benefit of this agreement is that flow capture (and thus energy production) will be maximized at the Abiquiu plant with a resulting maximum carbon footprint offset. Additional benefits are that, during the first year of operation, both the US Army Corps of Engineers Abiquiu Dam Facility and the Los Alamos National Laboratory received adequate RECs to fulfill 100% of their renewable energy source requirements during the past year.

PROJECT ACTIVITY SUMMARY

The project approach used was a full partnership between all entities: Department of Energy (Funding Agency); Los Alamos County (Owner); RMCi (Contractor); AECOM (Engineer); Federal Energy Regulatory Commission (FERC - Plant licensing and project review and approval); US Army Corps of Engineers (Rio Chama flow regulation and Clean Water Act 404 Permitting); State of New Mexico (Fish and Game Department, Environment Department, Fire Marshall; Construction Inspection Bureau). The project was designed and constructed using the design-build methodology. The design-build approach allowed the tight design, permitting and construction schedule to be met. The success of the partnership was very evident at the project Opening Ceremony held on 21 April 2011 when all of the people involved with the project gathered to celebrate the start up of the new low flow turbine-generator equipment and the successful substantial completion of the project.

The success of the partnership was evident not only at the opening ceremony but it was evident on a daily basis throughout the project period. Because County staff is on site operating the

existing Abiquiu facility the owner was able to provide daily inspection, off-hours access to the plant and almost immediate answers to questions from the Contractor. The Engineer, Contractor and Owner staffs were in constant communication and responded to each other's questions and concerns as rapidly as possible. The monthly teleconference between the Owner and the Department of Energy staff was vital to keeping the project success assured. The monthly reporting between the Owner and the Federal Energy Regulatory Commission staff, and the field inspection visits of the FERC staff, also helped keep the project success assured.

The effort of all funding and regulatory agency staff (DOE, FERC, US ACE, etc) to provide assistance when required must be recognized as one of the most important reasons for the success of this project. Everyone made it a priority to respond to other parties' communications whether the communication was about construction, reporting, administration, financial accounting or any other aspect of the project. The Los Alamos County project staff offers sincere appreciation to all DOE and DOE affiliated staff for their constant assistance and support throughout the length of this multi-year project. Without that support, and the great cooperation of the design-build team of RMC Inc. and AECOM, the success of this project would not have been as swift or as complete.

Page 11 has a chart showing the first year's power generation figures for the Abiquiu power plant with the new low flow turbine-generator power generation figures separated out. This chart also shows the previous year's Abiquiu power plant generation figures.

Page 12 is a copy of a chart developed during the performance testing of the newly installed low flow turbine-generator. It shows the overall efficiency & generator output for various flows through the turbine-generator.

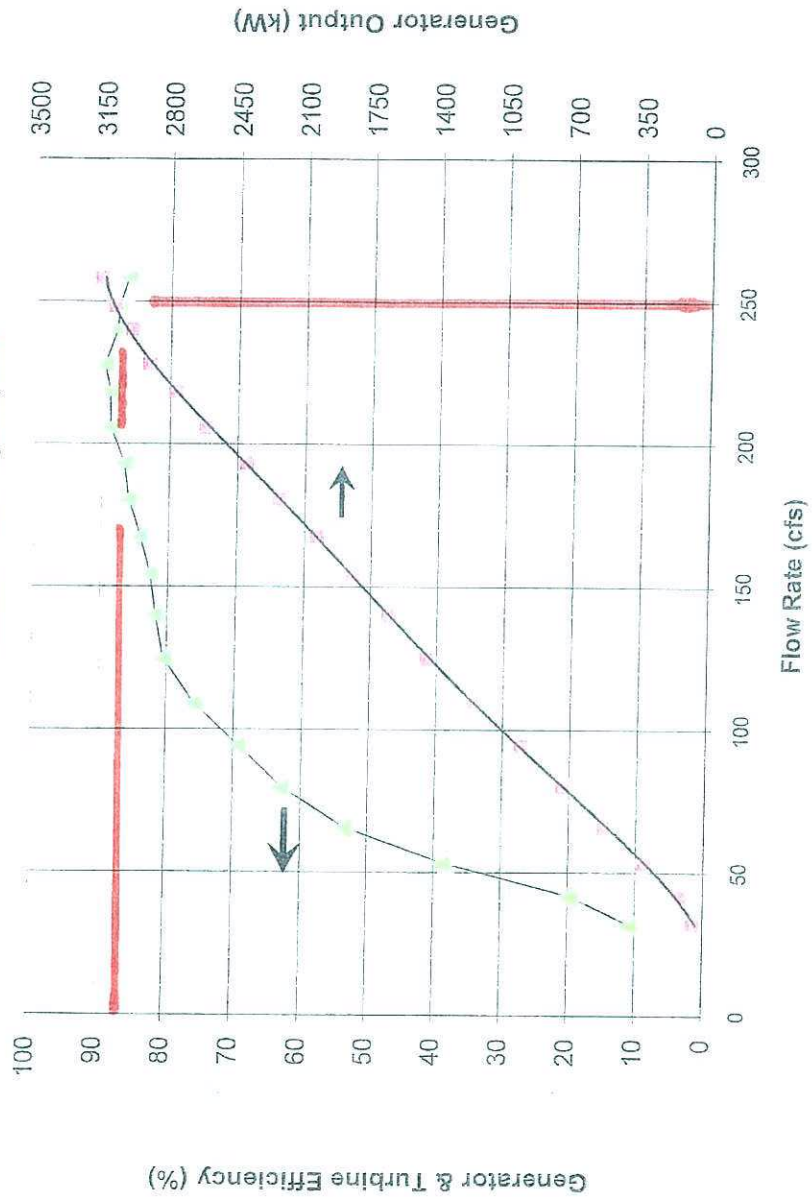
Page 13 is a copy of the turbine performance curves for the existing larger turbine-generators. A comparison of these two charts shows the increased efficiency of the new low flow turbine-generator at lower flows with the data point for 250 cfs highlighted in each chart.

{ Technical Note: the hydraulic head during the new turbine-generator performance testing was 172.05 feet as compared to the 175 feet of head curve used in the existing turbine-generator performance curve comparison. This small difference does not change the effectiveness or accuracy of the comparison between the new and existing turbine-generators. }

A few photographs documenting the project are included on pages 14 through 20.

Incorporated County of Los Alamos					
Abiquiu Total Plant Power Generation and LFTG Power Generation					
5/4/2012					
Abiquiu Month	MW-hours			Abiquiu LFTG Flows	MW-hours
May-10	8980				
Jun-10	4641				
Jul-10	5992				
Aug-10	4894				
Sep-10	5695				
Oct-10	2591				
Nov-10	23				
Dec-10	0				
Jan-11	0				
Feb-11	332				
Mar-11	1097				
Apr-11	5286				
Total	39,531.00				
May-11	6271			May-11	1326
Jun-11	6946			Jun-11	2024
Jul-11	5301			Jul-11	2012
Aug-11	4746			Aug-11	2117
Sep-11	2697			Sep-11	2071
Oct-11	1127			Oct-11	1136
Nov-11	1909			Nov-11	1593
Dec-11	2363			Dec-11	2158
Jan-12	951			Jan-12	887
Feb-12	1051			Feb-12	1048
Mar-12	1726			Mar-12	1739
Apr-12	4183			Apr-12	1681
Total	33,000.00			Total	19,792.00

Flow vs Overall Efficiency & Generator Output
Abiquiu Hydroelectric Plant - Unit 3
EFFICIENCY TEST April 5, 2011



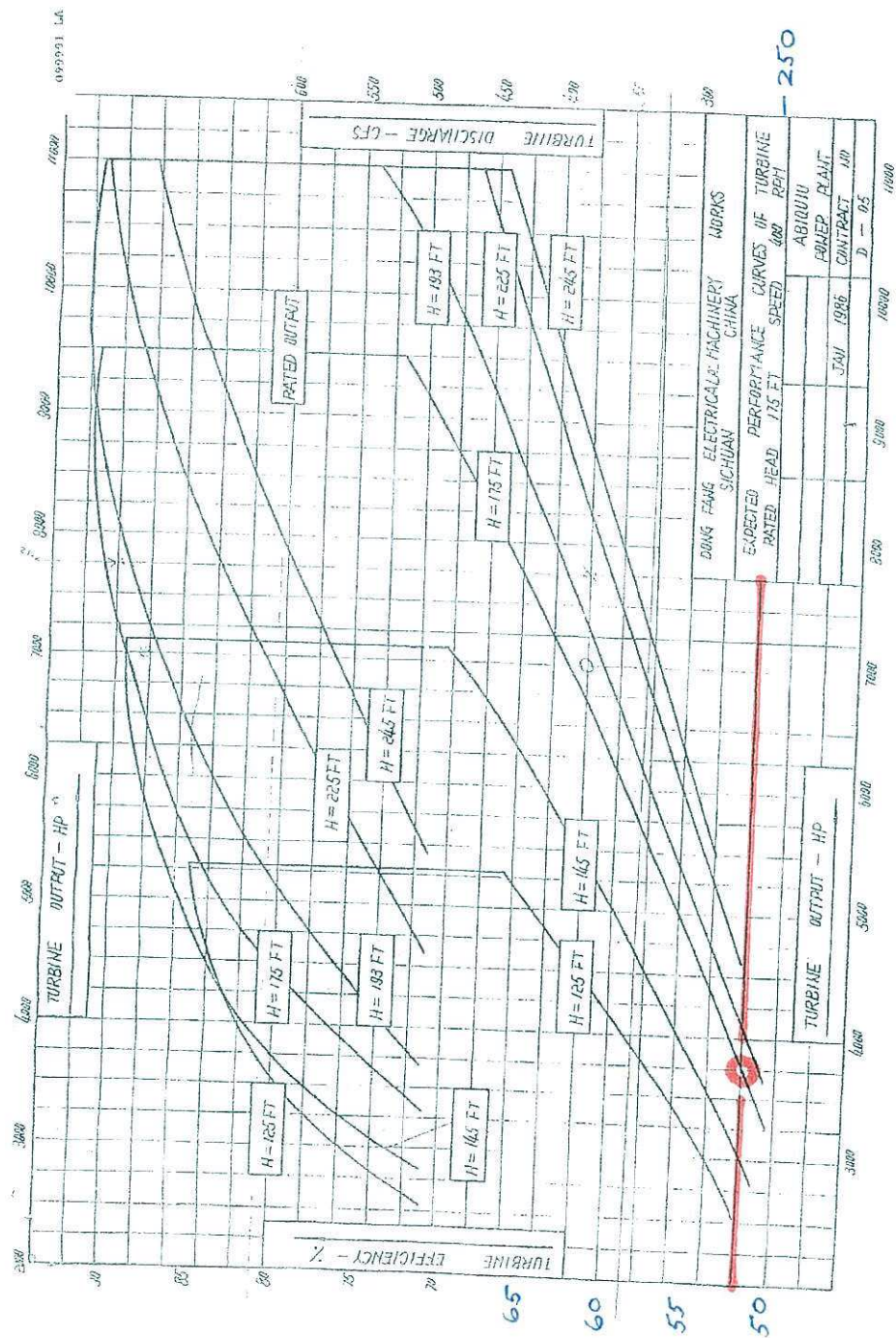


Figure 2-1
Existing Turbine Performance Curves



Fish capture and release to Rio Chama during dewatering - 10 Nov 2009.



Coffer dam complete and Rio Chama allowed to backwater adjacent to power house. Abiquiu Dam in background - 4 Mar 2010.



Construction of new power house - 31 Mar 2010. Cofferdam to the right in photo.



Finished installation of new draft tube gate hoist. Looking downstream - 29 June 2010.



Installing and checking level of new turbine - 20 October 2010.



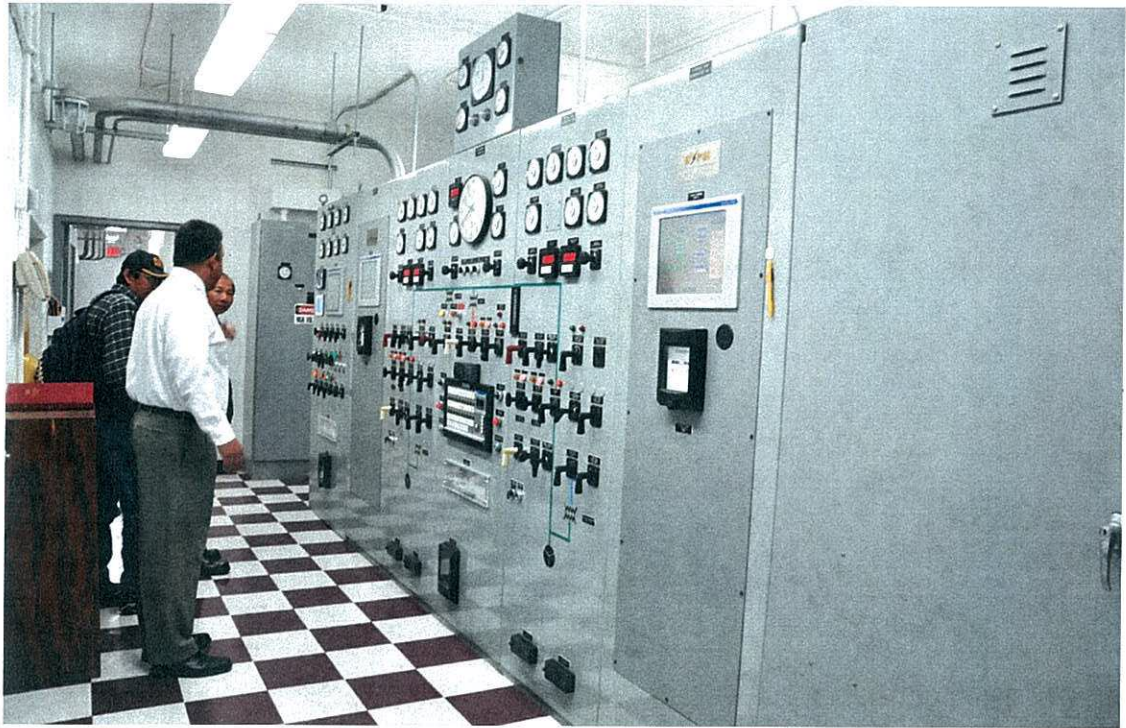
Installing new turbine runner - 18 November 2010.



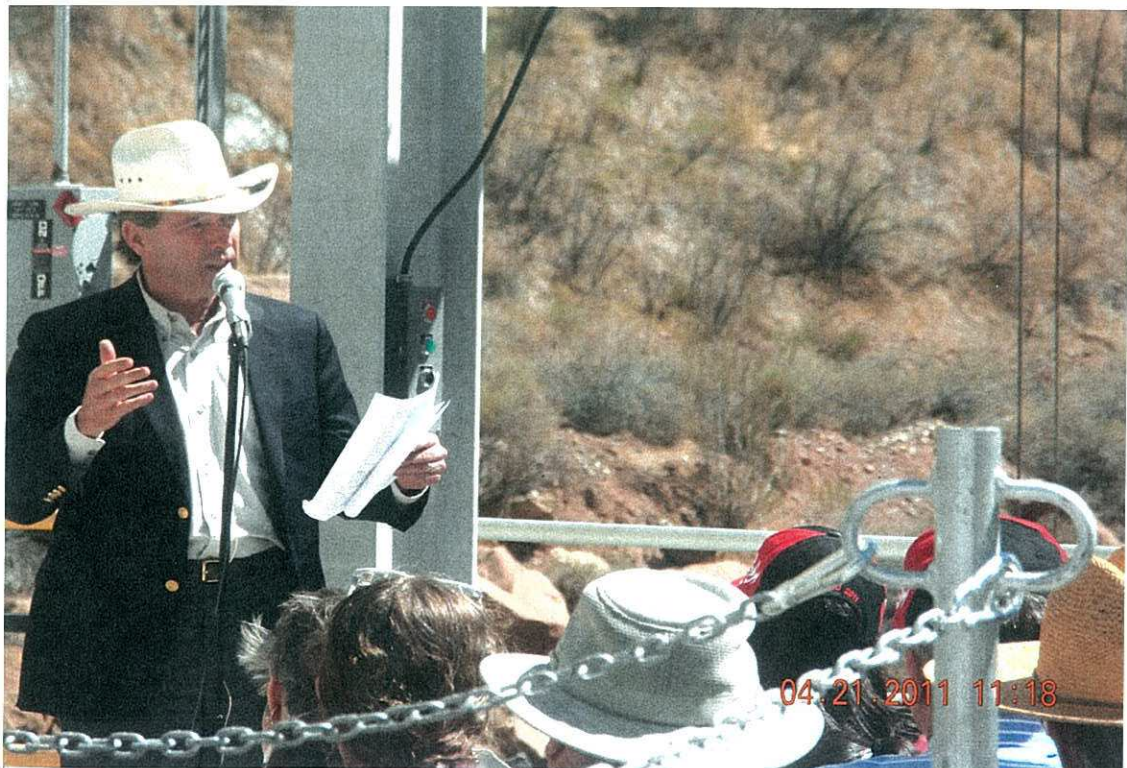
Preparing penstock connection upstream of turbine inlet valve - 2 Dec 2010.



Opening Ceremony crowd - 21 April 2011.



Stanton Chew and Wing Lee of FERC with James Alarid of LA County in control room of Abiquiu Plant at Opening Ceremony - 21 April 2011.



Opening Ceremony speaker Senator Tom Udall - 21 April 2011.



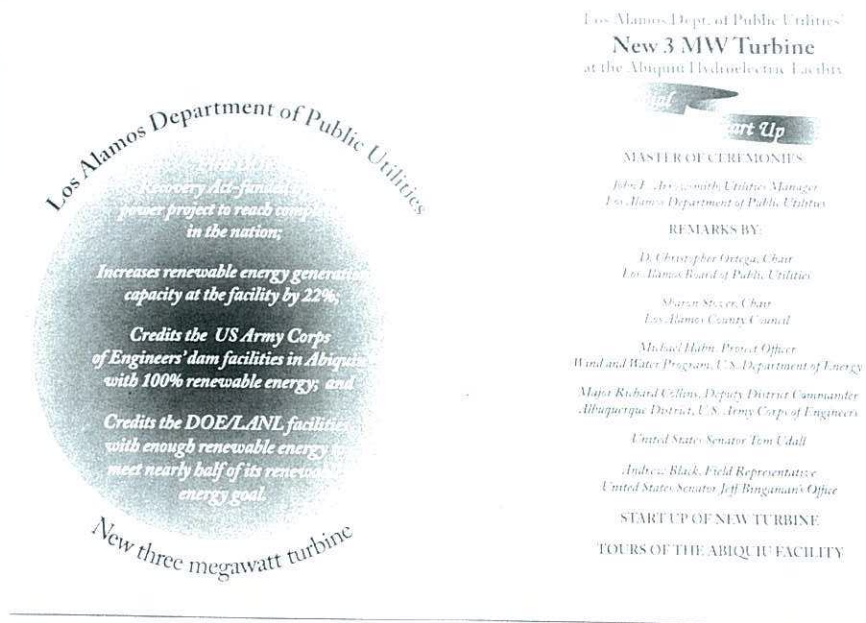
Opening Ceremony speaker Michael Hahn of DOE Golden Colorado - 21 April 2011.



Abiquiu plant interior of new power house and low flow turbine-generator equipment - 21 April 2011.



Opening Ceremony Invitation Cover - 21 April 2011.



Opening Ceremony Invitation Program - 21 April 2011.

AWARD AND TECHNOLOGY TRANSFER ACTIVITIES

No publications, inventions, patent applications or other products of a similar nature were developed as a result of this project.

COMPUTER MODELING

No computer modeling was undertaken for this project.

PROTECTED PERSONALLY IDENTIFIABLE INFORMATION

There is no protected personally identifiable information contained in this final report.

APPENDIX - PROJECT CLOSE OUT FORMS

❖ Patent Certification

(Submitted to EERE PMC 4 April 2012)

❖ Property Certification

❖ Final Federal Financial Report SF - 425

(Submitted to EERE PMC 4 April 2012)

PATENT CERTIFICATION

Incorporated County of Los Alamos, NM

Contractor

DE-EE0002673

DOE Prime and/or Subcontract Nos.

☐ Interim Certification
☒ Final Certification

Contractor hereby certifies that:

1. All procedures for identifying and disclosing subject inventions as required by the patent clause of the contract have been followed throughout the reporting period.
2. There were no subcontracts or purchase orders involving research, development, and demonstration except as follows: [State none when applicable.] NONE
3. No inventions or discoveries were made or conceived in the course of or under this contract other than the following (*Certification includes* ☒, *does not include* ☐ all subordinates):

[State none when applicable.]

TITLE	INVENTOR	DATE REPORTED	DOE "S" NO.*
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NONE

4. The completion date of this contract is as follows: 31 March 2012

5. The following period is covered by this certification:

November	1	2009
Month	Day	Year

Incorporated County of Los Alamos, NM

Contractor

P.O. Box 30

Los Alamos, NM 87544

Address

to	March	31	2012
	Month	Day	Year

Signature

James Alarid

4 April 2012

Date of Certification

* Also include Subcontract No. If available

TANGIBLE PERSONAL PROPERTY REPORT

SF- 428

		Page 1	of 2 Pages
1. Federal Agency and Organization Element to Which Report is Submitted U.S. Department of Energy Golden Field Office	2. Federal Grant or Other Identifying Number Assigned by Federal Agency DE-EE0002673	3a. DUNS 069423424	3b. EIN 85-6000679
4. Recipient Organization (Name and complete address including zip code) Incorporated County of Los Alamos P.O. Box 30 Los Alamos, NM 87544		5. Recipient Account or Identifying Number EP 7202	
6. Attachment (Check applicable) ☐ Annual Report (SF-428-A) ☒ Final (Award Closeout) Report (SF-428-B) ☐ Disposition Report/Request (SF-428-C)		7. Supplemental Sheet ☐ Yes ☒ No	
8. Comments No Tangible Personal Property was a part of this project.			
9a. Typed or Printed Name and Title of Authorized Certifying Official James Alarid, Principal Investigator Deputy Utilities Manager - Engineering		9c. Telephone (area code, number, extension) 505-663-3420	
9b. Signature of authorized Certifying Official 		9d. Email address james.alarid@lacnm.us	
		9e. Date report submitted (Month, Day, Year) April 05, 2012	
		10. Agency use only	

TANGIBLE PERSONAL PROPERTY REPORT

Final Report SF-428- B

Federal Grant or Other Identifying Number Assigned by Federal Agency (Block 2 on SF-428).

DE-EE0002673

1. Report (Select all that apply)

- a. ☐ Federally-owned Property (List on Supplemental Sheet SF-428S or recipient equivalent and complete Section 2a below.)
- b. ☐ Acquired Equipment with acquisition cost of \$5,000 or more for which the awarding agency has reserved the right to transfer title (List on Supplemental Sheet SF-428S or recipient equivalent and complete Section 2b below.)
- c. ☐ Residual Unused Supplies with total aggregate fair market value exceeding \$5,000 not needed for any other Federally sponsored programs or projects. (Complete Section 2c below)
- d. ☒ None of the above

2. Complete relevant section(s)

For Agency Use Only

2a. Federally-owned Property (Select one or more.)

Agency response to requested disposition of Federally owned property:

- (i) ☐ Request transfer to Award _____
- (ii) ☐ Request Federal Agency disposition instructions
- (iii) ☐ Other (Provide detail in Block 3 or attach request)

- (i) Recipient request approved ☐ denied ☐
- (ii) Dispose in accordance with attached instructions _____

2b. Acquired Equipment (Select one or more.)

Agency response to requested disposition of acquired equipment::

- (i) ☐ Request unconditional transfer of title with no further obligation to the Federal Government.
- (ii) ☐ Request Federal Agency disposition instructions

- (i) Recipient request approved ☐ denied ☐
- (ii) Dispose in accordance with attached instructions _____

Note: If the awarding agency does not provide disposition instructions within 120 days the recipient may continue to use the equipment for Federally supported projects or dispose in accordance with the applicable property standards.

Authorized Awarding Agency Official

Signature:

Date:

Name:

Phone:

Title

Email

2c. Reportable Residual Unused Supplies

- (i) ☐ Sale proceeds or ☐ Estimate of current fair market value \$ _____
- (ii) Percentage of Federal participation %
- (iii) Federal share \$ _____
- (iv) Selling and handling allowance \$ _____
- (v) Amount remitted to the Federal Government..... \$ _____

3. Comments

No Tangible Personal Property was a part of this project.

FINAL REPORT ATTACHMENT TO SF-428

Agency use only

FEDERAL FINANCIAL REPORT

(Follow form instructions)

1. Federal Agency and Organizational Element to Which Report is Submitted US Department of Energy - Golden Field Office 1617 Cole Blvd Golden, CO 80401		2. Federal Grant or Other Identifying Number Assigned by Federal Agency (To report multiple grants, use FFR Attachment) DE-EE0002673		Page 1	of 1		
3. Recipient Organization (Name and complete address including Zip code) Los Alamos County P.O. Box 30 Los Alamos, NM 87544 - 0030 Attn: James Alarid							
4a. DUNS Number 069423424	4b. EIN 85-6000679	5. Recipient Account Number or Identifying Number (To report multiple grants, use FFR Attachment) EP 7202	6. Report Type ☐ Quarterly ☐ Semi-Annual ☐ Annual ☒ Final	7. Basis of Accounting ☒ Cash ☐ Accrual			
8. Project/Grant Period From: (Month, Day, Year) 11/01/09		To: (Month, Day, Year) 03/31/12		9. Reporting Period End Date (Month, Day, Year) 03/31/12			
10. Transactions					Cumulative		
(Use lines a-c for single or multiple grant reporting)							
Federal Cash (To report multiple grants, also use FFR Attachment):							
a. Cash Receipts					\$4,558,344.00		
b. Cash Disbursements					\$4,558,344.00		
c. Cash on Hand (line a minus b)					\$0.00		
(Use lines d-o for single grant reporting)							
Federal Expenditures and Unobligated Balance:							
d. Total Federal funds authorized					\$4,558,344.00		
e. Federal share of expenditures					\$4,558,344.00		
f. Federal share of unliquidated obligations							
g. Total Federal share (sum of lines e and f)					\$4,558,344.00		
h. Unobligated balance of Federal funds (line d minus g)					\$0.00		
Recipient Share:							
i. Total recipient share required					\$4,671,652.26		
j. Recipient share of expenditures					\$4,671,652.26		
k. Remaining recipient share to be provided (line i minus j)					\$0.00		
Program Income:							
l. Total Federal program income earned							
m. Program income expended in accordance with the deduction alternative							
n. Program income expended in accordance with the addition alternative							
o. Unexpended program income (line l minus line m or line n)							
11. Indirect Expense	a. Type	b. Rate	c. Period From	Period To	d. Base	e. Amount Charged	f. Federal Share
	g. Totals:						
12. Remarks: Attach any explanations deemed necessary or information required by Federal sponsoring agency in compliance with governing legislation: a. This Final Report covers the entire project period from 11/01/09 project start up through this quarter (Jan-Mar 2012). Final adjustments have been made after 100% project completion. Project is complete and functional per original plan. b. No Indirect Expenses are a part of this project/grant award.							
13. Certification: By signing this report, I certify that it is true, complete, and accurate to the best of my knowledge. I am aware that any false, fictitious, or fraudulent information may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)							
a. Typed or Printed Name and Title of Authorized Certifying Official James Alarid Principal Investigator						c. Telephone (Area code, number and extension) 505-663-3420	
b. Signature of Authorized Certifying Official 						d. Email address James.Alarid@lacnm.us	
						e. Date Report Submitted (Month, Day, Year) APRIL 3, 2012	
14. Agency use only:							

Standard Form 425
 OMB Approval Number: 0348-0061
 Expiration Date: 10/31/2011

Paperwork Burden Statement

According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is 0348-0061. Public reporting burden for this collection of information is estimated to average 1.5 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0061), Washington, DC 20503.