



# County of Los Alamos

1000 Central Avenue  
Los Alamos, NM 87544

## Agenda Packet - Final Board of Public Utilities

*Cornell Wright, Chair; Stephen McLin, Vice-chair;  
Eric Stromberg, Steve Tobin and Carrie Walker Members  
Philo Shelton, Ex Officio Member  
Steve Lynne, Ex Officio Member  
James Robinson, Council Liaison*

Wednesday, June 16, 2021

5:30 PM

Due to COVID-19 concerns this meeting will be  
conducted remotely. Citizens may attend via  
Zoom or view proceedings at  
<http://losalamos.legistar.com/calendar.aspx>.

### REGULAR SESSION

Members of the public wishing to attend may participate and provide public comment via Zoom by visiting the link below or by calling one of the conference call lines listed below:

**Webinar Link:** <https://zoom.us/j/94895257663> **Webinar ID:** 948 9525 7663

**Phone** (for higher quality, dial a number based on your current location): +1 346 248 7799 or +1 408 638 0968 or  
+1 669 900 6833 or +1 253 215 8782 or +1 646 876 9923 or +1 301 715 8592 or +1 312 626 6799

**Mobile:** +13462487799,,94895257663# US (Houston), +14086380968,,94895257663# US (San Jose)

Complete Board of Public Utilities agenda packets, past agendas, videos, legislation and minutes can be found online at  
[losalamos.legistar.com](http://losalamos.legistar.com). Learn more about the Board of Public Utilities at [ladpu.com/BPU](http://ladpu.com/BPU)

#### PUBLIC COMMENTS:

Please submit written comments to the Board at [bpu@lacnm.us](mailto:bpu@lacnm.us). Oral public comment is accepted during the two periods identified on the agenda and after initial board discussion on a business item, prior to accepting a main motion on an item. Oral comments should be limited to four minutes per person. Requests to make comments exceeding four minutes should be submitted to the Board in writing prior to the meeting. Individuals representing or making a combined statement for a large group may be allowed additional time at the discretion of the Board. Those making comments are encouraged to submit them in writing either during or after the meeting to be included in the minutes as attachments. Otherwise, oral public comments will be summarized in the minutes to give a brief succinct account of the overall substance of the person's comments.

### 1. CALL TO ORDER

#### 1.A. SPECIAL CLOSED SESSION

##### 1.A.1 14132-21

Page 6

CLOSED SESSION - Pursuant to § 10-15-1 (H)(2) of the New Mexico Open Meetings Act, NMSA 1978, the Board of Public Utilities will meet in closed session to discuss information pertaining to limited personnel matters: Utilities Manager performance review and planning.

**Presenters:** Board of Public Utilities

**2. PUBLIC COMMENT**

*This section of the agenda is reserved for comments from the public on Consent Agenda items or items that are not otherwise included in this agenda.*

**3. APPROVAL OF AGENDA****4. BOARD BUSINESS****4.A. Chair's Report****4.B. Board Member Reports****4.C. Utilities Manager's Report****4.D. County Manager's Report****4.E. Council Liaison's Report****4.F. Environmental Sustainability Board Liaison's Report****4.G. General Board Business****4.G.1. [14399-21](#) Resuming In-Person BPU Meetings**

[Page 7](#)

**Presenters:** Cornell Wright

**4.H. Approval of Board Expenses**

*There are no expenses to be approved.*

**4.I. Preview of Upcoming Agenda Items****4.I.1. [14412-21](#) Tickler File for the Next Three Months**

[Pages 8-11](#)

**Presenters:** Board of Public Utilities

**5. PUBLIC HEARING(S)**

*There are no public hearings scheduled for this meeting.*

**6. CONSENT AGENDA**

*The following items are presented for Board approval under a single motion unless any item is withdrawn by a member for further Board consideration in the "Business" section of the agenda.*

**- CONSENT MOTION -**

*I move that the Board of Public Utilities approve the items on the Consent Agenda as presented and that the motions in the staff reports be included in the minutes for the record.*

*OR*

*I move that the Board of Public Utilities approve the items on the Consent Agenda as amended and that the motions contained in the staff reports, be included in the minutes for the record.*

**6.A. [14251-21](#)**

Pages 12-57

Approval of Board of Public Utilities Meeting Minutes

**Presenters:** Board of Public Utilities

**6.B. [14129-21](#)**

Pages 58-80

Approval of the Collective Bargaining Agreement (CBA) with the United Association of Plumbers and Pipefitters (UAPP), Local Union No. 412, Covering the Period of July 1, 2021 through June 30, 2026.

**Presenters:** Philo Shelton and Valerie Park

**6.C. [14276-21](#)**

Pages 80-91

Approval of DOE/LAC Resource Pool Budget for Fiscal Years 2022 & 2023

**Presenters:** Bob Westervelt

**6.D. [AGR0758-21](#)**

Pages 92-123

Approval of Amendment No. 8 to Services Agreement AGR16-4289 with Paymentus Corporation in the Amount of \$75,000 for a Revised Total Agreement Amount of \$400,000, plus Applicable Gross Receipts Tax for the Purpose of Credit Card and Electronic Bill Payment Services.

**Presenters:** Bob Westervelt

**6.E. [AGR0744-21](#)**

Pages 124-138

Approval of AGR21-31 General Services Agreement with GreatBlue Research for the DPU Customer Satisfaction Survey Program for a period of seven (7) years.

**Presenters:** Julie Williams-Hill

**7. BUSINESS**

**7.A.** [14159-21](#)  
Pages 139-258

**Award of IFB 21-43 Otowi Well #2 Well House & Equipment and Otowi Well #4 MCC Replacement Project**

**Presenters:** James Alarid

**7.B.** [14400-21](#)  
Pages 259-260

Approval to take a resolution for approval by Council authorizing an application to modify loan agreement DW-5456 to increase the loan amount by \$928,000.00, for a revised loan amount of \$3,780,444.02 (which amount includes \$79,832 program subsidy which is not required to be repaid), and a revised loan ordinance and supporting loan documents in a form acceptable to the County Attorney's office, to provide increased funding for the Otowi Well #2 Pump House and Equipment and Otowi Well #4 Motor Control Center (MCC), required because the final bids came in over the original estimated project cost and loan amount.

**Presenters:** Bob Westervelt

**7.C.** [AGR0745-21](#)  
Pages 261-283

Approval of Services Agreement No. AGR21-41 with FTI Consulting, in the amount of \$243,743.00, with a contingency of \$24,374.00 for a total contract amount of \$268,117.00 plus Applicable Gross Receipts Tax, for the Purpose of Developing an Integrated Resource Plan and Approval of Related Budget Revision 2021-50.

**Presenters:** Steve Cummins

**8. STATUS REPORTS**

**8.A.** [14253-21](#)  
Pages 284-297

Monthly Status Reports

**Presenters:** Philo Shelton

**8.B.** [14369-21](#)  
Pages 298-312

Summer Peak Power Demand: Briefing of Planned Activities

**Presenters:** Steve Cummins

**8.C.** [14387-21](#)  
Pages 313

Receivables Status and Post Moratorium Collections Plan

**Presenters:** Bob Westervelt

**8.D.** [14283-21](#)  
Pages 323

Quarterly Conservation Program Update

**Presenters:** James Alarid

**8.E.** [14269-21](#)  
Pages 324-369

Department of Public Utilities Quarterly Report - FY21/Q3

**Presenters:** Philo Shelton

**9. PUBLIC COMMENT**

*This section of the agenda is reserved for comments from the public on any items.*

**10. ADJOURNMENT**

If you are an individual with a disability who is in need of a reader, amplifier, qualified sign language interpreter, or any other form of auxiliary aid or service to attend or participate in the hearing or meeting, please contact the County Human Resources Division at 662-8040 at least one week prior to the meeting or as soon as possible. Public documents, including the agenda and minutes can be provided in various accessible formats. Please contact the personnel in the Department of Public Utilities (505) 662-8132 if a summary or other type of accessible format is needed.



# County of Los Alamos

## Staff Report

June 16, 2021

Los Alamos, NM 87544  
www.losalamosnm.us

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<b>Agenda No.:</b>	1.A.1
<b>Index (Council Goals):</b>	DPU FY2020 - 4.0 Sustain a Capable, Satisfied, Engaged, Ethical and Safe Workforce Focused on Customer Service
<b>Presenters:</b>	Board of Public Utilities
<b>Legislative File:</b>	14132-21

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### Title

CLOSED SESSION - Pursuant to § 10-15-1 (H)(2) of the New Mexico Open Meetings Act, NMSA 1978, the Board of Public Utilities will meet in closed session to discuss information pertaining to limited personnel matters: Utilities Manager performance review and planning.

### Recommended Action

**I move that the Board of Public Utilities convene in closed session as authorized by the limited personnel matters exception to discuss the Utilities Manager performance review and planning.**

*Pursuant to § 10-15-1 (I)(1) of the New Mexico Open Meetings Act, NMSA 1978*

*If any meeting is closed pursuant to the exclusions contained in Subsection H of this section, the closure:*

*(1) If made in an open meeting, shall be approved by a majority vote of a quorum of the policymaking body; the authority for the closure and the subject to be discussed shall be stated with reasonable specificity in the motion calling for the vote on a closed meeting; the vote shall be taken in an open meeting; and the vote of each individual member shall be recorded in the minutes. Only those subjects announced or voted upon prior to closure by the policymaking body may be discussed in a closed meeting.*



# County of Los Alamos

## Staff Report

June 16, 2021

Los Alamos, NM 87544  
www.losalamosnm.us

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**Agenda No.:** 4.G.1.  
**Index (Council Goals):** DPU FY2021 - N/A  
**Presenters:** Cornell Wright  
**Legislative File:** 14399-21

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### **Title**

Resuming In-Person BPU Meetings

### **Recommended Action**

To provide County Council a recommendation by July 30, 2021 on the format for BPU meetings and when to implement this meeting format.

### **Staff Recommendation**

None

### **Body**

The County Council resumed in-person meetings on June 8th on a hybrid basis where Council, staff, and presenters are in person and the public continues to participate remotely by Zoom. Starting July 6th, County Council will allow for the public to attend both in person and remotely by Zoom. Council Council requested that each board and commission provide input regarding the meeting format they would prefer and when to implement this meeting format. Chair Wright would like board members and staff to discuss a meeting format recommendation and timeline.

### **Alternatives**

Continue with remote meetings.

### **Fiscal and Staff Impact**

None

### **Attachments**

None



# County of Los Alamos

## Staff Report

June 16, 2021

Los Alamos, NM 87544  
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**Agenda No.:** 4.I.1.  
**Index (Council Goals):**  
**Presenters:** Board of Public Utilities  
**Legislative File:** 14412-21

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### **Title**

Tickler File for the Next Three Months

### **Attachments**

A - BPU Tickler July - September 2021



# County of Los Alamos

Los Alamos, NM 87544  
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## BPU Tickler

**Criteria: Agenda Begin Date: 7/1/2021, Agenda End Date: 9/30/2021,  
Matter Bodies: Board of Public Utilities**

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File Number	Title
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Agenda Date: 07/21/2021

14277-21	<b>Briefing/Report (Dept,BCC) - Action Requested</b>	<b>04 General Board Business</b>
	Annual Review and Affirmation of the Board of Public Utilities Procedural Rules	
	Department Name: DPU	Length of Presentation:
	Drop Dead Date:	Sponsors: Cornell Wright
14278-21	<b>Briefing/Report (Dept, BCC) - No action requested</b>	<b>04 General Board Business</b>
	Planning for Upcoming Board of Public Utilities Annual Boards & Commissions Presentation to Council in September 2021	
	Department Name: DPU	Length of Presentation:
	Drop Dead Date:	Sponsors: Cornell Wright
14160-21	<b>Construction Contract</b>	<b>06 Consent</b>
	Approval for Construction Services Agreement for On-Call Construction Services for Department of Public Utilities	
	Department Name: DPU	Length of Presentation:
	Drop Dead Date:	Sponsors: James Alarid
14161-21	<b>Construction Contract</b>	<b>06 Consent</b>
	Approval for Construction Contract for Gas Border Station Metering, SCADA and Overpressure Protection Project	
	Department Name: DPU	Length of Presentation:
	Drop Dead Date:	Sponsors: James Alarid
14168-21	<b>Construction Contract</b>	<b>06 Consent</b>
	Approval of Construction Contract for the Installation and Maintenance of Electric Vehicle Charging Stations	
	Department Name: DPU	Length of Presentation:
	Drop Dead Date:	Sponsors: Steve Cummins
14187-21	<b>Construction Contract</b>	<b>06 Consent</b>
	Award IFB 21-30 El Vado Hydroelectric Plant Transformer Replacement Project	
	Department Name: DPU	Length of Presentation:
	Drop Dead Date:	Sponsors: James Alarid

File Number	Title	
14264-21	Minutes	06 Consent
	Approval of Board of Public Utilities Meeting Minutes	
	Department Name: DPU	Length of Presentation:
	Drop Dead Date:	Sponsors: Board of Public Utilities
AGR0752-21	General Services Agreement	07 Business
	Approval of Collections Contract	
	Department Name: DPU	Length of Presentation:
	Drop Dead Date:	Sponsors: Bob Westervelt
AGR0753-21	General Services Agreement	07 Business
	Approval of Agreement for the disposal of the lead acid and sodium sulfur batteries	
	Department Name: DPU	Length of Presentation:
	Drop Dead Date:	Sponsors: Steve Cummins
14271-21	Briefing/Report (Dept, BCC) - No action requested	08 Status Reports
	Quarterly Update on Utility System - Electric Distribution	
	Department Name: DPU	Length of Presentation: 60 min.
	Drop Dead Date:	Sponsors: Electrical Engineering Manager Stephen Marez
14274-21	Briefing/Report (Dept, BCC) - No action requested	08 Status Reports
	Quarterly Update on Utility System - Hydroelectric	
	Department Name: DPU	Length of Presentation: 60 min.
	Drop Dead Date:	Sponsors: Steve Cummins
Agenda Date: 08/18/2021		
14272-21	Closed Session	02 Business
	CLOSED SESSION - Pursuant to § 10-15-1 (H)(2) of the New Mexico Open Meetings Act, NMSA 1978, the Board of Public Utilities will meet in closed session to discuss information pertaining to limited personnel matters - Utilities Manager performance planning.	
	Department Name: DPU	Length of Presentation:
	Drop Dead Date:	Sponsors: Board of Public Utilities
14270-21	Budget Item	06 Consent
	Approval of Budget Carryovers from FY2021 to FY2022	
	Department Name: DPU	Length of Presentation:
	Drop Dead Date:	Sponsors: Bob Westervelt
14275-21	Briefing/Report (Dept, BCC) - No action requested	08 Status Reports
	Quarterly Update on Utility System - Power Supply (Electric Production)	
	Department Name: DPU	Length of Presentation:
	Drop Dead Date:	Sponsors: Steve Cummins

File Number	Title
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**Agenda Date: 09/15/2021**

<b>14397-21</b>	<b>Briefing/Report (Dept, BCC) - No action requested</b>	<b>08 Status Report</b>
	Quarterly Update on Utility System - Integrated Resource Plan	
	<b>Department Name:</b> DPU	<b>Length of Presentation:</b> 60 min
	<b>Drop Dead Date:</b>	<b>Sponsors:</b> Steve Cummins



# County of Los Alamos

## Staff Report

June 16, 2021

Los Alamos, NM 87544  
www.losalamosnm.us

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**Agenda No.:** 6.A.  
**Index (Council Goals):** DPU FY2021 - N/A  
**Presenters:** Board of Public Utilities  
**Legislative File:** 14251-21

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### Title

Approval of Board of Public Utilities Meeting Minutes

### Recommended Action

**I move that the Board of Public Utilities approve the meeting minutes as presented.**

### Body

#### REQUESTED REVISIONS TO THE DRAFT MINUTES

Draft minutes are sent to members after each meeting for their review. Members may then send changes to be incorporated prior to final approval of the minutes at the next regular meeting.

There were no suggested changes.

### Attachments

- A - Draft BPU Regular Session Minutes - May 19, 2021
- B - Utilities Manager Report - May 19, 2021
- C - UAMPS-Presentation on CFPP Project
- D - LANL Legacy Cleanup TWG Presentation - May 5, 2021



# County of Los Alamos

## Minutes

### Board of Public Utilities

1000 Central Avenue  
Los Alamos, NM 87544

*Cornell Wright, Chair; Stephen McLin, Vice-chair;  
Eric Stromberg, Steve Tobin and Carrie Walker Members  
Philo Shelton, Ex Officio Member  
Harry Burgess, Ex Officio Member  
James Robinson, Council Liaison*

Wednesday, May 19, 2021

5:30 PM

Due to COVID-19 concerns, meeting will be  
conducted remotely. Public can view  
proceedings at  
<http://losalamos.legistar.com/calendar.aspx>  
or attend via Zoom.

#### REGULAR SESSION

#### 1. CALL TO ORDER

The regular meeting of the Incorporated County of Los Alamos Board of Public Utilities was held on Wednesday, May 19, 2021. Board Chair Cornell Wright called the meeting to order at 5:30 p.m.

The meeting was held remotely and BPU members, staff and the public participated through an online video conferencing platform. This social distancing was to comply with the recommendations of the Centers for Disease Control (CDC) to prevent the spread of COVID-19. Members of the public were able to live-stream the meeting online and submit public comment during the meeting.

**Present 7 - Vice Chair McLin, Board Member Stromberg, Board Member Tobin, Board Member Walker, Chair Wright, Board Member Burgess and Board Member Shelton**

#### 2. PUBLIC COMMENT

Mr. Wright opened the floor for public comment on items on the Consent Agenda and for those not otherwise included on the agenda. There were no members of the public present and no comments submitted prior to the meeting.

#### 3. APPROVAL OF AGENDA

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**Mr. Tobin moved that the agenda be approved as presented. The motion passed by the following vote:**

\*\*\*\*\*

**Yes: 5 - Vice Chair McLin, Board Member Stromberg, Board Member Tobin, Board Member Walker and Chair Wright**

#### 4. BOARD BUSINESS

##### **4.A. Chair's Report**

Mr. Wright reported on the following items:

- 1) He would like the board to discuss at the June meeting the possibility of resuming in-person meetings. By that time there will be some feedback on the first in-person County Council meeting from June 8th. He asked that staff let he or Mr. Shelton know of any concerns in private.
- 2) He will be attending the June 8th County Council meeting in-person for BPU candidate interviews (his term will expire at the end of June.) The Council will consider three candidates that evening and if he is not re-appointed his term will end on June 30, 2021. This would also mean that a new chair would need to be selected after July 1.

#### **4.B. Board Member Reports**

There were none.

#### **4.C. Utilities Manager's Report**

Mr. Shelton reported on the items detailed in the attached report. In addition, the following items were presented during the meeting:

- 1) Mr. Bob Westervelt, Deputy Utility Manager for Finance & Administration has submitted his intent to retire. Staff are working on a recruitment brochure to fill his position. Human Resources is working on advertising the vacancy.
- 2) Mr. Wright asked that a copy of the LANL Technical Working Group presentation on the geologic conditions and groundwater hydrology that surround the chromium plume be sent to board members. Mr. Shelton emailed the PowerPoint file to the board and it is attached to these minutes.

Board members asked a few questions and Mr. Shelton clarified as necessary.

#### **4.D. County Manager's Report**

Mr. Burgess reported on the following items:

- 1). Nine days to his retirement; this was his last BPU meeting.
- 2). Council will resume in-person meetings on June 8. There will be media access however, staff and members of the public will be asked to participate via Zoom or watch the proceedings online.

There were no questions from the board. Mr. Wright did congratulate Mr. Burgess on his retirement and thanked him on behalf of the board for his years of leadership and service to the County.

#### **4.E. Council Liaison's Report**

Mr. Robinson provided a summary of the items presented at the May 18th Council meeting:

- 1). DOE-EM provided an update on the Middle DP Road project.
- 2). TRIAD provided an update on LANL construction.
- 3). There were presentations from the Transportation and Environmental Sustainability Board Chairs.
- 4). The LACDC provided a proposed metropolitan redevelopment plan for White Rock 5). There was discussion about the PNM/Avangrid merger.
- 6). Recognition of outgoing County Manager Mr. Burgess.

Future Council Agenda items include:

- 1). A presentation from Dekker/Perich/Sabatini architects on the downtown master plans (and possible adoption).
- 2). Representatives from the Los Alamos Main Street Program and the New Mexico Main Street Program provided an overview of the Metropolitan Redevelopment Area Designation that is proposed for the White Town Center. Council will then discuss and possibly adopt the MRA resolution.
- 3). Discussion and possible adoption of the overlay plans introduced by Councilor Williams for the downtown areas.
- 4). Board of Public Utilities member appointment.
- 5). Utilities policy committee work/discussions on the profit transfer, extreme events, changes in the resolution to allow the Utilities Manager and Attorneys to act on county's behalf in negotiations like the PNM/Avangrid merger.

There were no questions from the board.

#### **4.F. Environmental Sustainability Board Liaison's Report**

Mr. Loechell was absent; no written report was submitted.

#### **4.G. General Board Business**

There was none.

#### **4.H. Approval of Board Expenses**

There were no board expenses.

#### **4.I. Preview of Upcoming Agenda Items**

##### **4.I.1. [14268-21](#) Tickler File for the Next Three Months**

No additional items were identified for the tickler.

### **5. PUBLIC HEARING(S)**

There were no public hearings.

### **6. CONSENT AGENDA**

\*\*\*\*\*

I move that the Board of Public Utilities approve the items on the Consent Agenda as presented and that the motions in the staff reports be included in the minutes for the record.

\*\*\*\*\*

**Yes: 5 - Vice Chair McLin, Board Member Stromberg, Board Member Tobin, Board Member Walker and Chair Wright**

- 6.A. [14249-21](#) Approval of Board of Public Utilities Meeting Minutes

**I move that the Board of Public Utilities approve the meeting minutes as presented.**

- 6.B. [14130-21](#) Approval of Incorporated County of Los Alamos Code Ordinance No. 707, An Ordinance to Authorize the Refinance and Re-issuance of Amended Loan and Promissory Note Agreements with the New Mexico Environment Department to Reflect a Lowered Interest Rate.

**I move that the Board of Public Utilities approve Incorporated County of Los Alamos Code Ordinance No. 707, An Ordinance to Authorize the Refinance and Re-issuance of Amended Loan and Promissory Note Agreements with the New Mexico Environment Department to Reflect a Lowered Interest rate, as presented, and forward to Council for adoption.**

- 6.C. [14226-21](#) Approval of Requisition No. 1515 for the Purchase of Commercial and Large Residential Water Meters from Ferguson US Holdings, Inc. in the Amount of \$380,115.88 plus Applicable Gross Receipts Tax.

**I move that the Board of Public Utilities approve the purchase of Commercial and Large Residential Water Meters from Ferguson US Holdings, Inc. as outlined in Requisition No. 1515 in the amount of \$380,115.88, plus applicable gross receipts tax, and forward to County Council for approval.**

- 6.D. [14158-21](#) Approval of Contract for Services No. AGR 21-953 with R&M Construction LLC in the amount of \$118,398.47, plus Applicable Gross Receipts Tax, for the Purpose of turn-key construction and remodel of the Customer Care workspace and offices.

**I move that the Board of Public Utilities approve Contract for Services No. AGR 21-953 with R&M Construction, LLC in the amount of \$118,398.47, plus Applicable Gross Receipts Tax, and a contingency in the amount of \$17,759.77 for a total of \$136,158.24 for the Purpose of turn-key construction and remodel of the Customer Care workspace and offices.**

- 6.E. [14163-21](#) Award of IFB 21-33 El Vado and Abiquiu Hydroelectric Plant Deck and Floor Painting Project

**I move that the Board of Public Utilities approve the Award of IFB 21-33 for the purpose of the El Vado and Abiquiu Hydroelectric Plant Deck and Floor Painting Project to Thomas Industrial Coatings in the Amount of \$324,370 and a contingency in the amount \$20,000 for a total of \$344,370 plus Applicable Gross Receipts Tax and forward to Council for approval.**

- 6.F. [AGR0749-21](#) Approval of General Services Agreement No. AGR22-905 with Virtue & Najjar, P.C. in the Amount Not to Exceed \$270,000 plus Applicable Gross Receipts Tax for the Purpose of Providing Legal Services in Connection with the Incorporated County of Los Alamos' Utilities Operations

I move that the Board of Public Utilities approve Agreement No. AGR22-905 between the Incorporated County of Los Alamos and Virtue & Najjar, P.C. in an amount not to exceed \$270,000.00, plus Applicable New Mexico Gross Receipts Tax, for the Purpose of Providing Legal Services in connection with the Incorporated County of Los Alamos' Utilities Operations, and forward to Council with a recommendation for approval.

- 6.G. [AGR0750-21](#) **Approval of AGR22-903 General Services Agreement with John & Hengerer in the Amount of \$300,000, plus Applicable Gross Receipts Tax for the Purpose of Providing Legal Services to the Incorporated County of Los Alamos Relating to Matters Pending Before the Federal Energy Regulatory Commission (FERC) and/or Other Federal Agencies Involved in Energy Regulation.**

I move that the Board of Public Utilities approve Agreement No. AGR22-903 between the Incorporated County of Los Alamos and John & Hengerer in the amount of \$300,000, plus applicable NMGRT and forward to County Council for approval.

## **7. BUSINESS**

- 7.A. [AGR0751-21](#) **Approval of General Services Agreement No. AGR21-950 with Keystone Restoration Ecology for the Los Alamos Canyon Water Shed Restoration Project - and - Support for the NMED Grant Application to Restore the Los Alamos Canyon Reservoir Watershed and Stream Channel**

Mr. Jack Richardson, Deputy Utility Manager for Gas, Water and Sewer Services presented. Following are substantive details of the item being considered:

When the Federal government cancelled the previous developed and approved FEMA grant award for approximately \$2.1 million for the Los Alamos Canyon Reservoir Road Stabilization Project, staff thought that this project was never going to be done and that DPU would have to live with almost annual expenditures of road and pipeline/conduit repair after every major storm water runoff event in the reservoir. Due to the vigilance of a DPU Engineering Project Manager, DPU has recently been approached by a team of watershed restoration professionals who are proposing a different approach to this problem with a new grant funding source.

This current grant application proposal substitutes "soft" improvements using natural materials such as logs and large boulders as opposed to "hard" improvements such as concrete and gabion structures for road stabilization. This softer approach also includes more enhanced approaches to stream bed restoration such as removal of downed trees and other vegetation and sediment deposits that have degraded the stream bed. It is this degradation of the stream bed that is the major cause of the storm water runoff jumping the existing channel and causing erosion damage to the road and DPU facilities. Apparently the use of this "softer" approach lends itself well to enhanced environmental acceptability on the part of the government regulating personnel. In addition, this project proposes watershed restoration upstream of the reservoir which would eliminate the future need for reservoir dredging.

The funding for this project is proposed to be sourced from three entities: (1) a \$300,000 grant from the State of New Mexico River Stewardship Program, (2) \$250,000 from DPU, (3) and \$250,000 transfer from the County General Fund. The matching funds from both DPU and the County General Fund is slightly less than previously approved matching funds for the FEMA project. These matching funds are allocated in the proposed FY 2022 budget.

If successful in the grant award stage, Keystone Restoration Ecology will be the prime contractor in the development of the design and construction of the project. If unsuccessful in the grant award stage, then either Keystone will be paid only for the effort up to that date for assisting the County in the development and preparation of the grant proposal and the remainder of the agreement will be cancelled. Or, the Agreement with Keystone Restoration Ecology will be amended to design and construct a project that does not include State grant funding but does include the DPU and County CIP funds.

The Board discussed this item and requested clarification where necessary.

\*\*\*\*\*

**I move that the Board of Public Utilities approve agreement AGR21-950 with Keystone Restoration Ecology for the Los Alamos Canyon Water Shed Restoration Project and forward to Council for approval of agreement AGR21-950 and authorization to submit an application to the New Mexico Environment Department (NMED) for River Stewardship funding.**

\*\*\*\*\*

**Yes: 5 - Vice Chair McLin, Board Member Stromberg, Board Member Tobin, Board Member Walker and Chair Wright**

**7.B. [14248-21](#)**

**Approval of New Job Description: Data Analyst and Senior Data Analyst**

Deputy Utility Manager for Power Supply Mr. Steve Cummins presented. Following are the substantive details of the item being considered.

In September 2020, staff presented to the BPU the recommendations from the EIM Gap Assessment report. The report recommended adding a full time employee to support the additional work with the changes in the operation associated with the Energy Imbalance Market, purchase of software to manage EIM transactions and hire consulting support services to assist with the development of operating procedures and training of staff.

The budget revision approved by the BPU in September 2020 was estimated at a grade 206 (Exempt) with a salary range of \$61,281 to \$90,336 annually. Staff estimated the cost of the new FTE with benefits not to exceed a maximum amount of \$115,482.00 on an annual basis. Following approval by the board, Human Resources graded the reactivated job description of Power Scheduler/Energy Analyst at a grade of 124 (Non-Exempt) with a pay range of \$51,646 to \$76,132.

Staff has made three separate attempts to recruit this position with no success. Initially there was two qualified candidates in the first recruitment, however the job description did not lend itself to meet their salary requirements. The second and third recruitments were unsuccessful as well, because the candidates experience did not fit the business need for the position. In proposing this new job description and include a senior level, DPU is looking toward having the ability to have succession planning within the organization as well as fill this business need. This position is very important to our organization to ensure continuity of operations.

In an effort help find the right fit, Staff met with Human Resources and modified the Job description to more accurately reflect the skills needed by the position. With these latest revisions to the job description, Human Resources has created a new title of Data Analyst and Senior Data Analyst with respective salary grading of 124 \$51,646 to \$76,132 and 127 with a pay range of \$60,384 to \$89,013. Both positions are still non-exempt and fall within the budgeted salary range approve last fall.

The Board discussed this item and requested clarification where necessary.

\*\*\*\*\*

**I move that the Board of Public Utilities approve the New Job Description: Data Analyst and Senior Data Analyst and forward to Council for final approval.**

\*\*\*\*\*

**Yes: 5 - Vice Chair McLin, Board Member Stromberg, Board Member Tobin, Board Member Walker and Chair Wright**

## **8. STATUS REPORTS**

### **8.A. 14252-21 Status Reports**

The following informational status reports were provided to the Board in the agenda packet:

- 1) Electric Reliability Update
- 2) Accounts Receivables Report
- 3) Safety Report

There were some questions from the board regarding the Accounts Receivables Report, how the department will respond when the Governor lifts the moratorium on turning off power for non-payment, and the policy on notifying customers. Mr. Westervelt reported that the department has been proactive and engaging with customers regularly through the use of Public Service Announcements, door hangers, and bill inserts. Although the normal policy for repayment is within three months, collections will be flexible. Mr. Shelton also added that the County Social Services Department has been providing community resources throughout the pandemic which also includes financial assistance with utility bills. Mr. Wright commented that he would like to see a continuation of compassion and good business sense. Ms. Walker asked for a presentation to the board on next steps, collection gaps, and community resources.

## **9. PUBLIC COMMENT**

Mr. Wright opened the floor for public comment on any items. There were no members of the public present and no comments submitted prior to the meeting

**10. ADJOURNMENT**

The meeting adjourned at 7:07 p.m.

\*\*\*\*\*

APPROVAL:

\_\_\_\_\_  
Board of Public Utilities Chair

\_\_\_\_\_  
Board of Public Utilities Chair Signature

\_\_\_\_\_  
Date Approved by the Board

**Utility Manager's Report**  
**May 19, 2021**

1. David Rodriguez with Gas Water and Sewer crew is DPU's safety employee of the quarter. David identified and coned off the steel plates that had moved off an open trench on DP Road and then he notified the contractor to reset these plates. If it was not for his quick action, these offset plates could have led to a serious accident. He will receive a day of administrative leave to use over the next few months for his safety efforts.
2. On April 26<sup>th</sup>, County Council approved DPU's FY 22 budget of \$84 Million and 99 FTE's. The profit transfer budget options for Canyon Road and the General Fund road project for 33<sup>rd</sup> to 34<sup>th</sup> Street Improvements were also approved.
3. Attended the monthly project management committee meeting on the Carbon Free Power Project and there is a planned meeting in about two weeks to discuss considering building a six module plant based on level of interest in subscription, however, this would have some cost pressure on the \$55/MWh economic competitive test given a smaller project. I hope to update the board once we learn the details of this proposal. Also, the Resource Committee did a presentation of the cost of battery storage regarding the Photo Sol proposal and I will share this presentation once posted. In July, the Resource Committee will do a behind the meter presentation for battery storage. *(UAMPS Presentation on the CFPP Project is attached to this report).*
4. Attended DP Road design kickoff meetings to extend the utilities and road down to A-12 site. This project is being funded through economic development funds. Also, I have been attending the North Mesa Housing Committee meetings. There will need to be some off-site utility upgrades to service this project once it is scoped.
5. Last night, the Plumbers and Pipe Fitters approved the five-year contract and this contract will be presented at next Month's BPU meeting and forward to Council for approval for June 29<sup>th</sup> county Council meeting. The new agreement is planned to go in effect on July 11<sup>th</sup>. Thank you to our negotiating team for getting this agreement finalized.
6. Attended several settlement conferences, helped with drafting language, and received approval from County Council to file a Joint Motion for Joiner to Stipulation regarding the PNM/Avangrid merger case before the PRC, Case Number 20-00222-UT.
7. The AMI project is in the tenth week of the installation. As of last week, the AMI contractor completed 3,468 gas endpoints, 6,750- water endpoints and 1,149 Electric endpoints. The Munis patch for the electric meter change outs has tested out as of this morning and this will allow for work on the electric meter change out to continue.

8. The LANL Technical Working Group met to discuss the geologic conditions and groundwater hydrology that surround the chromium plume. The volcanic layers have different permeabilities and these conditions are considered in the remediation plans. *(The May 5th Agenda, PowerPoint presentation, and speaker bios are attached to this report).*
9. Provided information to New Mexico Attorney General's Office regarding the gas and electric cost increases DPU incurred last February. The AG's office is investigating these cost increases.
10. Held an Energy Coordination Agreement team meeting and discussed the status of various projects. The third power line meeting on May 6, 2021 only received one oral public comment from an environmental organization and written comments are still being collected until May 21st.
11. Interviewed three candidates for BPU for Mr. Wright's term expiring on June 30<sup>th</sup>. County Council will interview the three candidates in person on June 8<sup>th</sup>.
12. The DPU supervision team continue to hold weekly meetings regarding our response to COVID-19 issues. The County has relaxed the mask wearing for vaccinated people. County Council is returning to in person meetings on June 8<sup>th</sup>.



# CARBON FREE POWER PROJECT UPDATE

## MAY 2021

AGENDA ITEM	POTENTIAL ACTION	SPEAKER
Minutes* Financial Report	Approve Accept	Bear Prairie Scott Fox
Executive Session <ul style="list-style-type: none"> <li>• Development Coordination Agreement Outline</li> <li>• Project Update</li> <li>• Subscription Update</li> </ul>	Discuss Discuss Discuss	Mason Baker Shawn Hughes Mark Gendron
Other	Discuss	Bear Prairie
Adjourn		Bear Prairie

# SUBSCRIPTION

- Due diligence work continues with the Washington and Arizona utilities
  - Transmission displacements with BPA and WAPA
- Five other Northwest utilities continue to review the LOI



# DEVELOPMENT COORDINATION AGREEMENT OUTLINE

- Purpose:
  - Provides contractual mechanism to provide for utilities to participate contractually in the CFPP development without executing a CFPP Power Sales Contract; and provides for CFPP Development Coordination (“Development Work”)
- Parties:
  - UAMPS=Development Manager & Development Participant
  - Prospective Utilities (Grant, SPPA, others)=Development Participants
  - CFPP LLC= Owner
- Development Participants:
  - Option, but not the obligation, to become Project Participants by signing a joint ownership agreement, a Power Sales Contract, or Power Purchase Agreement



# DEVELOPMENT COORDINATION AGREEMENT OUTLINE (CONT.)

- Development Coordinating Committee:
  - Provides for Symmetry in the Development Work budget and phases that mirrors the Budget and Plan of Finance
  - Establishes a Coordinating Committee
    - Comprised of Development Participants
    - Development Manager (UAMPS) = Chair of the Committee
    - CFPP LLC Participates but does not have voting rights
  - Purpose of Coordinating Committee
    - Oversee and make decisions on Development Work



# PROJECT UPDATE

- Initial COLA Development:
  - Core Boring & Well Drilling Preparations Completed
  - Biological/Cultural Surveys Completed
  - Geotechnical Walkdowns Completed
  - Mowing Completed
- Next Phase:
  - Geotechnical Preparations



# OPERATOR DUE DILIGENCE

- Letter of Intent was executed with potential operator
- Initial discussions focused on background information from both parties
- Work to be completed in eight weeks
- Term sheet to follow
- Operator to support to review the OPEX estimate



# DOE ENGAGEMENT

- Meetings continue with DOE NE to discuss CFPP award modifications
- Two step process:
  - CFPP Cost Sharing Award
  - DOE Loan Guarantee



## NUSCALE DCRA PROPOSAL FOR 6 NPM DESIGN

- Received NuScale proposal for 6 NPM configuration
- Target price of \$55/MWh (2020\$)
- Preserved the 2030 Commercial Operation Date
- The 6 NPM configuration substantially reduces subscription uncertainty
- Additional negotiations ongoing



# NEXT STEPS

- Interim PMC meeting to make conditional decision on CFP configuration
  - Conditioned on governing body feedback
  - Staff support of governing body briefings and information briefing



# **LANL Legacy Cleanup Technical Working Group**

## **Meeting Agenda**

**May 5, 2021**

**3:00 – 5:00 p.m.**

Conference Call via Webex

### **Video Link:**

<https://n3b-la.webex.com/n3b-la/j.php?MTID=m8197c36660681a6372fc7e9a4dc41d14>

**Call-in number:** 1-415-527-5035

**Access code:** 199 529 1938

3:00 p.m. Welcome and Introductions

- Safety and Ethics

3:10 p.m. Introduction to Agenda Topic

3:15 p.m. Chromium Project Overview: Setting the Stage

- Presentation by Dave Broxton:
  - Complex hydro-stratigraphy of the regional aquifer in the area of the hexavalent chromium plume
  - Influence on groundwater flow and contaminant movement

4:45 p.m. Open Discussion

- Time is allotted to address process questions or other items TWG members might have

5:00 p.m. Adjourn

Items not covered during this meeting will be carried over to the June 2, 2021 meeting

Future meeting(s) will focus on geochemistry of the regional aquifer and hexavalent chromium plume



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# High-Resolution Stratigraphic Characterization of the Regional Aquifer at the Location of Hexavalent Chromium Plume at Los Alamos National Laboratory

Technical Working Group  
May 5, 2021

David Broxton  
Senior Geologist  
N3B Los Alamos





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# Key Points

## Objectives

- Provide a high-resolution characterization of the lithologic and hydrologic structure of the regional aquifer
- Develop conceptual model that describes how chromium transport is occurring
- Support of design of remediation alternatives

## Main Conclusions of This Analysis

- The regional aquifer in the Cr plume area consists of three primary stratigraphic units, but groundwater flow and chromium mass transport is effectively occurring through a single, highly heterogeneous, hydrostratigraphic unit
- The primary advective transport strata where groundwater and chromium flux is occurring are highly variable throughout the plume area
- Design of remediation strategies will need to consider that variability



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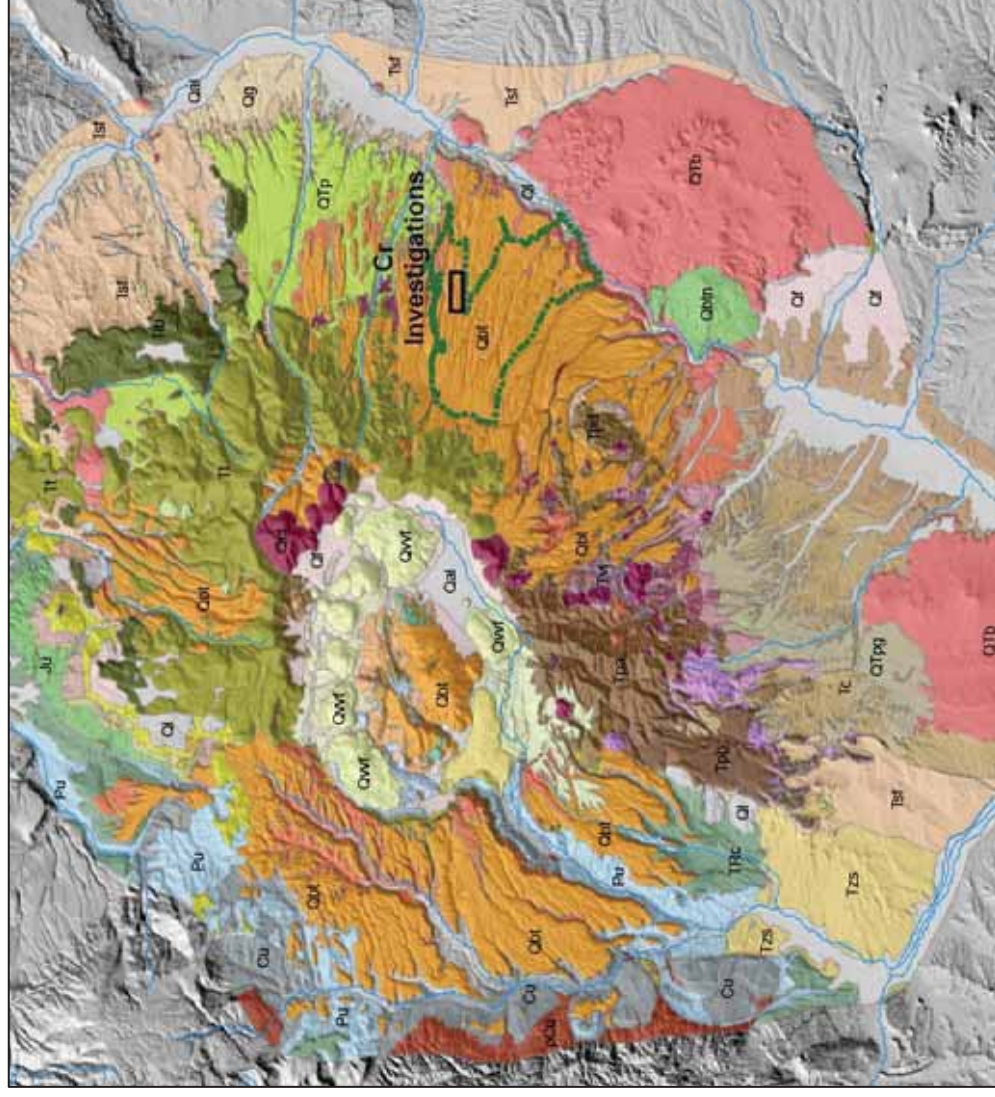
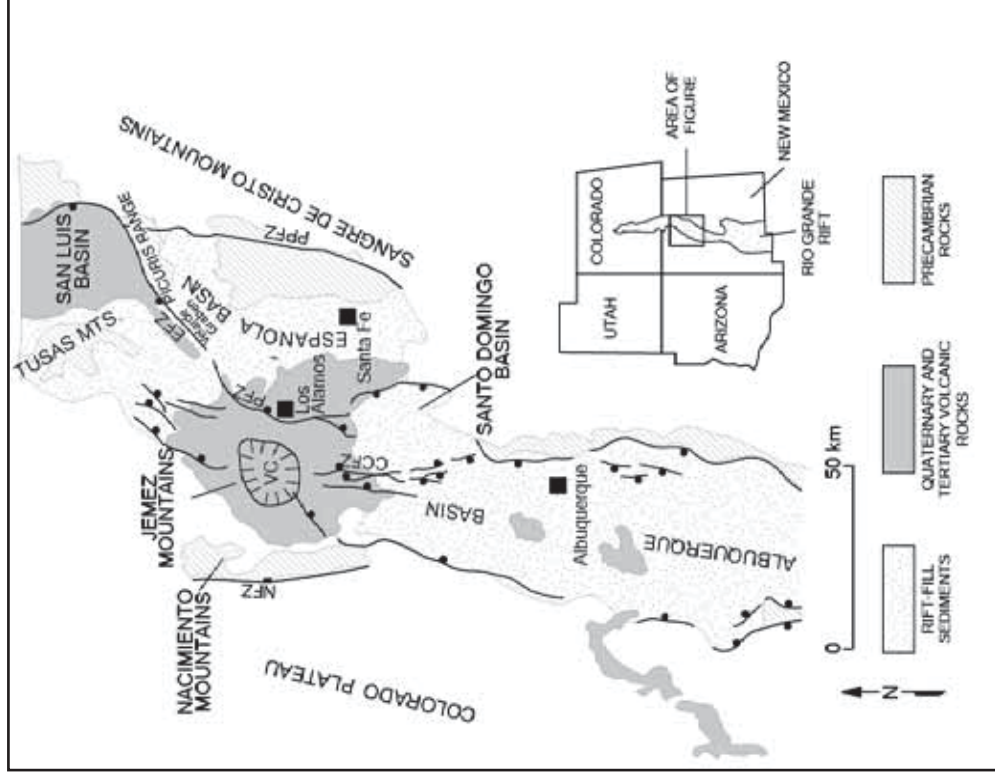




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# Geologic Setting

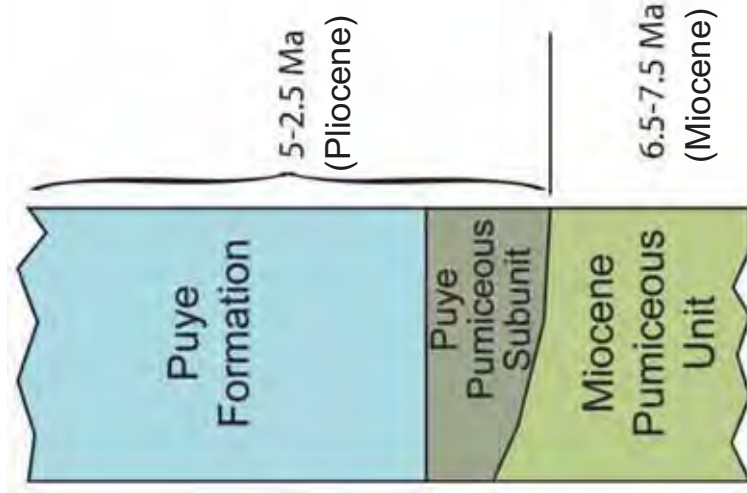


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# Geologic Units of the Regional Aquifer

Geologic units in regional aquifer are Miocene and Pliocene alluvial fan deposits



## Puye Formation

Brown to gray dacitic gravels and lithic sandstones. Coarsest parts of the deposits contain boulders and cobbles of lava and tuff in a poorly sorted matrix of ash, silts, and sands.

## Puye Pumiceous Subunit

Hybrid unit that has lithologic characteristics of overlying Puye Fm. And underlying Miocene Pumiceous Unit

## Miocene Pumiceous Unit

Tan to light gray rhyolitic tuffaceous sands. Largely made up of medium- to coarse-grain pumiceous sands with minor gravels.





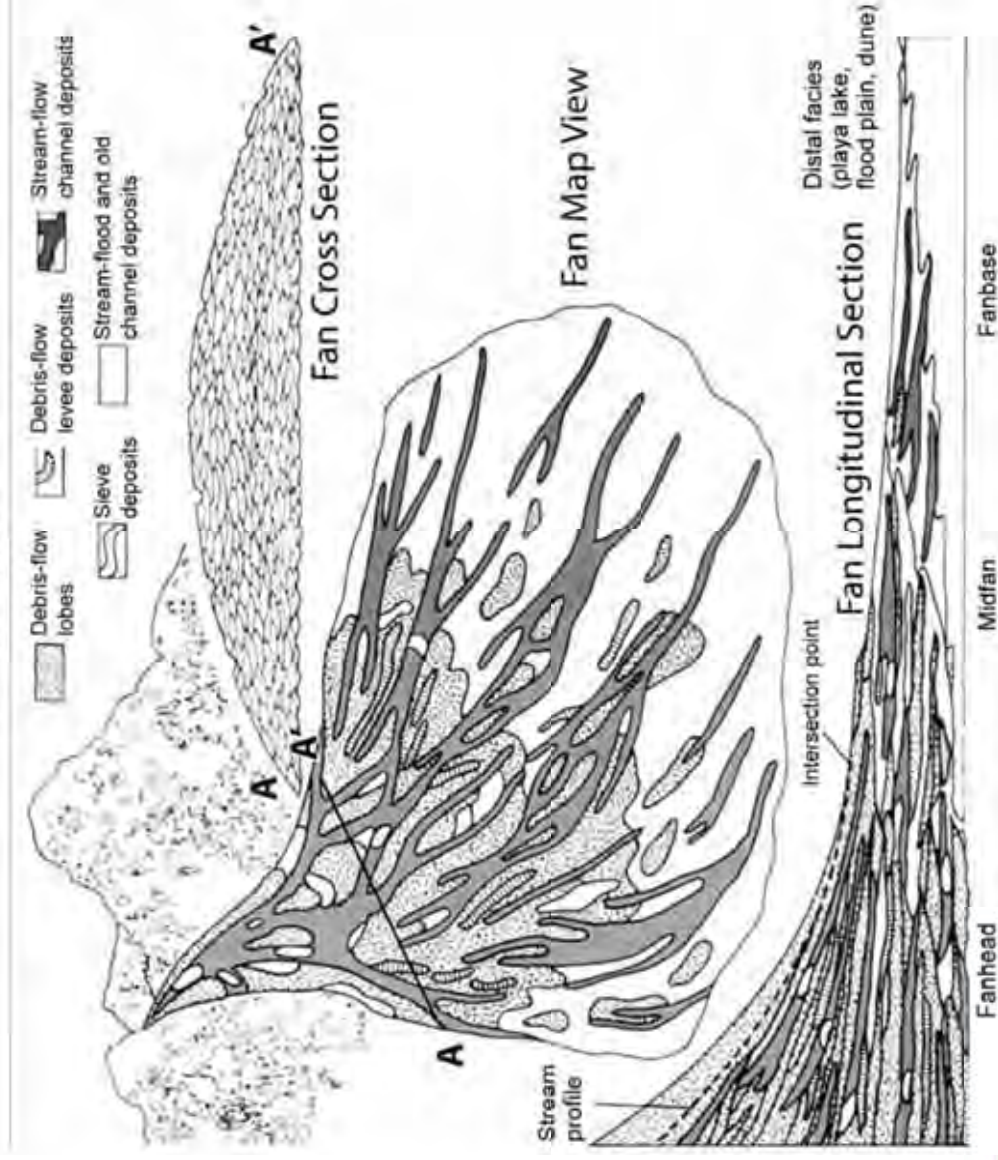
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# Alluvial Fans

## Alluvial Fan Lithological Characteristics

From Spearing, 1974



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# Aquifer Geology

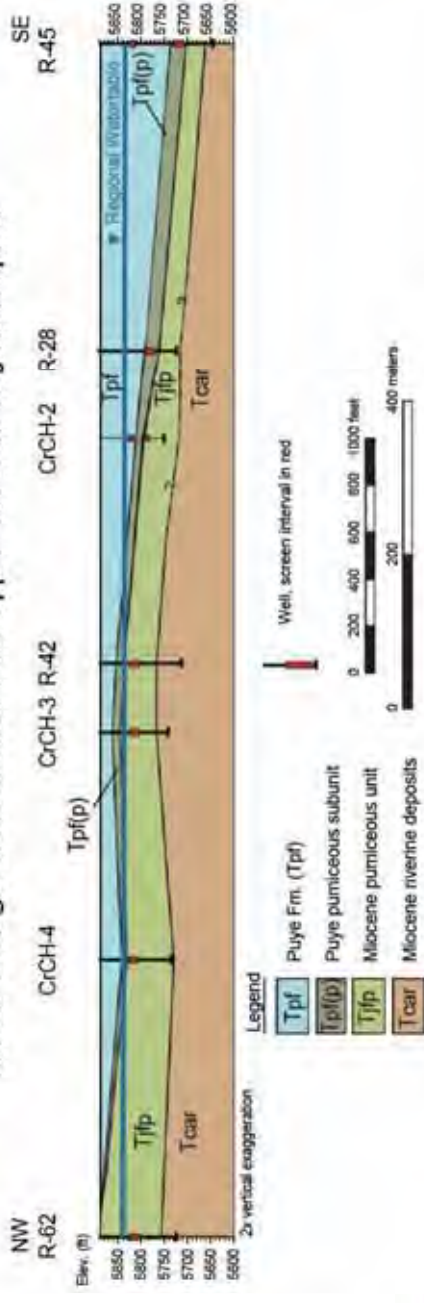
Geologic Map at the Top of the Regional Aquifer



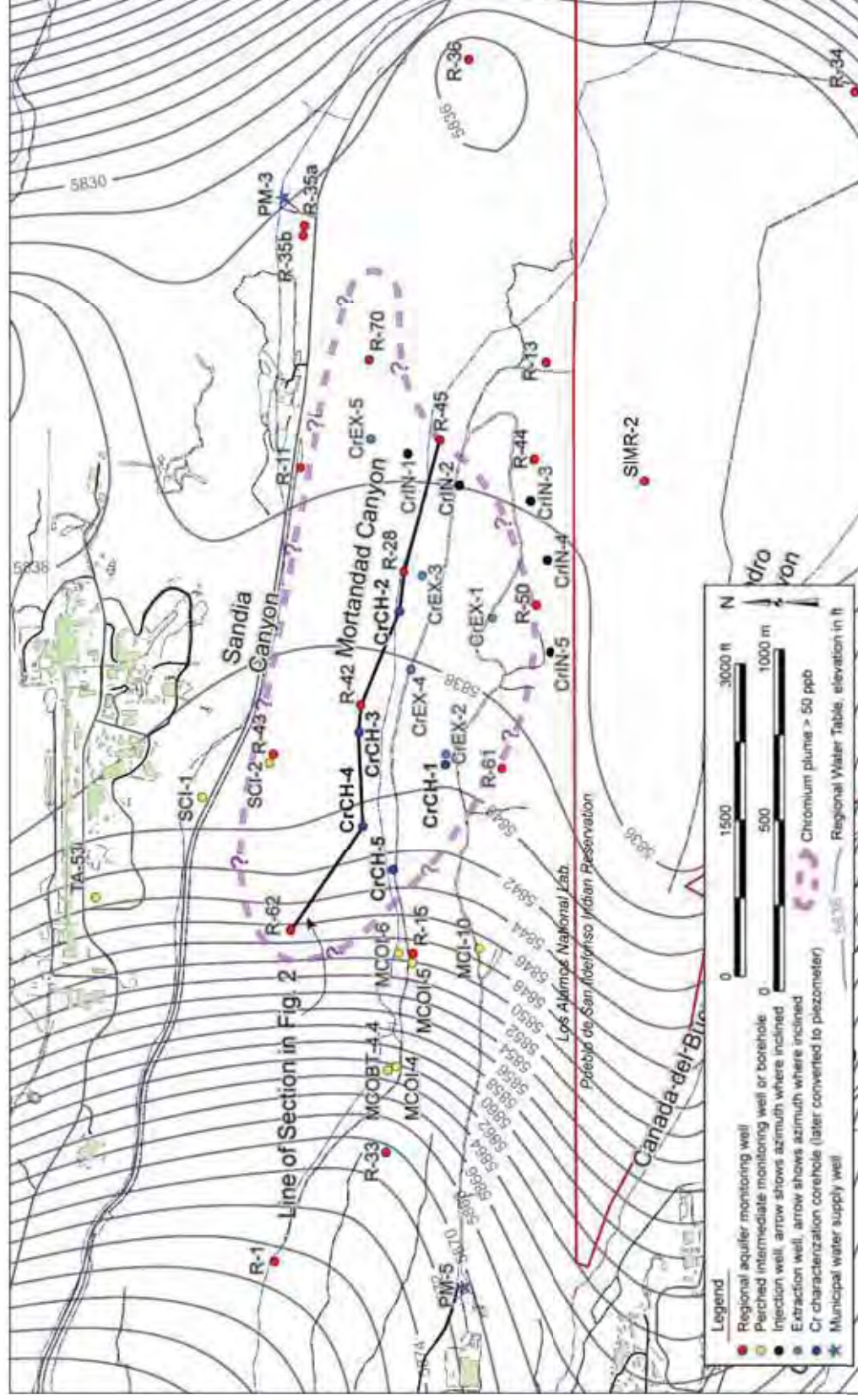
- Chromium plume is largely confined to the upper 30 m (100 ft) of regional aquifer
- Three primary units:
  - *Puye Formation*
  - *Pumiceous Puye*
  - *Miocene Pumiceous Unit*

- Units dip gently towards the SE
- Groundwater flowing eastward across the plume area will encounter progressively younger rocks

NW-SE Geologic Cross Section in the Upper Part of the Regional Aquifer



# Core Holes CrCH-1 through CrCH-5 – drilled 2014





# Cores



- Continuous core was collected by sonic drilling with nearly 100% recovery
- Strata were sampled from geologic formations that make up the regional aquifer
- Cores collected in lexan liners and plastic sleeves were cut open longitudinally and the core was described for color, grain size, clast composition, clast angularity, and bedding characteristics





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# Methodology for Determining Particle Size Distribution

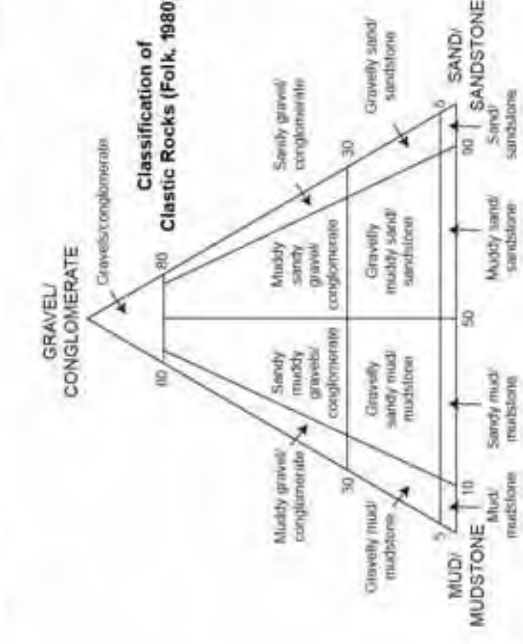
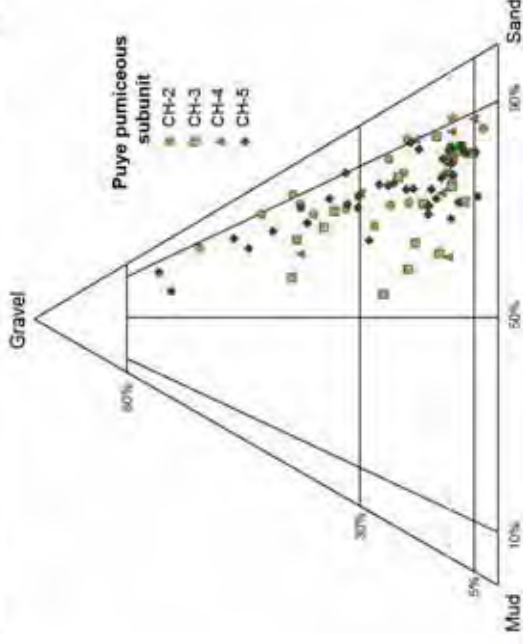
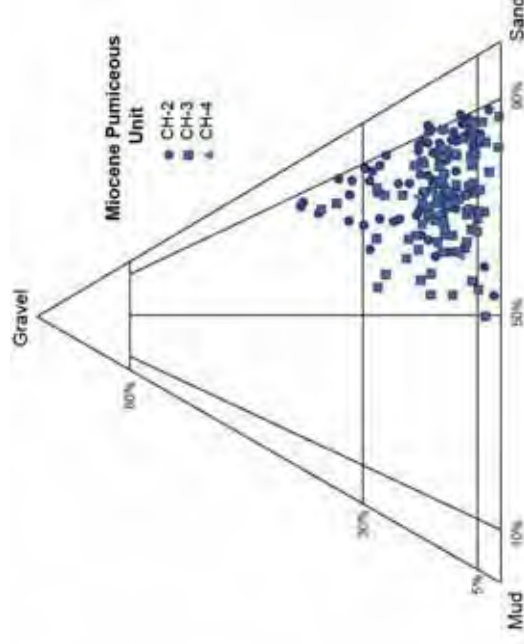
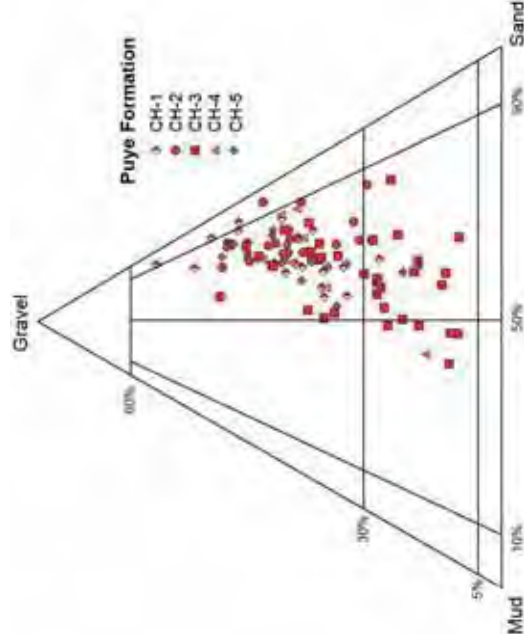
- Each bed or depositional unit was isolated and collected as an individual sample (371 samples collected over 5 core holes)
- Each sample was homogenized, and then a split was dry sieved into 6 size fractions ranging in size from gravel to silt
- Distilled water then used to wash the 6 size fractions and the wash water was collected in a container where suspended silt and clay was allowed to settle over a period of at least 24 hours; this yielded a seventh size fraction
- Each size fraction was dried and weighed
- Weights of the various sieve size classes were tabulated and then converted to weight percent



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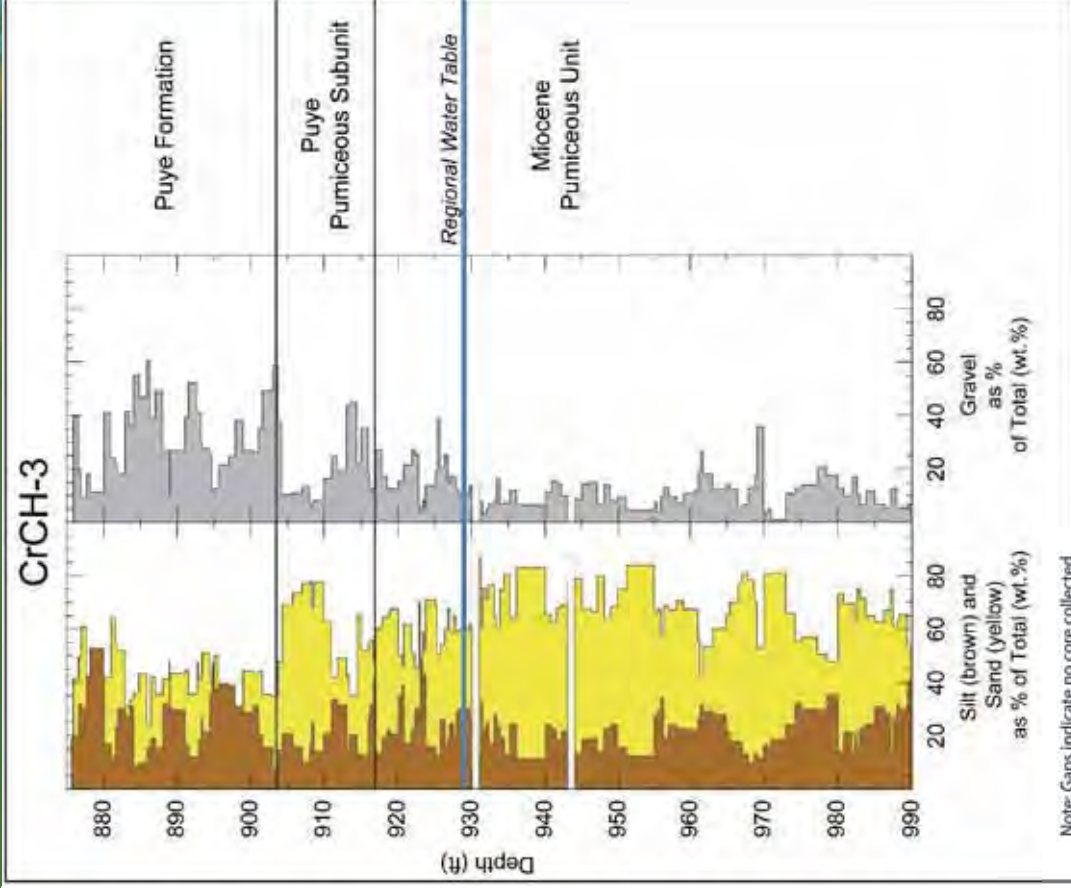
# Grain Size Characteristics by Geologic Formation



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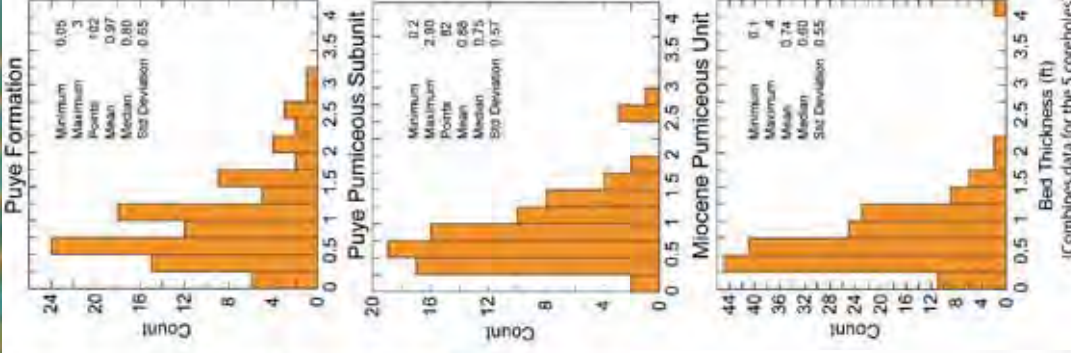
# High Resolution Stratigraphy



Note: Gaps indicate no core collected



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# Calculation of Hydraulic Conductivity (K) from Particle Size Distribution

- Hydraulic Conductivity or K is a measure of the rate of flow of water in an aquifer
- A 2015 paper by Devlin in the journal Hydrogeology compared 15 published approaches for calculating hydraulic conductivity from particle size data
- Devlin's paper included an Excel spreadsheet called HydroGeoSieve that calculates hydraulic conductivity by the different methods
- The 15 methods use a form of the Kozeny Carmen equation, but variables such as effective grain diameter, porosity function, and grain roughness are derived differently each of the methods

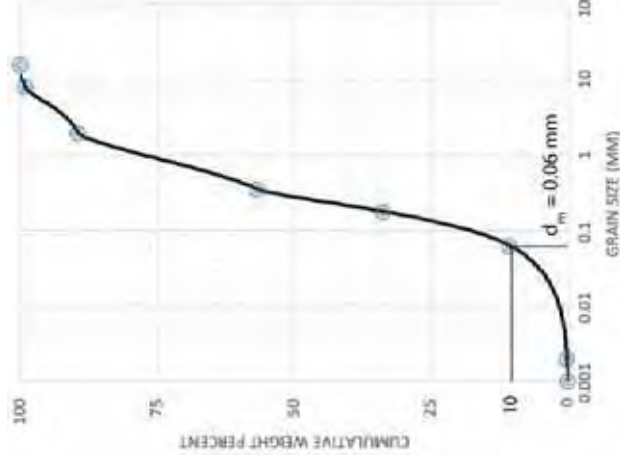
**Kozeny Carmen Equation**  
(works best for sands and gravels)

$$K = \frac{\partial g}{\mu} \times \frac{d_m^2}{180} \frac{\phi^3}{(1-\phi)^2}$$

K = Hydraulic Conductivity (cm/s)  
 $\partial$  = water density (g/m<sup>3</sup>)  
g = gravitational constant (cm/s<sup>2</sup>)  
 $\mu$  = dynamic viscosity (g/cm s)  
180<sup>-1</sup> = medium constant (grain angularity)  
d<sub>m</sub> = grain diameter at d<sub>10</sub> (cm)  
 $\phi$  = fractional porosity



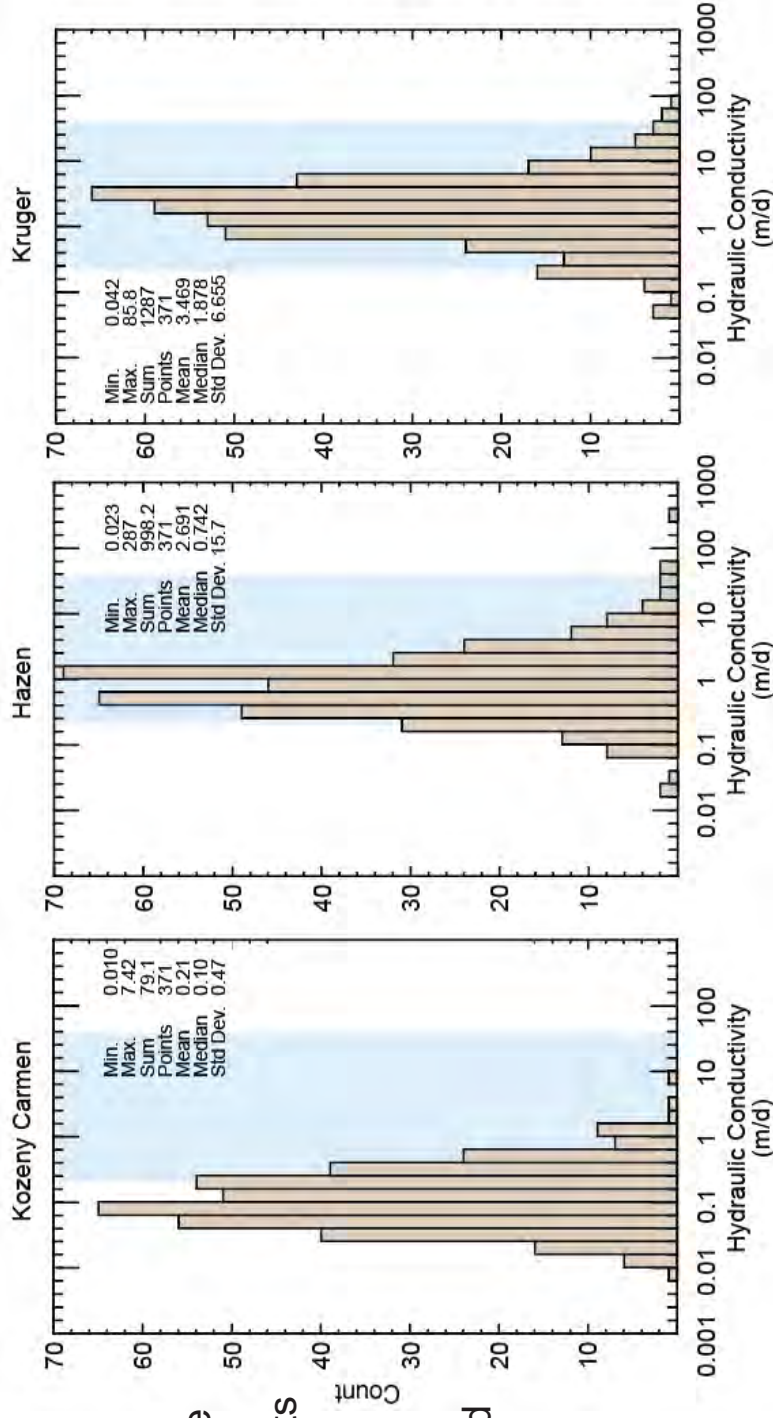
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# K Distributions by Different Estimation Methods

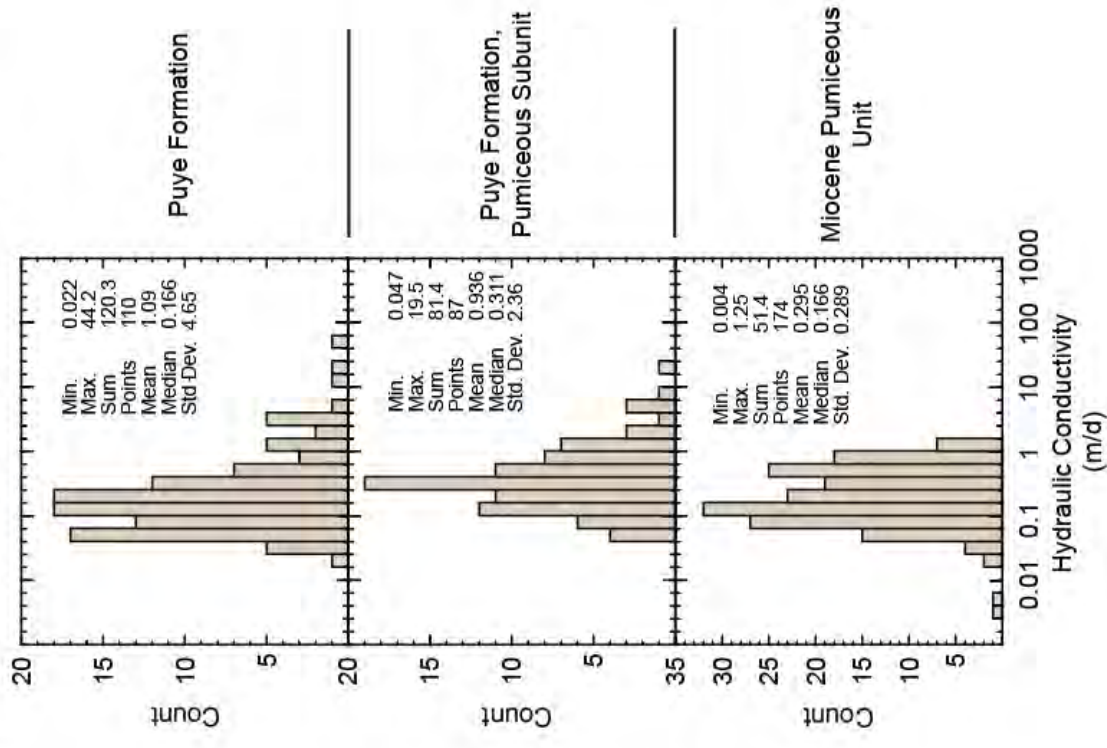
- K values by all methods have a log normal distribution
- For a given method, Ks span an order-of-magnitude
- Blue shading shows range of hydraulic conductivities determined by aquifer tests in the chromium plume area
- Order-of-magnitude differences in Ks produced by the different methods
- However, relative data for Ks is remarkably consistent among the 15 estimation methods





# Hydraulic Conductivity by Geologic Unit

K Estimates by the Kozeny Carmen Method



- Histograms of K distributions for the three geologic units strongly overlap for any given estimation method
- The overlap in Ks suggests there is little difference in the bulk hydraulic properties at the scale of geologic units



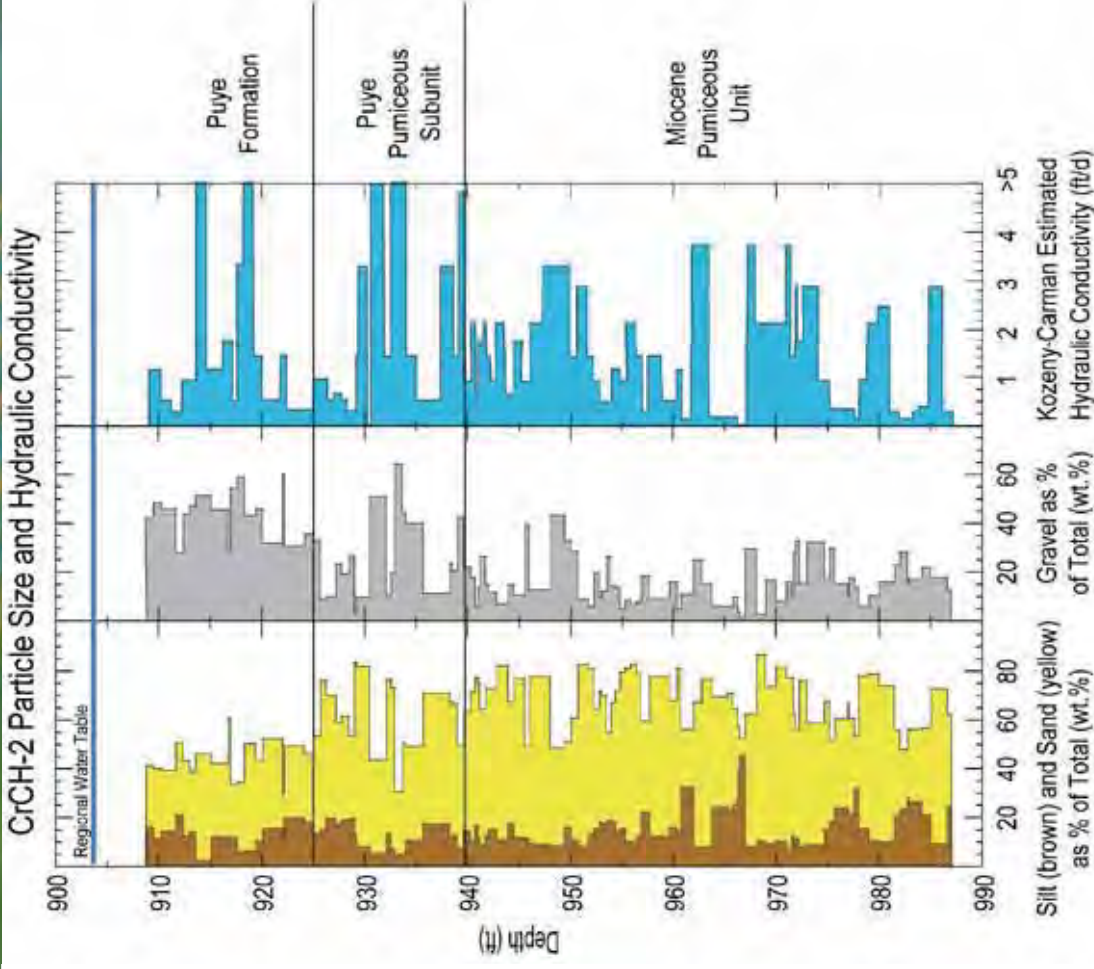


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# High Resolution Stratigraphy with Ks in Core Hole CrCH-2

- High-resolution stratigraphy combined with estimated Ks provide a detailed characterization of the hydraulic structure of the regional aquifer
- Permeable strata are found in all geologic units making up the regional aquifer
- All three geologic units are characterized by lithologic and hydraulic heterogeneity – something we'd expect to see in alluvial fans
- When comparing the five core holes, the stratigraphic position of high-K beds varies and is unpredictable, and the lateral extent of individual beds is uncertain

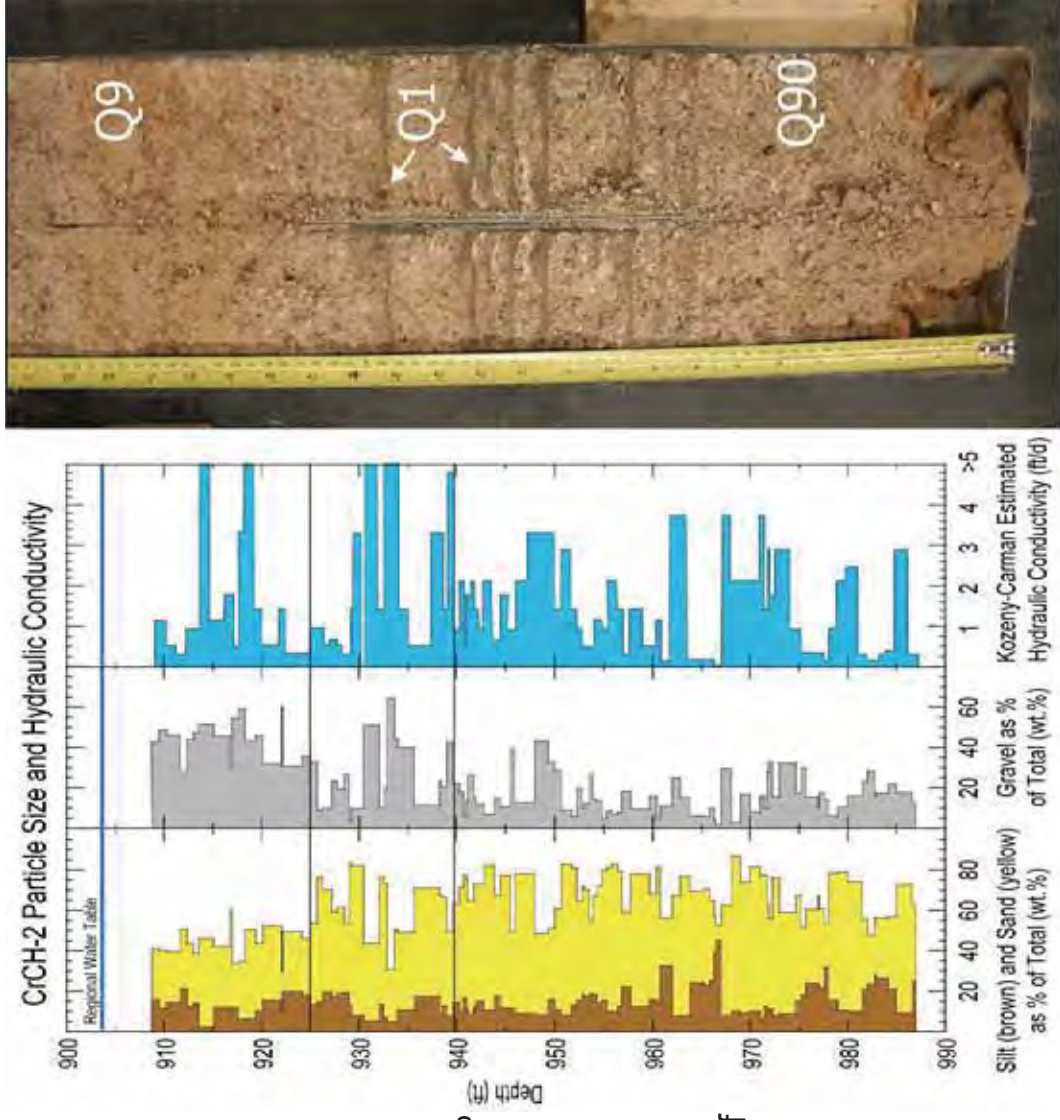


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# Groundwater Flux Distribution

- (Horst et al 2017) present a method for using cumulative flow distribution plots to identify flow regimes in an aquifer
- This approach emphasizes the importance of order-of-magnitude differences in K rather than absolute values of K to differentiate high, medium, and low flow regimes
- “Q90” is used to describe the most permeable aquifer materials that carry 90% of the groundwater and chromium flux – these are advective zones in which water flows freely through the available pore space
- “Q9” are less permeable strata and carry 9% of the groundwater flux – these parts of the aquifer are characterized by slow advection and diffusion
- “Q1” are tight zones (silts and clays) and have 1% of the groundwater flux – water is static in these zones





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# Outcrop Scale Flow Variations



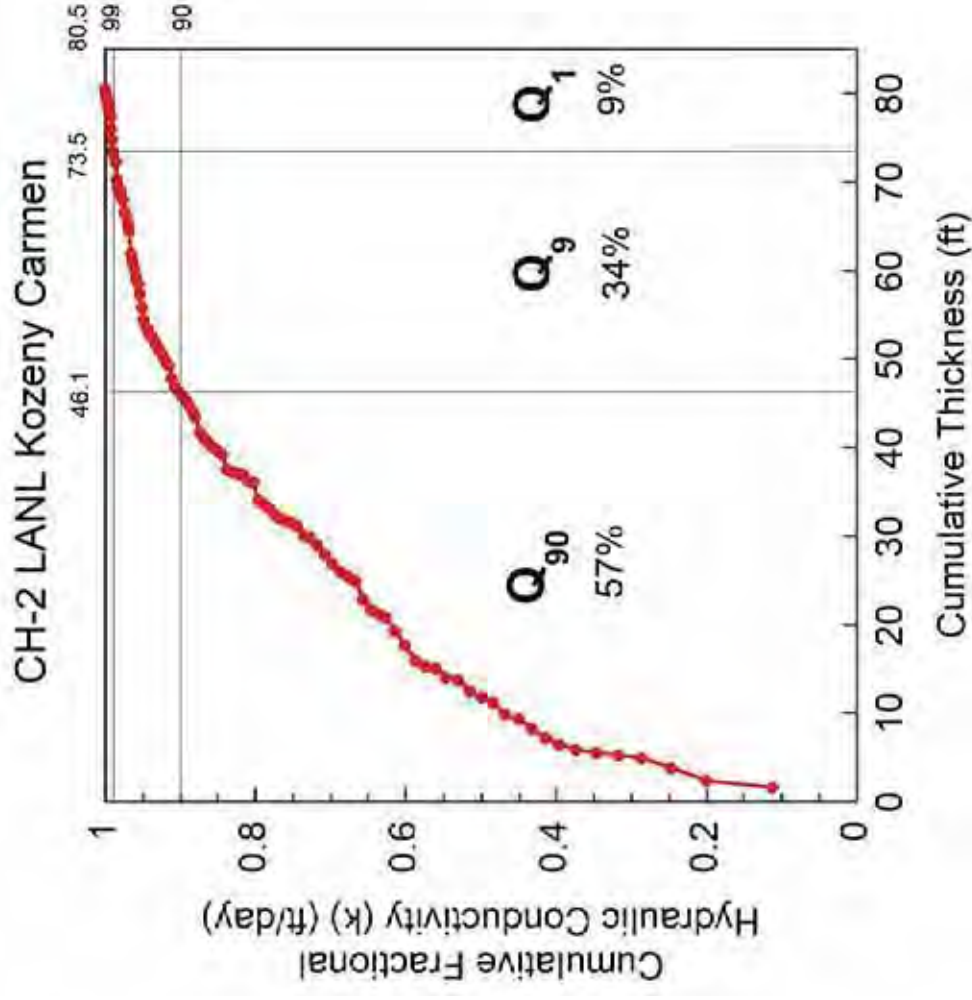


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# Groundwater Flux Example

- Using an Excel spreadsheet, the estimated K data are sorted from high to low values
- Starting with the highest K values, cumulative Ks and bedding thicknesses are tabulated sequentially on a bed-by-bed basis
- The cumulative Ks are converted to cumulative fractional hydraulic conductivities and plotted against the cumulative bed thickness

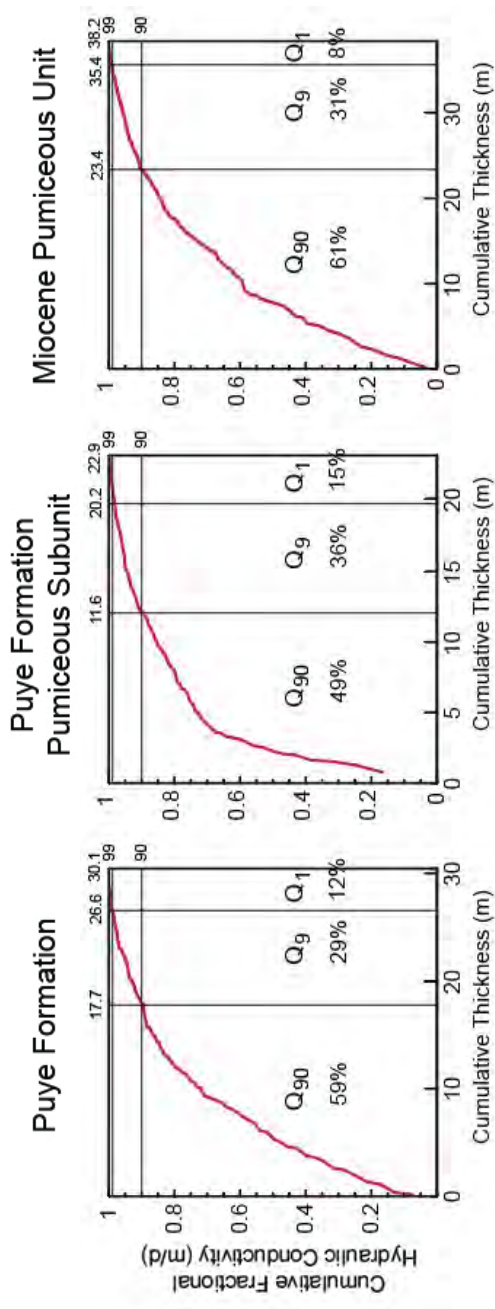


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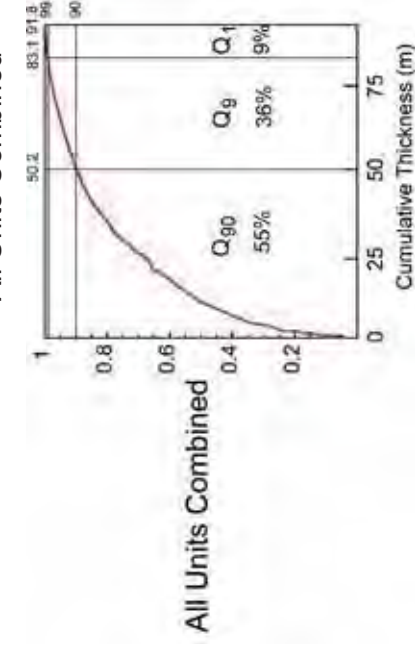
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# Comparing Groundwater Flux in the Geologic Units

- The distribution of groundwater flux is similar in each of the geologic units making up the regional aquifer
- 90% of groundwater flux in the regional aquifer occurs in about 49–61% of the aquifer profile
- Large portions of the aquifer are characterized by advective flow and are available for treatment



All Units Combined



Plots include data for all five core holes

Hydraulic conductivity used in these plots is the geometric mean of the 15 estimation methods

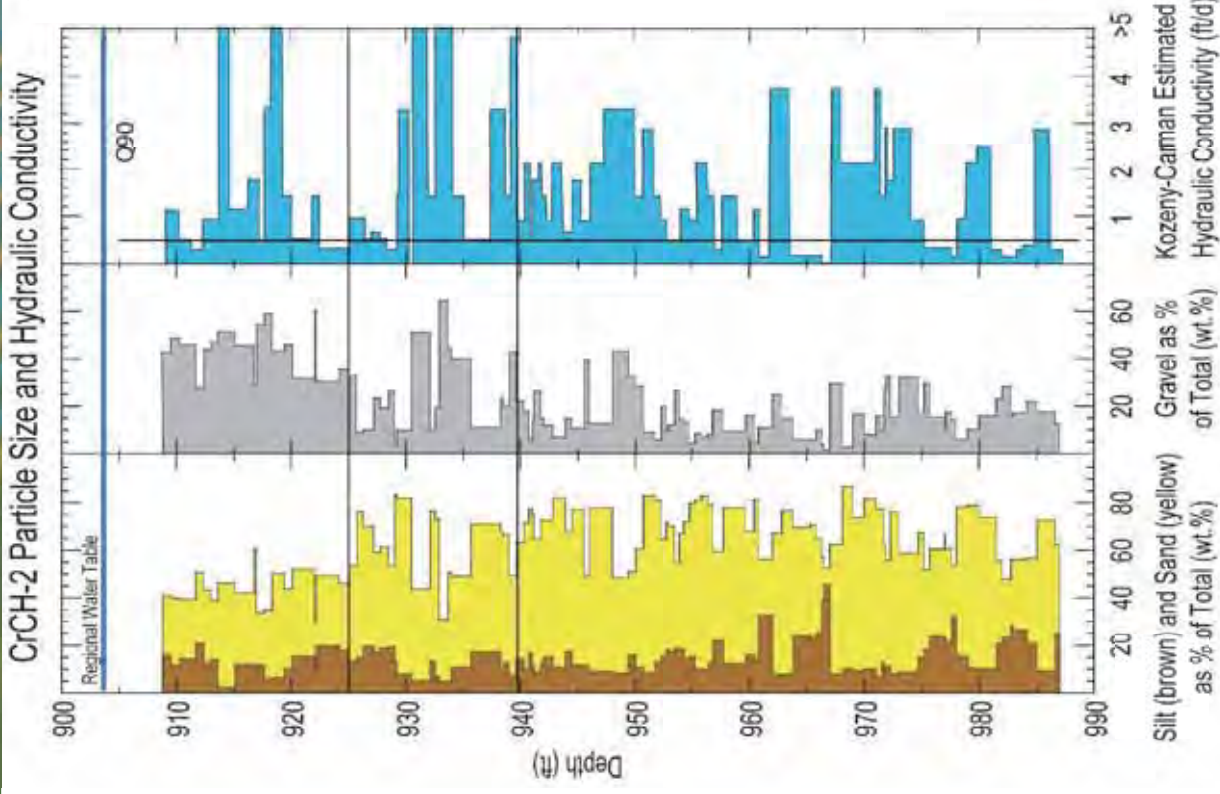


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# Distribution of Q90 Beds

- Q90 beds are distributed throughout the aquifer
- There is a wide range of hydraulic conductivities within the set of Q90 beds
- A relatively small subset of beds may be responsible for a significant fraction of the advective flow
- Targeting the highest flow beds for remediation is probably impractical because of their widespread distribution in the aquifer, the thin nature of the beds, and the uncertain lateral continuity of any individual bed



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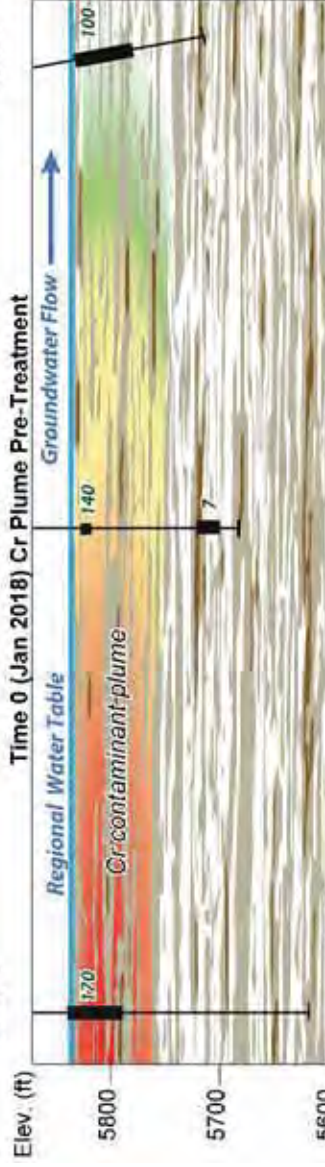
# Conceptualization of Groundwater Hydraulics Related to IM Performance

CrEX-1

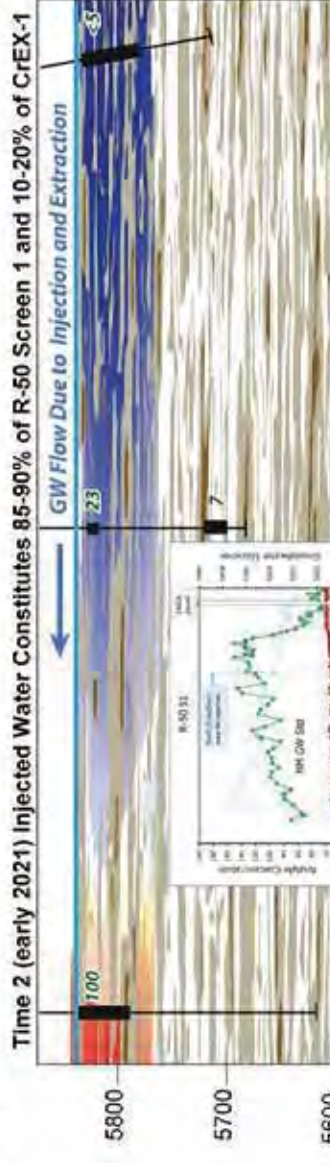
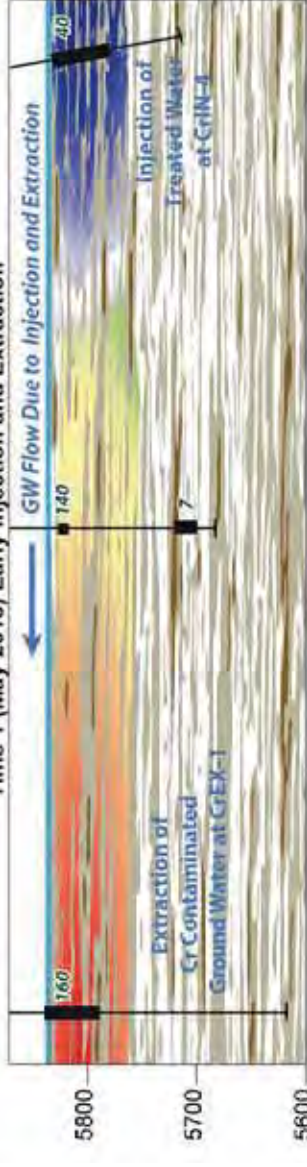
R-50

CrIN-4

Plan View of CrIN Injection

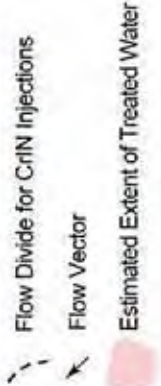
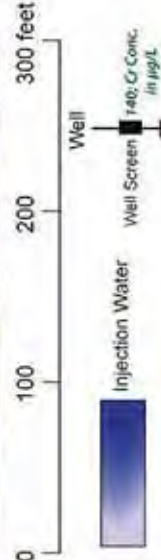


Time 1 (May 2018) Early Injection and Extraction



**Key to High Resolution Stratigraphy**

Conceptual groundwater flux in a heterogeneous aquifer based on order of magnitude differences in hydraulic conductivity





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## Summary and Conclusions

- High-resolution stratigraphy combined with estimated Ks from particle-size distributions provide a detailed characterization of the hydraulic structure of the regional aquifer
- These data provide a framework that supports remediation design by identifying aquifer heterogeneities that control where chromium mass transport is occurring
- Permeable beds are distributed throughout the stratigraphic sequence regardless of geologic unit, and the regional aquifer where the plume is located is effectively a single, highly heterogeneous, hydrogeologic unit
- Large portions of the aquifer are characterized by advective flow and therefore are available for treatment and remediation
- A relatively small subset of beds may be responsible for a significant fraction of the advective flow, but it would be impractical to target them for remediation



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# Dave Broxton

*Groundwater Investigations  
Senior Geologist*

During his 35-year career as a research scientist at Los Alamos National Laboratory, Dave Broxton was involved in a variety of projects, including exploration for strategic minerals, research on the evolution of large silicic volcanic fields, siting nuclear waste repositories, and environmental groundwater investigations at Los Alamos. He is currently employed by Tech2 Solutions/Newport News Nuclear BWXT (N3B) as a senior geologist for groundwater investigations as part of the Legacy Cleanup Program at Los Alamos National Laboratory. His stated goal is to apply geologic research to address important national issues such as environmental protection, nuclear waste disposal, and mineral resource independence. He enjoys working with multidisciplinary teams to solve complex problems.



# Paul W. Reimus, Ph.D

*Chromium Remediation Project  
Scientist*

Dr. Paul Reimus has B.S., M.S. and Ph.D. degrees in Chemical Engineering. He worked as a staff member at Los Alamos National Laboratory (LANL) from 1989 to 2018, and prior to that he was a research engineer at Battelle Pacific Northwest Laboratories from 1983 to 1989. He retired from LANL/TRIAD in 2018, but he has worked as a part-time scientist with T2S (under N3B) on the LANL Chromium Remediation project since January 2019. During his 29 years at LANL, Dr. Reimus worked on numerous projects related to nuclear safety analysis, contaminant and tracer transport in groundwater systems, and environmental restoration.

Dr. Reimus has been involved in the LANL Cr remediation project since 2013, and his responsibilities have included designing, conducting and interpreting numerous laboratory and field experiments to better understand Cr(VI) migration in the regional aquifer and to evaluate in-situ remediation technologies for Cr(VI) reduction. The field experiments have included 10 borehole-dilution tracer tests, 2 single-well push-drift-pull tracer tests, one cross-hole tracer test, and several planned observations in monitoring wells of water that was treated at the surface to remove Cr(VI) and then re-injected into the aquifer as part of the pump-and-treat interim measure (using both tracers and geochemical signatures to identify the treated water). He was also principal investigator for two field pilot tests to evaluate chemical and bio-stimulation amendments (sodium dithionite and molasses, respectively) that promoted in-situ reduction of Cr(VI) in the regional aquifer. His responsibilities in this role included overseeing numerous laboratory experiments that supported the design, and interpretation of the field amendment tests.



# County of Los Alamos

## Staff Report

June 16, 2021

Los Alamos, NM 87544  
www.losalamosnm.us

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Agenda No.:	6.B.
Index (Council Goals):	DPU FY2021 - 4.0 Sustain a Capable, Satisfied, Engaged, Ethical and Safe Workforce Focused on Customer Service
Presenters:	Philo Shelton and Valerie Park
Legislative File:	14129-21

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### Title

Approval of the Collective Bargaining Agreement (CBA) with the United Association of Plumbers and Pipefitters (UAPP), Local Union No. 412, Covering the Period of July 1, 2021 through June 30, 2026.

### Recommended Action

**I move that the Board of Public Utilities recommend approval of the Collective Bargaining Agreement between the County of Los Alamos and the United Association of Plumbers and Pipefitters (UAPP), Local Union No. 412, for the Period of July 1, 2021 through June 30, 2026 and forward to County Council for approval.**

### Staff Recommendation

Staff recommends that the Board of Public Utilities endorse County Council approval of the Agreement as requested.

### Body

Los Alamos County and the United Association of Plumbers and Pipefitters Local 412 entered into negotiations on May 4, 2021 for the purpose of developing a new CBA as the current Agreement is set to expire on June 30, 2021. Negotiations were conducted over 3 negotiation sessions and the outcome was a tentative agreement was made on May 13, 2021. The agreement is for a five-year CBA, including non-economic and economic items. The Union ratified this proposed agreement on May 18, 2021. The CBA is presented in Attachment A for the Board of Public Utilities review and consideration of a recommendation for approval by County Council.

### ***The significant changes to the contract include:***

- 1) There were a couple of job title changes which will not result in any promotion or pay adjustments. The title changes are: WWTP Apprentice 3 is now WWTP Operator and WS Apprentice 3 is now WS Operator.
- 2) The safety boot allowance was increased to \$200.00 annually (or as needed). The allowance for prescription safety glasses was added for up to \$150.00 bi-annually. (same as the IBEW Contract)
- 3) The Meals and Expenses Article was revised that when an employee is held over or called out, the employee will be entitled to a meal after four (4) hours and every five (5) hours after that

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until released from work. Meals earned but not eaten shall be paid at twenty (\$20.00) dollars per meal. Employees are required to complete an employee expense claim form within 14 days of the qualifying event. (same as the IBEW Contract)

4) The call out administrative leave language was changed to match the current IBEW contract language. If an employee works 16 consecutive hours they are entitled to an 8 hour consecutive rest period and if an employee works at least 2 hours between the hours of midnight and 5 am, or gets called out between 2 AM and 5 AM, they will now be eligible for an 8 hour rest period.

5) The language in the Stand-by article was revised that when the primary and secondary employees are required to be on stand-by duty on a holiday (per County Personnel Rule 720) but are not called-out, those stand-by hours will be considered time worked only for the purposes of overtime calculation.

6) The Gas System Welding Program section was significantly changed. The only remaining provision of this article left in place was the agreement on pay for specific welds performed by a certified employee. The training program had not been successfully initiated for reasons on both sides. The Union is primarily responsible for the training and the County is responsible to provide an eligible employee. Both parties have agreed to develop (at a later date) a Memorandum of Understanding (MOU) to specifically develop a training program including a defined schedule and expectations and the County will authorize employee participation.

8) The Pay plan maintained in the 5 tiers previously established, such that equal level employees in each Occupational Group receive equal pay. See Exhibit 1 for specifics, the overall increase for the five year contract was 17.8% (3.56% per year on average).

9) The current contract is a four-year contract, however the parties were able to negotiate a five-year contract that will begin July 1, 2021 through June 30, 2026

#### **Alternatives**

This 5-year contract is the result of good-faith negotiations between the County and the UAPP and is approximately equivalent to terms and conditions of employment for all regular County employees. Staff believes that the recommended approval of this contract is the best available alternative.

#### **Fiscal and Staff Impact**

The FY22 costs of the CBA add approximately 4% to wages and a budget revision will be brought back to BPU and Council after the CBA is approved and signed by the parties.

#### **Attachments**

A - UAPP Agreement 2021-2026



AGREEMENT

BETWEEN

THE INCORPORATED COUNTY OF LOS ALAMOS

AND

THE UNITED ASSOCIATION OF PLUMBERS AND PIPEFITTERS  
LOCAL UNION NO. 412



July 1, 2021 – June 30, 2026

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## Article 1 - PREAMBLE

**Section 1. Parties:** This Agreement made and entered into by and between the Incorporated County of Los Alamos in the State of New Mexico, hereinafter referred to as the "County", and The United Association of Plumbers and Pipefitters Local Union No. 412, hereinafter referred to as the "Union". When referred to jointly, the County and the Union shall be referred to as the "Parties".

**Section 2. Purpose:** The purpose of this Agreement is to establish wages, hours, and other conditions of employment, and to protect the rights of Los Alamos County, The United Association of Plumbers and Pipefitters Local Union No. 412, and ensure the provision of quality services to the citizens of this County. The parties agree to strive toward the achievement of harmonious and beneficial relationships by the adjustment of differences through positive and professional interactions.

**Section 3. Copies of Agreement:** Each party to this Agreement shall print sufficient copies for its own use. Distribution of copies of this Agreement by the Union to its members shall not be performed during normal work hours.

## Article 2- NONDISCRIMINATION

The parties agree to the extent allowed by law that neither the Union's nor the County's respective policies or activities will discriminate against any employee based upon race, color, religion, sex, age, national origin, sexual orientation or gender identity, disability or veteran status, or Union or non-Union affiliation. The parties shall not discriminate against bargaining unit employees on the basis of Union membership.

## Article 3- RECOGNITION

**Section 1. Recognition:** The County recognizes the United Association of Plumbers and Pipefitters Local Union No. 412 as the sole and exclusive collective bargaining agent on behalf of all employees as certified by the Los Alamos County Labor Management Relations Board in the designated bargaining unit in the positions of non-probationary Senior GWS Pipefitter, GWS Pipefitter, GWS Apprentice I and II, WWTP Operator, Senior WWTP Operator, WWTP Apprentice I, II, GWS/WWTP/Water Systems Trainee, Water Systems Operator, Senior Water Systems Operator, and Water Systems Apprentices I, II.

For purposes of this article and identification of the position titles in this bargaining unit only, the position titles recognized and designated in this bargaining unit have been changed for title purposes only as follows:

- GWS Pipefitter changed to Senior GWS Pipefitter
- GWS Service Worker changed to GWS Pipefitter
- GWS Apprentice I and II there is no change
- Senior WWTP Operator there is no change
- WWTP Apprentice I and II there is no change
- WWTP Apprentice III changed to WWTP Operator

- GWS/WWTP/Water Systems Trainee there is no change
- Water Systems Operator changed to Senior Water Systems Operator
- Water Systems Apprentices I, and II there is no change
- Water Systems Apprentice III changed to Water Systems Operator

The above changes reflect title changes only; there is no financial, economic, job description or content, or promotional gain as a result of these title changes.

**Section 2. Severability:** If any provision of this Agreement is determined by final order of an administrative body or court with jurisdiction over the Parties to be contrary to State or Federal law, the affected provision shall be rendered null and void. All other provisions not affected by the illegal provision shall remain in full force and effect. The provision determined to be contrary to law shall be subject to renegotiations by the parties provided either party submits a written request to reopen negotiations no later than 30 days after the parties knew or reasonably should have known on that issue only that the provision was contrary to law.

#### Article 4 -NO STRIKE, SLOWDOWN OR LOCKOUT

The parties acknowledge that the New Mexico Public Employee Bargaining Act and the Los Alamos Labor Management Relations Ordinance make strikes illegal. The Union, its officers, agents, representatives and members agree that they shall not instigate, lead, engage in, or encourage a strike, slowdown, work stoppage or other interference of the County operations. The County shall not lockout bargaining unit employees.

#### Article 5 - MANAGEMENT RIGHTS

Unless limited by the provisions of this Collective Bargaining Agreement or by other statutory provisions, the County may:

- A. Direct the work of, promote, hire, assign, transfer, demote, suspend, discharge or terminate a County employee;
- B. Determine qualifications for employment and the nature and content of personnel examinations;
- C. Take lawful actions as may be necessary to carry out the mission of the County in emergencies;
- D. Retain all rights not specifically limited by this collective bargaining agreement or by the Public Employee Bargaining Act [10-7E-1 to 10-7E-26 NMSA 1978].

#### Article 6 -UNION RIGHTS

The County recognizes the right of the Union to designate bargaining unit employees as stewards. Such stewards will be granted leave without pay (when it does not interfere with their assigned duties and with the supervisor's approval) to see that the terms of this agreement are enforced or for other Union business. The County will recognize one (1) lead steward and one (1) back-up steward authorized to conduct business on behalf of the Union. The back-up steward will only conduct business on behalf of the union, only if the lead steward is unavailable. The Union agrees to provide the County with the names of the authorized steward on July 1" of each year the Agreement is in effect and at each time a

change in stewards occurs. If the County requests the assistance of the steward in addressing or resolving a matter, such time spent while on duty will be considered time worked.

#### Article 7 -UNION DUES

The County will collect and forward dues and death assessment (if elected) deductions for Union membership from bargaining unit employees who submit a written authorization form provided by the Union for this purpose. Such dues deductions shall be per job classification (not to exceed a total of three (3) classifications) for all Union members and shall not include any penalties, assessments, or arrears payments. Employees who desire to have dues and death assessments (if elected) deducted or cancelled may do so by submitting appropriate written notice that is signed and dated to the Payroll Department fourteen (14) calendar days prior to the beginning of the pay period for which the action is to be effective. Such dues will be forwarded to the United Association of Plumbers and Pipefitters Local Union 412 at 510 San Pedro Dr. SE Albuquerque, NM 87108. The parties agree the County assumes no further responsibility in connection with this authorized deduction except to act as remitting agent in forwarding lists and deductions to the Union. The Union, its membership, and individual members of the bargaining unit agree to hold the County safe and harmless of any legal action concerning the deduction of the Union dues or failure to deduct Union dues.

#### Article 8 - SAFETY COMMITTEE

- A. The County of Los Alamos Utilities Department and the Union recognize that there is a common interest in improving employee safety and agree to cooperate in the promotion of that common interest and to continue their effort to reduce and eliminate hazardous workplace conditions.
- B. The County Utility's Safety policies and practices shall meet or exceed all OSHA regulations. The most restrictive provisions will apply. All employees are responsible for adhering to all safety policies, rules and regulations. The County is responsible for enforcing safety policies, rules and regulations.
- C. Employees who believe their work assignment requires that they perform an illegal or unsafe act should contact their supervisor. All employees will comply with all Safety Regulations.
- D. The County has implemented a Utilities Department Safety Committee. The Union may designate a bargaining unit employee to attend the Utility Department Safety Committee meetings. This committee shall meet at least quarterly and at other times by mutual agreement. The committee shall recommend the formulation of safety rules, regulations, and practices to improve upon the health and safety in the workplace.
- E. Any recommendation(s) of the Safety Committee shall be placed in writing.

#### Article 9- COUNTY PERSONNEL RULES

The County Personnel Rules and Regulations and Utilities Department Policies and Regulations will apply to employees of this bargaining unit unless they conflict with the provisions of this Agreement. If a conflict exists, this Agreement will govern.

If the County proposes a new rule or a change in an existing Personnel rule or to the Safety and Loss Control Manual or Utilities Department Policies and Regulations which affects bargaining unit members, the County will provide notice of the proposed change to the Union, and allow the Union to provide written input prior to the implementation of the changes.

Bargaining unit members will not be discriminated against for their lawful participation in the political process of adoption and change of County Personnel Rules.

#### Article 10- GENERAL PROVISIONS

When a supervisor is not available, the employees may contact a supervisor in accordance with the chain of command, if needed. After hours, the primary standby employee is the initial point of contact. If the primary standby employee determines additional support is needed beyond the secondary standby employee, he/she will contact the Superintendent or designee, and thereafter follow the chain of command. Job briefings will be conducted in accordance with County rules and policies.

The County will not require employees to work out of doors during heavy or continuous storms or during exceptionally cold weather, unless such work is necessary to protect life or maintain service to the public. The superintendent or designee will make the decision as to whether work will be performed in inclement weather. During such time as the employees are held in or instructed to return to the shop because of inclement weather, the employees may be assigned other duties.

#### Article 11 - GRIEVANCE PROCEDURES

**Section 1. Purpose:** There shall be no other grievance or appeal procedures for employees in the bargaining unit other than those contained in this article. All proposed disciplinary action shall be subject to and governed by Article 12 below.

**Section 2. Definitions:**

A. The following disputes may be eligible for grievance:

1. An alleged violation of this Agreement, involving the interpretation and application of its provisions.
2. An allegation that an employee has been adversely affected as a result of a violation of the County Personnel Rules, the County Charter, the County Code, or State or Federal Statutes relevant to the employee's terms and conditions of employment.
3. A suspension without pay.
4. An involuntary demotion, resulting in an actual loss of pay to an employee.
5. Involuntary termination of employment.

- B. Grievant: A grievant may include the Union or any employee or group of employees within the bargaining unit, or the County.
- C. Days: Days referenced in this Agreement will mean Monday through Friday, not including holidays observed by the County.

**Section 3. Representation:** A grievant and the party charged may have any individual of the grievant or party's choosing to act as their representative at any hearing or meeting conducted under this procedure. If the Union is the grievant or representing an employee during Steps 1 or 2 of this process, representatives outside the Union and Utilities Management may be allowed to attend but may not participate.

**Section 4. Process:**

Grievances will be filed on the grievance forms attached hereto in Appendix A.

If the County fails to comply with the time limit requirements as set forth under any of the steps, the grievance shall be considered denied on the last day of the period and the grievant may move the grievance to the next level as set forth in this Article.

If the grievant fails to comply with the grievant's time-period requirements as set forth under any of the steps, the grievance shall be considered abandoned, null and void.

Step 1. Informal meeting.

A grievance shall not be considered unless the grievant files the grievance in writing on the grievance form no later than five (5) days after the grievant knew, or reasonably should have known, of the action that precipitated the grievance. Such grievance will be considered filed upon receipt and signature of the Superintendent or designee. When a grievance is initiated, the Union or the grieving employee and the Superintendent of the appropriate division will meet to attempt to settle the grievance as promptly as possible. The grieving employee may request the presence of a steward. If a settlement is not reached within five (5) days from the initiation of the grievance, the grievant may submit such grievance to Step 2 within five (5) days of the date of the informal hearing.

Step 2.

The grievance will be submitted in writing, by hand delivery, registered mail, or both mail and fax to the Deputy Utilities Manager of GWS operations or designee by the grievant or the Union. A copy will also be provided to the County's Human Resources Manager. Such grievance will be signed as received by the Deputy Utilities Manager of GWS operations, or designee. The letter will list the facts of the grievance and the requested remedy. The grievance shall contain what provisions of the Collective Bargaining Agreement, if any, is alleged to have been violated. The Deputy Utilities Manager of GWS operations, or designee, will respond to the written grievance not more than five (5) days after receipt of the grievance either concurring or denying the grievance and the reason for the decision.

Step 3.

Within five (5) days of the date of the decision denying the grievance in Step 2, the manager, employee, and the union steward and/or union representative may submit their specific position in writing to the County Utilities Manager. The Utilities Manager may

request additional information as needed. The Utilities Manager will hold a meeting with all parties present. The Utilities Manager will have ten (10) days to respond to the grievance from the date of receiving the grievance.

**Step 4.**

If no resolution to the grievance is reached in Step 3, the local Union and/or grievant, within ten (10) days of the date of the decision denying the grievance, or within twenty (20) days of the delivery of the grievance request to the Utilities Manager, whichever is earlier, may file for arbitration by requesting a panel of seven (7) arbitrators from the Federal Mediation and Conciliation Service. Within ten (10) days of receipt of the panel the parties will select an arbitrator. Each party will in turn strike a name until only one (1) name remains. The first strike will be determined by a coin toss and the last remaining arbitrator shall be selected to hear the case. The arbitrator, after hearing the case shall make a judgment based on the merits of the case. If the arbitrator finds a violation of the agreement with respect to the dispute or difference, they shall fashion an appropriate remedy, which shall include the decision, the rationale, and if appropriate, the relief. The arbitrator's decision shall be in writing. The arbitrator's decision will be final and binding, except as provided by law. The arbitrator will have no authority to detract from, alter, amend, or modify any provision of this agreement. There shall be no other grievance or appeal procedure for employees in the bargaining unit other than that contained in this article.

**Section 5. Arbitration Fees:** The fees and expenses of the arbitrator will be divided equally between the County of Los Alamos and the Union. Each party will pay their own expenses for all other costs incurred.

**Section 6. Individual Arbitration:** In the event the Union should decide not to proceed to arbitration with a particular grievance and should the grievant choose to proceed on their own to arbitration, the Union shall not be responsible for any cost associated with such arbitration. The grievant in this instance shall be responsible for all of his/her costs, including depositing in currency or cashier's check one-half of the anticipated fees and expenses of the arbitrator with the County's Human Resources Division prior to the commencement of such arbitration. Should the cost of the arbitrator be less than the deposit, such funds will be reimbursed to the grievant.

**Section 7. Miscellaneous:** Court reporters are permitted in arbitration but not required. If a court reporter is utilized, the cost will be split by the parties. If a party requests a copy of the transcript, the requesting party will pay for the transcript.

**Section 8. Time Limits:** All time limits referred to in this article may be extended upon mutual written agreement of the parties.

**Article 12 – DISCIPLINE**

- A. The County has the exclusive right to investigate and discipline Employees for cause.
- B. Discipline shall be administered in accordance with the following provisions:
  - 1. Discipline shall be fairly and equally applied.
  - 2. An Employee may be placed on administrative leave with pay, if appropriate, during an investigation involving that Employee.

3. Discipline, to be effective, should be designed to correct and improve an employee's performance and/or behavior. When discipline is to be imposed, progressive discipline shall be considered. The action to be taken depends on the seriousness of the incident and the whole pattern of the employee's past performance, length of service, and previous conduct. Because of the serious nature of some infractions, the first disciplinary action may skip some steps of the disciplinary process and result in termination. The level of discipline to be imposed shall be an exclusive determination of the County.
4. Days: Days referenced in the article will mean Monday through Friday, not including holidays observed by the County.
5. Within five (5) days of receipt of the notice of proposed disciplinary action, the Employee shall be provided the opportunity to respond, in writing or request in writing to be heard at an informal hearing conducted by a designee of the Utilities Manager, to the notice of proposed disciplinary action(s) prior to the imposition of any suspension without pay, involuntary demotion or termination. The Employee may be accompanied by a representative of his/her choosing when responding to any notice of proposed suspension without pay, involuntary demotion or termination. Any other discipline imposed shall not require adherence to this procedure.
6. Following the Employee's response to any notice of proposed suspension without pay, involuntary demotion or termination, the County shall issue a notice of final determination within 10 working days.
7. In accordance with the County's Personnel Rules and Regulations, an Employee who has been terminated, involuntarily demoted or suspended has the right to an appeal. The Employee shall make an irrevocable election to have the appeal decided by the County's Personnel Board, or to have the appeal decided by an Arbitrator, but not both.
8. Notice of appeal must be filed with the Human Resources Manager no later than ten (10) days after receipt of notice of final determination. The notice of appeal must:
  - A. be in writing;
  - B. set forth the reason(s) why the disciplinary action is thought to be improper; and
  - C. indicate whether the Employee is choosing to have the County's Personnel Board or an Arbitrator decide the appeal.
9. If the Employee chooses to have the County's Personnel Board decide the appeal, the appeal hearing will proceed in accordance with Section 608.2 of the County's Personnel Rules and Regulations.
10. If the Employee chooses to have an Arbitrator decide the appeal, the following shall apply to the appeal hearing:
  - A. Within seven (7) days of the receipt of notice of appeal indicating the irrevocable election to have the appeal decided by an Arbitrator, the Human Resources Manager shall notify the Employee, the Union and the County of receipt.
  - B. Within seven (7) days of the receipt of notice from the Human Resources Manager, the Union shall make a request for a panel of seven (7) arbitrators from the Federal Mediation and Conciliation

Service ("FMCS") with a copy to the Human Resources Manager. Within seven (7) days of the receipt of a list of arbitrators by both parties, the parties will select the arbitrator. The Union shall strike the first name from the list. The parties shall alternatively strike names thereafter and the last remaining name shall be the arbitrator selected.

- C. The hearings on appeals from disciplinary action are administrative and shall be closed to the public unless otherwise requested in writing by the Employee to the Human Resources Manager at least three (3) days before the hearing.
- D. The Employee and the County have the right to present witnesses, and give evidence before the Arbitrator. The Human Resources Manager must be given the list of witnesses from both parties at least five (5) days before the hearing, a copy of which shall be provided to both parties and the Arbitrator. Required prior notice of the hearing and the time for submission of a witness list may be modified by the Arbitrator as necessary to assure that the hearing is timely held.
- E. The appeal hearing before the Arbitrator is intended solely for the purpose of receiving evidence to refute or to substantiate specific charges which the Arbitrator has been requested to review. The Arbitrator shall admit evidence only relevant to those allegations against the Employee included in both the notice of proposed action and the notice of final action.
- F. The Arbitrator shall first determine if there is cause for the disciplinary action. The disciplinary action taken shall be affirmed unless the Arbitrator finds that there was not sufficient cause for the disciplinary action, in which event the disciplinary action taken shall be overturned. If cause is found, the Arbitrator shall uphold or impose a lesser disciplinary action based upon the finding of mitigating circumstances.
- G. The Arbitrator's decision shall be in writing and shall include the decision, the rationale and, if appropriate, relief. The arbitrator shall not have the authority to make an award that includes a fine or other punitive damages or award of attorneys' fees.
- H. The Arbitrator's final action shall be recorded within thirty (30) days of the decision at the Clerk's Office and with the County Manager, a copy of which shall be immediately furnished to the Employee and the County.
- I. The Arbitrator's fees and costs shall be shared equally by the parties. The party canceling an arbitration will pay in full any cancellation charges/fees absent any agreement. All other expenses shall be assumed by the party incurring the costs, including the cost of witnesses.
- J. The arbitrator's decision shall be final and binding on the parties, subject only to judicial review in accordance with New Mexico law.

11. There shall be no other disciplinary appeal procedure under this Article for Employees other than the procedures contained in this Article.

### Article 13- SENIORITY

**Section 1. Occupational Groups:** The occupational group, for the purposes hereof, shall consist of the following Gas, Water, Sewer, Water Production and Wastewater Treatment groups.

**Section 2. Termination of Seniority:** The seniority of an employee shall terminate under any of the following conditions:

- A. When the employee quits; or
- B. When the employee is discharged.

**Section 3. Active Service:** Active service, for the purposes of this article, is herein defined as the actual amount of time for which a regular employee received compensation for full- time employment from the County, to which shall be added:

- A. Approved leave of absence for service in the military forces of the United States,
- B. Approved absence while convalescing from an accident, sickness or injury,
- C. Approved absence provided for under the Family Medical Leave Act (FMLA) and any accompanying administrative regulation related to the FMLA issued by the County of Los Alamos,
- D. Leave of absence for Union business may be granted based on availability of coverage by other employees, adequate delivery of services to the citizens and maintenance of the County workload.

### Article 14- TRANSFERS AND REASSIGNMENTS

The County retains the right to assign employees in the best interest of the Utilities Department and in ensuring uninterrupted service to the citizens of Los Alamos County. Employees shall be notified at least seven (7) days prior to any change in their job assignment. In the event of emergencies, notification shall occur as soon as possible.

### Article 15- DRUG/ALCOHOL TESTING

- A. The Parties agree that employees are covered under the Department of Transportation Anti-Drug and Alcohol Act pursuant to the Commercial Driver's License or Pipeline and Hazardous Material Safety Administration (PHMSA) Regulations, covering random, post-accident, pre-hire and return to duty testing.
- B. The County will administer drug/alcohol testing in conformity with the County-wide Employee Drug and Alcohol Testing Policy, incorporated herein by reference for all purposes or any reiteration thereof during the term of this Agreement.

### Article 16 - UNIFORMS

- A. The Utilities Department Uniform, consisting of pants and shirts and winter work

jacket/coat as provided by the County, shall be worn by bargaining unit employees at any time the employee is on duty. Uniforms shall not be removed from the worksite.

- B. Uniform items will be replaced as needed to include: pants, shirts, winter work jacket/coat and gloves worn or damaged through normal employee duty use. This section shall not apply to uniform items that have been lost, stolen, or damaged through negligence or willful acts.
- C. Employees must turn in worn or damaged uniform items and obtain supervisor approval to receive a new issue.
- D. Employees shall receive up to \$200, after taxes, for boots as needed, but not more frequently than annually.
- E. Employees will receive reimbursement for up to \$150.00 for the purchase of safety prescription glasses as needed, but not more frequently than bi-annually.

#### Article 17- COMP TIME

Bargaining Unit employees will be offered Comp Time in accordance with the Provisions of the County Personnel Rules and Regulations.

#### Article 18 - STABILITY PAY

Bargaining unit employees will be offered Stability pay in accordance with the Provisions of the County Personnel Rules and Regulations.

#### Article 19 -MEALS AND EXPENSES

Travel expenses and per diem will be paid to an employee in accordance with applicable County policy.

When held over or called out, the employee will be entitled to a meal after four (4) hours and every five (5) hours after that until released from work. Meals earned but not eaten shall be paid at twenty (\$20.00) dollars per meal. Employees are required to complete an employee expense claim form within 14 days of the qualifying event.

#### Article 20- ANNUAL LEAVE

Annual leave shall be accrued and utilized in accordance with the provisions of the County Personnel Rules and Regulations.

#### Article 21- SICK LEAVE

Sick leave shall be accrued and utilized in accordance with the provisions of the County Personnel Rules and Regulations.

## Article 22- HOLIDAYS

Holidays shall be granted and compensated for in accordance with the provisions of the County Personnel Rules and Regulations.

## Article 23- CERTIFICATIONS

Bargaining unit employees will be required to obtain and maintain licenses as required by the State of New Mexico and the County as a condition of employment. Obtaining and maintaining such licenses will be the responsibility of the employee. Employees will be reimbursed by the County for the cost of each required license, with a receipt from the appropriate State Agency as well as verification of a passing score, if applicable.

## Article 24- STAND-BY DUTY

- A. Stand-by duty will be applied in accordance with the provisions of the County Personnel Rules and Regulations for stand-by pay for the primary and secondary employees assigned each week. Both the primary and secondary employees shall remain in Los Alamos County and will be paid equivalent to sixteen (16) hours pay at their regular rate for a full calendar week of stand-by duty.
- B. When the primary and secondary employees are required to be on stand-by duty on a holiday (per County Personnel Rule 720) but are not called-out, those stand-by hours will be considered time worked only for the purposes of overtime calculation.
- C. When the primary and secondary employees are required to be on stand-by duty on a holiday (as defined by Rule 720) and are called-out, called-out hours actually worked will be compensated in accordance with the provisions of the County Personnel Rules and Regulations.

## Article 25- CALL-OUT ADMINISTRATIVE LEAVE

- A. If an employee works sixteen (16) consecutive hours, the employee is entitled to an eight (8) consecutive hour rest period. If the rest period overlaps the employee's normal work schedule, the employee shall be paid for the overlapping period at their regular rate. If the employee's rest period extends 4 hours or more into their regular work hours the employee may elect to take administrative leave without pay or annual leave in lieu of returning to work. The overlapping period shall be considered time worked for overtime purposes.
- B. If an employee works at least 2 hours between the hours of midnight and 5am , or gets called out between 2 AM and 5am , they will be eligible for an 8-hour rest period. Employees on standby shall remain on standby until the start of their next regular shift. The rest period will start at the end of the last hour worked on call-out. Any portion of the rest period that overlaps the employees regular work shift will be paid as administrative leave at the employee's regular rate of pay. If the initial call out is after 5am , there is no rest period. Stand-by pay shall not be considered time worked and will not count toward overtime.

- C. If the employee is holding standby and becomes eligible for a rest period, the employee shall contact supervisor at least two (2) hours in advance of such eligibility, to be relieved of standby during the rest period. Stand-by pay shall not be considered time worked and will not count toward overtime.
- D. Call Out: When a bargaining unit employee is called back to work after departing at the end of the normal workday and reports to work, the employee shall be paid the actual hours worked, for a minimum of four (4) hours, excluding travel time to and from the reporting site (Pajarito Cliff Site or LA Wastewater Treatment Plant).
- E. Extension of Workday: When a bargaining unit employee is held over at the end of the normal workday, the employee will be paid for actual hours worked, including waiting time when the employee is required to remain on the job site.

#### Article 26 – OPERATIONAL NEEDS

The Parties acknowledge that at times the County may have a need to bring in additional help to complete a project in the form of temporaries, casuals or limited term employees. The Union, its officers, agents, representatives, and members agree that these individuals are not part of the collective bargaining group and that they are not regular employees.

#### Article 27- PAY

##### A. Initial Placement

Bargaining Unit Employees shall receive an adjustment to their hourly rate of pay effective the first full pay-period of fiscal year 2022, following ratification and signature of the Agreement by the parties, or resolution of impasse, whichever occurs later. For the fiscal year 2022 distribution, Employees will be placed at the rates as indicated in Exhibit 1.

##### B. Annual Salary Adjustments for Fiscal Year 2023, 2024, 2025 & 2026:

- 1. Employees will be placed at the pay rates as indicated in Exhibit 1 for the appropriate fiscal year.

The annual salary adjustments for Fiscal Years 2023, 2024, 2025 & 2026 will be effective the first full pay period of the fiscal years.

#### Article 28 – CERTIFIED API 1104 WELDING PAY– GAS DISTRIBUTION SYSTEM

**Section 1.** Incentive Pay for API 1104 Welding: Each certified API 1104 welder shall receive incentive pay as defined in Section 2 , in addition to regular wages, on call, or other contractually defined pay rates for the employee completing the weld project. Incentive pay shall be per weld. Definitions of weld types and the incentive pay associated with each weld type is listed in Section 2 . All listed weld type projects shall include all preparation work

necessary to prepare for and execute the weld per all applicable regulations and codes; including actively setting up and preparing the weld, etc. Incentive pay shall be for the individual actually completing the welding. No additional incentive pay shall be provided to any individual providing assistance to the certified welder. The County will provide all necessary tools, equipment and supplies to perform the weld.

## **Section 2 . Incentive Pay Weld Types and Description**

(Field Welding)

\$300 ---- (Most Common type of weld) ¾" or smaller diameter service tee with transition fitting and cap on existing service.

\$500 ---- (Most Common type of weld) 1" service tee with transition fitting and cap on existing service.

\$700 ---- (Most Common type of weld) 1-1/4" service tee with transition fitting and cap on existing service.

\$750 ---- 2" through 4" Short stopper plug line and install pup piece or transition fitting.

\$900 ---- 2" through 6" Saddle tee and transition fitting.

\$200 ---- ¾" through 2" Butt weld only.

\$400 ---- 4" through 6" Butt weld only.

\$600 ---- 8" through 12" Butt weld only.

\$400 ---- ¾"through 2"Oxy Acetylene weld.

\$50.00 per hour ---- Rate for payment of API 1104 welding activities on special projects that do not fit the description of the listed typical field weld definitions listed above an in shop fabrication welds. Rate of pay is additional to regular, on call or other contractually defined pay rates for the employee completing the welding. Payment at this rate is for time spent actually welding and actively setting up and preparing the weld, etc. The maximum number of hours for any individual special project shall be 12 hours.

## **Article 29 - COMPLETE AGREEMENT**

The parties acknowledge that during the negotiations that resulted in this Agreement, each has had the unlimited opportunity to make demands and proposals with respect to all proper subjects of collective bargaining. All such subjects were discussed and negotiated upon. The Agreements contained in this contract were arrived at after the free exercise of such rights and opportunities. The County and the Union, for the life of this Agreement, each voluntarily and unqualifiedly waives the right and each agrees that the other will not be

obligated to bargain collectively with respect to any subject or matter not specifically referred to in this Agreement, even though such matter may not have been within the knowledge or contemplation of either or both parties at the time of negotiation and/or signing of this Agreement. The parties may not take actions which conflict with any provision of this Agreement.

## Article 30 -SCOPE AND PROCEDURES

**Section 1. Scope:** This Agreement and the provisions hereof shall constitute the total agreement in force and effect between the Union and the County as herein set forth, all subject to applicable provisions of law.

### **Section 2. Negotiating Procedures:**

- A. Either party may initiate negotiations for a successor agreement by submitting a written notice to the other party, requesting the commencement of negotiations. The notice shall be sent no earlier than 120 days and no later than 60 days prior to the Agreement's expiration date. Within a reasonable time period after receiving notice, the party receiving the request for bargaining shall respond in writing and shall suggest a date at which time the parties shall meet and determine a mutually agreed upon time and place to begin negotiations.
- B. Negotiations shall be conducted in closed sessions.
- C. The parties shall negotiate ground rules.
- D. During negotiations, the parties shall meet at mutually acceptable times and locations.
- E. The parties agree to proceed to negotiate non-economic issues first.
- F. When tentative agreements are reached, they will be reduced to writing and signed and dated by the respective spokesperson of each party. Such agreements are conditional and may be withdrawn or amended by mutual agreement of the parties should subsequent discussions change either party's intent or understanding of the language as it relates to another part of the Agreement.
- G. In the event an impasse is reached, the party declaring impasse shall, within ten (10) business days from the date of declaration, provide the other party a written list of the issues that remain unresolved. The list can contain only mandatory subjects of bargaining. The other party shall provide a written list of their issues within ten (10) days of receipt of the issues submitted by the party declaring impasse. Only the items on this list will be addressed in mediation and presented as unresolved issues at arbitration.
- H. In the event mediation does not resolve the impasse, the Parties shall proceed to arbitration pursuant to the Los Alamos County Labor Management Relations Ordinance.

- I. Complete agreement on negotiations is accomplished when the Union membership ratifies the Agreement, the Utilities Board and the County Council approves it, and the respective representatives sign it, or by the decision of an arbitrator that is not appealed.

**Section 3. Mutual Agreement:** During the term of this Agreement, either Party desiring a change in the working rules, conditions, or wages or any other term set forth in this Agreement shall give written notice to the other Party and upon mutual consent, the Parties agree to endeavor to arrive at a satisfactory adjustment of the proposed change or changes within a reasonable time thereafter, and this Agreement may be amended upon terms mutually satisfactory to the Parties. Amendments to this Agreement may be reached exclusively by written agreement between the Utilities Manager for the County and the Business Manager, or designee, for the Union.

### Article 31 - TERM OF AGREEMENT

This Agreement shall become effective upon its date of signature by the Parties following ratification by the Union and approval by the Utilities Board and the County Council, and remain in effect through. June 30, 2026

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed this \_\_1\_\_ day of July, 2021

UNITED ASSOCIATION OF  
PLUMBERS  
AND PIPEFITTERS  
LOCAL UNON NO.412

INCORPORATED COUNTY OF LOS ALAMOS

---

Arthur Sparks  
Business Representative

---

Harry Burgess  
County Manager

---

Philo Shelton  
Utilities Manager

Attest:

INCORPORATED COUNTY OF LOS ALAMOS

**GRIEVANCE FORM**

DATE: \_\_\_\_\_ GRIEVANCE# \_\_\_\_\_ SITE \_\_\_\_\_

GRIEVANT: \_\_\_\_\_

EMPLOYER: \_\_\_\_\_

AGREEMENT: \_\_\_\_\_

\_\_\_\_\_

VIOLATION: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Outcome

Step One \_\_\_\_\_  
(DATE)

\_\_\_\_\_  
\_\_\_\_\_

Step Two \_\_\_\_\_  
(DATE)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Step Three \_\_\_\_\_  
(DATE)

\_\_\_\_\_  
\_\_\_\_\_

Remedy: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Respectfully Submitted:

Received by \_\_\_\_\_ Date, \_\_\_\_\_

Grievant (Print) \_\_\_\_\_ ACCEPT REJECT

\_\_\_\_\_  
(Signature)

# Exhibit 1

Exhibit 1

	Current/FY21	FY22					FY23				
		1%	2%	2.5%	3.5%	5%	1%	2%	2.5%	3.5%	5%
Utilities Trainee	\$ 18.65	\$ 18.84					\$ 19.02				
Apprentice Level 1	\$ 20.59		\$ 21.00					\$ 21.42			
Apprentice Level 2	\$ 22.66			\$ 23.23					\$ 23.81		
GWS Pipefitters	\$ 26.67				\$ 27.60					\$ 28.57	
Operators WWTP & WS	\$ 26.67				\$ 27.60					\$ 28.57	
Sr. Operators WWTP & WS	\$ 29.74					\$ 31.23					\$ 32.79
Sr. GWS Pipefitters	\$ 29.74					\$ 31.23					\$ 32.79

	FY24					FY25				
	1%	2%	2.5%	3.5%	5.00%	1%	2%	2.5%	3.5%	4.0%
Utilities Trainee	\$ 19.22					\$ 19.41				
Apprentice Level 1		\$ 21.85					\$ 22.29			
Apprentice Level 2			\$ 24.40					\$ 25.01		
GWS Pipefitters				\$ 29.57					\$ 30.60	
Operators WWTP & WS				\$ 29.57					\$ 30.60	
Sr. Operators WWTP & WS					\$ 34.43					\$ 35.80
Sr. GWS Pipefitters					\$ 34.43					\$ 35.80

	FY26			
	1%	2%	2.5%	3.50%
Utilities Trainee	\$ 19.60			
Apprentice Level 1		\$ 22.73		
Apprentice Level 2			\$ 25.64	
GWS Pipefitters				\$ 31.68
Operators WWTP & WS				\$ 31.68
Sr. Operators WWTP & WS				\$ 37.06
Sr. GWS Pipefitters				\$ 37.06



# County of Los Alamos

## Staff Report

June 16, 2021

Los Alamos, NM 87544  
www.losalamosnm.us

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Agenda No.:	6.C.
Index (Council Goals):	DPU FY2021 - 2.0 Achieve and Maintain Excellence in Financial Performance
Presenters:	Bob Westervelt
Legislative File:	14276-21

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### Title

Approval of DOE/LAC Resource Pool Budget for Fiscal Years 2022 & 2023

### Recommended Action

**I move that the Board of Public Utilities approve the 2022-2023 Resource Pool budget as presented and forward to the County Council with a recommendation for approval.**

### Staff Recommendation

Staff recommends approval of this 2022-2023 Resource Pool Budget as presented.

### Body

The Electric Energy and Power Coordination Agreement (ECA) between the County of Los Alamos and the Department of Energy requires that a 24-month budget be approved each year. The budget process begins with both parties preparing a load projection by month for the budget period. From these load projections the Power Supply division prepares a Resource Supply Projection that matches the available resources to the projected loads and estimates the variable costs for both our owned resources and for purchased power. Finally, costs for projected generation, purchases, and transmission are allocated to the parties based on the terms of the ECA. This is normally accomplished in April or May of the preceding year.

This budget projects total costs per MWh of \$53.83 and \$51.63 for fiscal years 2022 and 2023, respectively. Actual costs for fiscal year 2021 through April were \$64.17 per MWh compared to budgeted costs of \$51.77 per MWh, due in large part to the August price peak that has been discussed previously. The significant increase from FY2021 budget to FY2022 is due to the lingering impacts to purchased power price projections resulting from that August event. These are somewhat offset by reduction in debt service due to payoff of the 2014 refinanced bonds in FY21. These bonds were for the environmental upgrades at San Juan and the El Vado Rewind.

The ten-year historical average cost per MWh for the fiscal years 2011 through 2020 was \$60.88. Beginning in FY2017 we began seeing the benefit of the lower coal price and a lower capital budget at San Juan, and retirement of the debt at LRS, which historically was passed through to the Pool through LRS direct charges. Also, the last round of environmental upgrades anticipated for San Juan were completed in FY16 with the SNCR project. Similar upgrades at Laramie River have were completed in FY2019 and were expensed to the LRS participants as

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incurred.

Costs to the LAPP participants vary due to each party's load factors. The projected costs to the County per MWh are \$53.53 and \$52.79 for fiscal years 2022 and 2023, respectively.

This budget was approved by the Operating Committee on June 02, 2021.

### **Alternatives**

If this budget is not approved by the Board and Council, then ECA terms state that we will continue under the last approved budget while we continue to negotiate a budget. Certain costs are billed to the participants as budgeted (fixed charges associated with the various resources) and reconciled in the next budget cycle. Delay in approving a budget will result in adjustments being needed to reconcile actual billings with the budget after the fact once the budget is approved.

### **Fiscal and Staff Impact**

None. DPU's expenditure authority for purchased power costs is incorporated into the budget approved by the Utilities Board and County Council during the normal County budget cycle. Approval of this Resource Pool budget is a contractual requirement of the ECA. The Resource Pool budget may differ somewhat from the purchased power expenditure authority requested by DPU during the normal County budget cycle due to timing differences in the budget cycles.

### **Attachments**

A: Resource Pool 24-month Budget Package FY22-23

B: Loads and Resources worksheet FY22-23

Department of Energy / Los Alamos County Resource Pool  
Including Solar Resource  
Fiscal Year 2022  
Budget

**Los Alamos County Resources**

**Generation**

	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Total	Total MWh	Cost per MWh
San Juan Demand Charge	367,931	367,931	367,931	367,931	367,931	367,931	367,931	367,931	367,931	367,931	367,931	367,931	4,415,166	288,317	\$ 35.23
San Juan Energy Charge	501,525	501,525	485,347	501,525	485,347	501,525	501,525	452,990	501,525	485,347	501,525	323,565	5,743,271		
El Vado Demand Charge	(1,284)	(1,284)	(1,284)	(1,284)	(1,284)	(1,284)	(1,284)	(1,284)	(1,284)	(1,284)	(1,284)	(1,284)	(15,405)		
El Vado Energy Charge	112,848	112,848	112,848	112,848	112,848	112,848	112,848	112,848	112,848	112,848	112,848	112,848	1,354,174	27,458	\$ 48.76
Abiquiu Demand Charge	42,400	42,400	42,400	42,400	42,400	42,400	42,400	42,400	42,400	42,400	42,400	42,400	508,800		
Abiquiu Energy Charge	64,059	64,059	64,059	64,059	64,059	64,059	64,059	64,059	64,059	64,059	64,059	64,059	768,709	44,614	\$ 28.63
Laramie River Station Demand	102,933	102,933	102,933	102,933	102,933	102,933	102,933	102,933	102,933	102,933	102,933	102,933	1,235,195	78,432	\$ 29.33
Laramie River Station Energy	92,489	92,489	89,506	92,489	89,506	92,489	92,489	83,539	92,489	49,228	70,113	89,506	1,065,333		
Western Demand	5,544	5,544	5,544	8,239	8,239	8,239	8,239	8,239	8,239	5,544	5,544	5,544	82,699	5,092	\$ 30.76
Western Energy	5,183	4,922	4,907	6,984	7,274	8,465	7,521	6,693	6,984	5,082	4,980	4,936	73,931		
CFPP Deman															#DIV/0!
CFPP Energy															
Renewable Energy Purchases	2,725	2,725	2,637	2,725	2,637	2,725	2,725	2,462	2,725	2,637	2,725	2,637	25,037	2,102	\$ 11.91
Other Purchased Power	804,864	763,776	860,160	722,688	1,130,496	1,313,664	320,256	908,544	443,520	-	-	1,161,216	8,429,184	131,706	\$ 64.00
Spinning Reserve Purchase															
Economy Sales	(19,200)	(14,400)	(24,000)	-	(16,800)	(28,800)	-	-	-	(196,800)	(364,800)	(9,600)	(674,400)	(14,050)	\$ 48.00
15MW PPA	-	-	-	-	-	-	-	-	-	428,436	442,717	428,436	1,299,589	32,760	\$ 39.67

**Transmission**

Western (LRS)	39,995	39,995	39,995	39,995	39,995	39,995	39,995	39,995	39,995	39,995	39,995	39,995	479,940		
PNM Wheeling	201,742	201,742	201,742	201,742	201,742	201,742	201,742	201,742	201,742	201,742	201,742	201,742	2,420,904		
LASP allocation to batteries	-	-	-	-	-	-	-	-	-	-	-	-	-		
OASIS Trans./ Ancil. Services	-	-	-	-	-	-	-	-	-	-	-	-	-		
NORA	8,169	8,169	8,169	8,169	8,169	8,169	8,169	8,169	8,169	8,169	8,169	8,169	98,026		
Jemez	19,634.34	19,675	13,686	13,270	1,617	1,455	1,789	1,219	10,513	25,982	35,181	21,745	165,767		
Tri-State	4,955	4,965	3,454	3,349	408	367	451	308	2,653	6,557	8,879	5,488	41,835		

**Other Costs**

Norton-STA debt service															
Dispatch Center	150,285	150,285	150,285	150,285	150,285	150,285	150,285	150,285	150,285	150,285	150,285	150,285	1,803,415		
Less Kirtland Credit	(40,167)	(40,633)	(38,888)	(37,178)	(35,738)	(35,790)	(39,711)	(37,717)	(40,091)	(40,657)	(39,542)	(39,890)	(466,001)		2,372,064
Administrative Costs	99,952	99,952	99,952	99,952	99,952	99,952	99,952	99,952	99,952	99,952	99,952	99,952	1,199,426		
Legal Expenses	-	-	-	-	-	-	-	-	-	-	-	-	-		

**Summary**

Demand Charges	960,973	960,558	954,803	958,686	945,532	945,278	941,774	943,054	952,320	968,432	981,069	963,894	11,476,373		
Energy Charges	1,605,610	1,569,061	1,636,581	1,544,434	1,916,483	2,108,091	1,142,540	1,672,251	1,265,266	991,953	875,284	2,218,719	18,546,274		
Norton-STA Demand	-	-	-	-	-	-	-	-	-	-	-	-	-		
Customer Charges	-	-	-	-	-	-	-	-	-	-	-	-	-		
Los Alamos Resource Total	2,566,583	2,529,619	2,591,384	2,503,120	2,862,015	3,053,369	2,084,314	2,615,305	2,217,587	1,960,386	1,856,352	3,182,613	30,022,647	598,432	\$50.34



Department of Energy / Los Alamos County Resource Pool  
Including Solar Resource  
Fiscal Year 2022  
Budget

Resource Cost	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Total	Total MWh	Cost per MWh
<b>Demand</b>															
Los Alamos	960,973	960,558	954,803	958,686	945,532	945,278	941,774	943,054	952,320	968,432	981,069	963,894	11,476,373		
Department of Energy	296,555	317,782	323,571	311,842	322,738	304,888	320,039	312,446	366,152	305,529	321,127	320,484	3,822,954		
Total	1,257,528	1,278,340	1,278,374	1,270,328	1,268,270	1,250,166	1,261,814	1,255,500	1,318,472	1,273,961	1,302,196	1,284,378	15,299,327		\$5,601,740.41
<b>Energy</b>															
Los Alamos	1,605,610	1,569,061	1,636,581	1,544,434	1,916,483	2,108,091	1,142,540	1,672,251	1,265,266	991,953	875,284	2,218,719	18,546,274		
Department of Energy	69,971	76,427	67,486	66,277	73,586	76,307	80,862	87,123	93,460	83,298	83,445	86,136	944,378		
Total	1,675,581	1,645,487	1,704,067	1,610,712	1,990,069	2,184,398	1,223,402	1,759,374	1,358,726	1,075,251	958,729	2,304,856	19,490,652		
<b>Norton-WTA</b>															
Los Alamos	-	-	-	-	-	-	-	-	-	-	-	-	-		
<b>MW Demand</b>															
LAC Actual Demand	18	19	16	12	15	17	17	16	13	15	15	18			
DOE Actual Demand	77	78	78	78	78	79	59	60	62	62	79	90			
Total Actual Demand	96	96	94	91	93	97	77	76	75	77	93	108			
<b>MW Billing Demand</b>															
LAC Billing Demand	18	19	16	12	15	17	17	16	13	15	15	18			
DOE Billing Demand	77	78	78	78	78	79	59	60	62	62	79	90			
Total Billing Demand	96	96	94	91	93	97	77	76	75	77	93	108			
<b>Norton-WTA Demand</b>															
LAC Billing Demand	18	19	16	15	15	17	17	16	15	15	15	18			
DOE Billing Demand	77	78	78	78	78	79	65	65	65	65	79	90			
Total Billing Demand	96	96	94	93	93	97	82	81	80	80	94	108			
<b>Total Resource Cost</b>	2,933,109	2,923,827	2,982,441	2,881,039	3,258,339	3,434,564	2,485,216	3,014,875	2,677,198	2,349,213	2,260,925	3,589,234	34,789,979	646,346	\$ 53.83
Los Alamos Demand %	19.23%	19.25%	17.06%	13.75%	15.81%	17.98%	22.54%	21.49%	17.46%	19.16%	15.61%	16.50%			
Los Alamos Energy %	19.22%	18.75%	15.47%	16.48%	17.67%	20.09%	25.78%	20.36%	19.28%	16.71%	16.70%	14.84%			
Los Alamos Norton-STA %															
Department of Energy Demand %	80.77%	80.75%	82.94%	86.25%	84.19%	82.02%	77.46%	78.51%	82.54%	80.84%	84.39%	83.50%			
Department of Energy Energy %	80.76%	81.25%	84.53%	83.52%	82.33%	79.91%	74.22%	79.64%	80.72%	83.29%	83.30%	85.16%			
DOE Norton-STA %															
<b>Los Alamos Power Cost</b>															
Demand	241,770	246,042	218,052	174,708	200,568	224,774	284,383	269,789	230,248	244,050	203,269	211,941			
Energy	322,125	308,519	263,585	265,442	351,576	438,819	315,427	358,152	262,007	179,686	160,146	342,118			
Norton-STA															
Customer															
Total	563,896	554,562	481,637	440,149	552,144	663,593	599,811	627,941	492,255	423,716	363,415	554,059	6,317,175	118,015	\$ 53.53
<b>Department of Energy Power Cost</b>															
Demand	1,015,758	1,032,297	1,060,322	1,095,620	1,067,703	1,025,392	977,430	985,711	1,088,224	1,029,911	1,098,927	1,072,437			
Energy	1,353,456	1,336,968	1,440,482	1,345,270	1,638,493	1,745,579	907,975	1,401,222	1,096,719	895,586	798,583	1,962,738			
Norton-STA															
Customer															
Total	2,369,213	2,369,266	2,500,804	2,440,890	2,706,195	2,770,971	1,885,405	2,386,933	2,184,943	1,925,497	1,897,510	3,035,175	28,472,804	528,331	\$ 53.89
Net Due to Los Alamos	2,002,687	1,975,057	2,109,747	2,062,971	2,309,872	2,389,776	1,484,504	1,987,364	1,725,332	1,536,670	1,492,938	2,628,555	23,705,472		
Distribution Expense	(2,046)	(2,046)	(2,046)	(2,046)	(2,046)	(2,046)	(2,046)	(2,046)	(2,046)	(2,046)	(2,046)	(2,046)	(24,552)		
Debt Service Savings Split															
Service Charge	-	-	-	-	-	-	-	-	-	-	-	-	-		
Service Charge	-	-	-	-	-	-	-	-	-	-	-	-	-		
<b>Net Adjusted due Los Alamos</b>	2,000,641	1,973,011	2,107,701	2,060,925	2,307,826	2,387,730	1,482,458	1,985,318	1,723,286	1,534,624	1,490,892	2,626,509	23,680,920		
														<b>DOE TOTAL</b>	<b>\$ 53.85</b>

Department of Energy / Los Alamos County Resource Pool  
Including Solar Resource  
Fiscal Year 2023  
Budget

Los Alamos County Resources	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Total	Total MWh	Cost per MWh
<b>Generation</b>															
San Juan Demand Charge	18,802	18,802	18,802	18,802	18,802	18,802	18,802	18,802	18,802	18,802	18,802	18,802	225,624	-	#DIV/0!
San Juan Energy Charge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
El Vado Demand Charge	7,691	7,691	7,691	7,691	7,691	7,691	7,691	7,691	7,691	7,691	7,691	7,691	92,293	16,789	\$ 43.45
El Vado Energy Charge	53,105	53,105	53,105	53,105	53,105	53,105	53,105	53,105	53,105	53,105	53,105	53,105	637,262	16,789	\$ 43.45
Abiquiu Demand Charge	44,545	44,545	44,545	44,545	44,545	44,545	44,545	44,545	44,545	44,545	44,545	44,545	534,544	44,614	\$ 30.47
Abiquiu Energy Charge	68,749	68,749	68,749	68,749	68,749	68,749	68,749	68,749	68,749	68,749	68,749	68,749	824,990	44,614	\$ 30.47
Laramie River Station Demand	103,647	103,647	103,647	103,647	103,647	103,647	103,647	103,647	103,647	103,647	103,647	103,647	1,243,764	78,660	\$ 28.93
Laramie River Station Energy	92,698	92,698	92,698	92,698	92,698	92,698	92,698	86,718	92,698	49,339	70,271	89,708	1,031,640	78,660	\$ 28.93
Western Demand	5,766	5,766	5,766	8,568	8,568	8,568	8,568	8,568	8,568	5,766	5,766	5,766	86,007	5,092	\$ 31.70
Western Energy	5,287	5,020	5,006	7,123	7,419	8,634	7,671	6,827	7,123	5,183	5,080	5,035	75,409	5,092	\$ 31.70
CFPP Deman															
CFPP Energy															
Renewable Energy Purchases	893	893	864	893	864	893	893	806	893	864	893	864	10,512	2,102	\$ 5.00
Other Purchased Power	1,706,262	1,706,262	2,046,464	1,804,448	1,978,161	1,980,131	1,263,935	2,160,740	954,929	1,155,898	442,328	985,140	18,184,699	332,262	\$ 54.73
Spinning Reserve Purchase	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economy Sales	(8,210)	(4,105)	(12,314)	(8,210)	(20,524)	(16,419)	-	(20,524)	(24,629)	(20,524)	(24,629)	-	(160,085)	(3,900)	\$ 41.05
15MW PPA	442,717	442,717	428,436	442,717	428,436	442,717	442,717	399,874	442,717	428,436	442,717	428,436	5,212,638	131,400	\$ 39.67
<b>Transmission</b>															
Western (LRS)	37,090	37,090	37,090	37,090	37,090	37,090	37,090	37,090	37,090	37,090	37,090	37,090	445,085		
PNM Wheeling	212,662	212,662	212,662	212,662	212,662	212,662	212,662	212,662	212,662	212,662	212,662	212,662	2,551,949		
LASP allocation to batteries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OASIS Trans./ Ancil. Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NORA	5,037	5,037	5,037	5,037	5,037	5,037	5,037	5,037	5,037	5,037	5,037	5,037	60,441		
Jemez	12,362	10,948	8,056	8,906	1,617	1,455	1,789	1,219	10,513	25,982	36,636	21,745	141,228		
Tri-State	2,376	2,105	1,549	1,712	311	280	344	234	2,021	4,995	7,043	4,180	27,149		
<b>Other Costs</b>															
Norton-STA debt service													-		
Dispatch Center	153,290	153,290	153,290	153,290	153,290	153,290	153,290	153,290	153,290	153,290	153,290	153,290	1,839,483		
Less Kirtland Credit	(40,971)	(41,446)	(39,665)	(37,922)	(36,453)	(36,505)	(40,505)	(38,471)	(40,892)	(41,470)	(40,333)	(40,688)	(475,321)		
Administrative Costs	102,951	102,951	102,951	102,951	102,951	102,951	102,951	102,951	102,951	102,951	102,951	102,951	1,235,409		
Legal Expenses	-	-	-	-	-	-	-	-	-	-	-	-	-		
<b>Summary</b>															
Demand Charges	613,013	610,852	609,185	614,745	607,523	607,277	603,676	605,030	613,689	628,752	642,592	624,484	7,380,819		
Energy Charges	2,413,739	2,417,577	2,732,254	2,513,761	2,658,155	2,682,745	1,982,005	2,808,532	1,647,823	1,793,287	1,110,751	1,683,274	26,443,901		
Norton-STA Demand	-	-	-	-	-	-	-	-	-	-	-	-	-		
Customer Charges	-	-	-	-	-	-	-	-	-	-	-	-	-		
Los Alamos Resource Total	3,026,752	3,028,429	3,341,439	3,128,505	3,265,679	3,290,022	2,585,680	3,413,562	2,261,512	2,422,039	1,753,343	2,307,757	33,824,720	607,020	\$55.72

Department of Energy / Los Alamos County Resource Pool  
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**Department of Energy Resources**

**Generation**

	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Total	Total MWh	Cost per MWh
LANL On-Site Solar	80,352	80,352	77,760	80,352	80,352	80,352	80,352	72,576	80,352	77,760	80,352	77,760	946,080	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	21,024	\$ 45.00
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Combustion Turbine													-	94,958	\$ -
Western Demand	93,994	93,994	93,994	100,230	100,230	100,230	100,230	100,230	97,108	93,994	93,994	93,994	1,162,223	69,979	\$ 30.37
Western Energy	71,370	77,955	68,836	67,603	75,057	77,833	82,480	88,866	95,329	84,964	85,114	87,859	963,265	-	-
Western Peaking Capacity/TX	25,438	25,438	25,438	24,189	24,189	24,189	24,189	24,189	24,189	24,189	24,189	24,189	294,017	-	-

**Transmission**

562/571 115KV O&M	79,033	92,122	95,692	74,670	81,512	70,505	69,910	75,166	110,170	74,670	84,289	83,892	991,631	-	-
Fixed Charges	32,413	32,413	32,413	32,413	32,413	32,413	32,413	32,413	32,413	32,413	32,413	32,413	388,956	-	-
SVC Transmission Credit	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	72,000	-	-
Peak RC							16,116						16,116	-	-
													1,452,587	-	-

**Other Costs**

Load Dispatching	81,695	90,257	92,592	78,841	83,316	76,117	75,728	79,165	102,061	78,841	85,132	84,873	1,008,618	-	-
Special Projects	161	161	161	161	161	161	161	161	161	161	161	161	46,930	-	-

**Summary**

Demand Charges	318,734	340,385	346,290	316,504	327,821	309,614	332,246	324,824	379,603	317,768	333,679	333,022	3,980,490	-	-
Energy Charges	151,722	158,307	146,596	147,955	152,817	158,185	162,832	161,442	175,681	162,724	165,466	165,619	1,909,345	-	-
Customer Charges														-	-
Department of Energy Total	470,456	498,692	492,886	464,458	480,638	467,799	495,078	486,265	555,284	480,492	499,145	498,642	5,889,835	185,961	31.67

Department of Energy / Los Alamos County Resource Pool  
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Resource Cost	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Total	Total MWh	Cost per MWh
<b>Demand</b>															
Los Alamos	613,013	610,852	609,185	614,745	607,523	607,277	603,676	605,030	613,689	628,752	642,592	624,484	7,380,819		
Department of Energy	318,734	340,385	346,290	316,504	327,821	309,614	332,246	324,824	379,603	317,768	333,679	333,022	3,980,490		
Total	931,747	951,237	955,475	931,248	935,345	916,892	935,922	929,853	993,293	946,520	976,270	957,506	11,361,309		\$4,678,438.67
<b>Energy</b>															
Los Alamos	2,413,739	2,417,577	2,732,254	2,513,761	2,658,155	2,682,745	1,982,005	2,808,532	1,647,823	1,793,287	1,110,751	1,683,274	26,443,901		
Department of Energy	151,722	158,307	146,596	147,955	152,817	158,185	162,832	161,442	175,681	162,724	165,466	165,619	1,909,345		
Total	2,565,461	2,575,884	2,878,850	2,661,715	2,810,973	2,840,930	2,144,836	2,969,974	1,823,503	1,956,011	1,276,217	1,848,893	28,353,247		
<b>Norton-WTA</b>															
Los Alamos	-	-	-	-	-	-	-	-	-	-	-	-	-		
<b>MW Demand</b>															
LAC Actual Demand	20	20	18	14	16	19	19	18	15	16	16	19			
DOE Actual Demand	90	91	95	96	96	94	74	75	65	65	82	86			
Total Actual Demand	110	111	113	110	112	113	93	93	80	81	98	105			
<b>MW Billing Demand</b>															
LAC Billing Demand	20	20	18	14	16	19	19	18	15	16	16	19			
DOE Billing Demand	90	91	95	96	96	94	74	75	65	65	82	86			
Total Billing Demand	110	111	113	110	112	113	93	93	80	81	98	105			
<b>Norton-WTA Demand</b>															
LAC Billing Demand	20	20	18	15	16	19	19	18	15	16	16	19			
DOE Billing Demand	90	91	95	96	96	94	74	75	65	65	82	86			
Total Billing Demand	110	111	113	111	112	113	93	93	80	81	98	105			
<b>Total Resource Cost</b>	3,497,208	3,527,121	3,834,325	3,592,964	3,746,317	3,757,822	3,080,758	3,899,827	2,816,796	2,902,531	2,252,487	2,806,399	39,714,555	769,240	\$ 51.63
Los Alamos Demand %	18.22%	18.17%	15.58%	12.79%	14.54%	16.84%	20.26%	19.38%	18.48%	20.08%	16.54%	18.49%			
Los Alamos Energy %	16.32%	15.87%	12.33%	12.95%	14.00%	16.57%	19.80%	16.64%	19.25%	16.84%	16.70%	16.74%			
Los Alamos Norton-STA %															
Department of Energy Demand %	81.78%	81.83%	84.42%	87.21%	85.46%	83.16%	79.74%	80.62%	81.52%	79.92%	83.46%	81.51%			
Department of Energy Energy %	83.66%	84.13%	87.67%	87.05%	86.00%	83.43%	80.20%	83.36%	80.75%	83.16%	83.30%	83.26%			
DOE Norton-STA %															
<b>Los Alamos Power Cost</b>															
Demand	169,746	172,887	148,896	119,128	135,968	154,412	189,648	180,176	183,563	190,048	161,436	177,024			
Energy	418,647	408,891	354,996	344,785	393,405	470,790	424,662	494,103	351,057	329,322	213,099	309,564			
Norton-STA	-	-	-	-	-	-	-	-	-	-	-	-			
Customer	-	-	-	-	-	-	-	-	-	-	-	-			
Total	588,393	581,778	503,892	463,914	529,373	625,202	614,311	674,279	534,620	519,370	374,535	486,588	6,496,253	123,068	\$ 52.79
<b>Department of Energy Power Cost</b>															
Demand	762,001	778,351	806,579	812,120	799,377	762,480	746,274	749,677	809,730	756,472	814,834	780,482			
Energy	2,146,814	2,166,993	2,523,854	2,316,930	2,417,567	2,370,140	1,720,174	2,475,871	1,472,447	1,626,689	1,063,117	1,539,328			
Norton-STA	-	-	-	-	-	-	-	-	-	-	-	-			
Customer	-	-	-	-	-	-	-	-	-	-	-	-			
Total	2,908,815	2,945,344	3,330,433	3,129,050	3,216,944	3,132,620	2,466,448	3,225,548	2,282,176	2,383,161	1,877,952	2,319,811	33,218,303	646,172	\$ 51.41
Net Due to Los Alamos	2,438,359	2,446,651	2,837,547	2,664,592	2,736,306	2,664,821	1,971,370	2,739,283	1,726,892	1,902,669	1,378,807	1,821,169	27,328,467		
Distribution Expense	(2,046)	(2,046)	(2,046)	(2,046)	(2,046)	(2,046)	(2,046)	(2,046)	(2,046)	(2,046)	(2,046)	(2,046)	(24,552)		
Debt Service Savings Split															
Service Charge	-	-	-	-	-	-	-	-	-	-	-	-			
Service Charge	-	-	-	-	-	-	-	-	-	-	-	-			
<b>Net Adjusted due Los Alamos</b>	2,436,313	2,444,605	2,835,501	2,662,546	2,734,260	2,662,775	1,969,324	2,737,237	1,724,846	1,900,623	1,376,761	1,819,123	27,303,915		
														<b>DOE TOTAL \$</b>	<b>51.37</b>

UPDATED: 01/23/2020

LOADS and RESOURCES, FY2022

Energy, MWh	744 Jul-21	744 Aug-21	720 Sep-21	744 Oct-21	720 Nov-21	744 Dec-21	744 Jan-22	672 Feb-22	744 Mar-22	720 Apr-22	744 May-22	720 Jun-22	FY2022 Totals
1 San Juan	25,177	25,177	24,365	25,177	24,365	25,177	25,177	22,740	25,177	24,365	25,177	16,243	288,317
2 Laramie	7,068	7,068	6,840	7,068	6,840	7,068	7,068	6,384	7,068	3,762	5,517	6,840	78,432
3 El Vado	3,162	3,794	2,448	1,897	0	0	0	0	1,897	4,896	5,692	3,672	37,475
4 Abiquiu	5,059	4,427	3,060	3,162	0	0	0	0	1,897	5,508	8,854	5,508	7,139
5 Abiquiu LFTG	315	333	443	710	703	633	778	530	776	892	751	274	32,760
71 15MW PPA										10,800	11,160	10,800	0
6 TA-3 Steam	10,364	10,430	8,054	11,374	11,661	12,086	10,355	0	4,821	0	10,705	9,652	99,501
7 LANL CT, 25 MW	4,963	5,039	4,905	5,079	5,631	5,410	6,183	6,404	6,735	6,316	6,518	6,796	69,979
8 WAPA DOE, Firm	357	339	338	481	501	583	518	461	481	350	343	340	5,092
9 WAPA LAC, Firm	0	0	0	0	0	0	0	0	0	0	0	0	0
10 WAPA Peaking	5,136	4,494	6,240	3,852	6,864	1,926	1,284	4,116	3,210	0	0	3,744	40,866
11 WAPA WRP and CDP	179	179	173	179	173	179	179	161	179	173	179	173	2,102
12 PV Landfill	7,440	7,440	7,200	7,440	10,800	18,600	3,720	10,080	3,720	0	0	14,400	90,840
13 Future Resource (PPA)	0	0	0	0	0	0	0	0	0	0	0	0	0
14 Economy Purchases	(400)	(300)	(500)		(350)	(600)	0	0	0	(4,100)	(7,600)	(200)	(14,050)
16 Outage Assistance	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Load + Losses	58,424	57,936	55,439	54,952	55,476	58,893	44,848	50,801	51,137	52,900	56,407	68,522	665,736
18 MWh Avail	58,456	57,990	55,511	55,045	55,527	58,975	44,906	50,877	51,140	52,962	56,431	68,590	666,411
19 MWh Scheduled	58,456	57,990	55,511	55,045	55,527	58,975	44,906	50,877	51,140	52,962	56,431	68,590	666,411
20 MWh +Excess/-Deficit	32	54	72	93	50	82	58	75	3	62	24	68	675
21 Peaking PB>Pool	0	0	0	0	0	0	0	0	0	0	0	0	0
22 Peaking PB>Purch	0	0	0	0	0	0	0	0	0	0	0	0	0
23 LANSCE	0	0	0	0	0	0	0	0	0	0	0	0	0
24 LANL-LANSCE	0	0	0	0	0	0	0	0	0	0	0	0	0
25 LEDA	0	0	0	0	0	0	0	0	0	0	0	0	0
26 DOE Raw Load	56,181.28	56,131.99	53,552.70	55,933.34	56,006.23	57,777.00	42,670.07	39,281.36	44,895.46	42,777.64	56,321.66	66,303.24	627,832
27 DOE Total	45,818	45,702	45,499	44,559	44,345	45,691	32,315	39,281	40,074	42,778	45,616	56,652	528,331
28 LAC	10,905	10,546	8,326	8,792	9,515	11,486	11,226	10,040	9,574	8,582	9,148	9,875	118,015
29 Total Load	56,722	56,248	53,824	53,352	53,861	57,178	43,542	49,322	49,648	51,359	54,764	66,526	646,346
29 Losses	1,702	1,687	1,615	1,601	1,616	1,715	1,306	1,480	1,489	1,541	1,643	1,996	19,390
30 DOE %	0.80775	0.81251	0.84532	0.83520	0.82333	0.79911	0.74217	0.79643	0.80717	0.83291	0.83296	0.85157	0.81741
31 LAC %	0.19225	0.18749	0.15468	0.16480	0.17667	0.20089	0.25783	0.20357	0.19283	0.16709	0.16704	0.14843	0.18259
32 Purchase , MWh	12,755	12,113	13,613	11,471	17,837	20,705	5,183	14,357	7,109	173	179	18,317	133,808
33 % of Total	22	21	25	21	32	35	12	28	14	0	0	27	20
33a SJ Unit-1 Day Avail													
33s SJ Unit-4 Day Avail	31	31	30	31	30	31	31	28	31	30	31	20	Totals
Capacity, MW	62	62	60	62	60	62	62	56	62	33	47	60	
33b LRS Unit-day @100%													
34 San Juan Unit 1	36	36	36	36	36	36	36	36	36	36	36	24	0
35 Laramie	10	10	10	10	10	10	10	10	10	6	8	10	113

36 El Vado	5	6	4	3	0	0	0	0	0	0	0	3	8	9	6	44
27 Abiquiu	8	7	5	5	0	0	0	0	0	0	0	3	9	14	9	60
38 Abiquiu LFTG	0.50	0.53	0.72	1.12	1.15	1.00	1.23	0.93	1.23	1.46	1.19	0.45				12
39 TA-3 Steam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40 LANL CT, 45 MW	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	300
41 WAPA DOE, Firm	10	10	8	10	10	12	12	11	10	8	8	8	8	8	8	118
42 WAPA LAC, Firm	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12
43 WAPA Peaking	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44 PV Landfill	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12
45 WAPA WRP and CDP	8	7	10	6	11	3	2	7	5	0	0	6	6	6	6	65
46 Outage Assistance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47 Future Resource (PPA)	10	10	10	10	15	25	5	15	5	0	0	20	20	20	20	125
48 Economy Purchases																0
49 Spinning Reserve Purchase																0
50 LANSCE, MW		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51 LANL-LANSCE, MW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52 LEDA, MW																0
53 DOE Total, MW	77.4	77.7	77.6	78.3	78.3	79.4	59.3	59.6	61.9	61.9	78.8	90.1	90.1	90.1	90.1	880
54 LAC, MW	18	19	16	12	15	17	17	16	13	15	15	18	18	18	18	191
54a																
55 Total Load, MW	96	96	94	91	93	97	77	76	75	77	93	108	108	108	108	1,072
56 Required Reserve	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	96
57 Losses, MW	3	4	3	3	3	4	3	2	2	3	3	4	4	4	4	37
58 Total Required, MW	107	108	105	102	104	109	88	86	85	88	104	120	120	120	120	1,205
59 MW Avail	114	114	111	108	110	114	93	107	100	95	103	111	111	111	111	1,281
60 Excess/-Deficit, MW	8	5	6	6	6	5	12	21	15	7	(2)	(8)	(8)	(8)	(8)	82
61 DOE %	0.80774	0.80753	0.82943	0.86247	0.84186	0.82020	0.77462	0.78511	0.82537	0.80843	0.84390	0.83499	0.83499	0.83499	0.83499	0.82155
62 LAC %	0.19226	0.19247	0.17057	0.13753	0.15814	0.17980	0.22538	0.21489	0.17463	0.19157	0.15610	0.16501	0.16501	0.16501	0.16501	0.17845
63 Load	96	96	94	91	93	97	77	76	75	77	93	108	108	108	108	
64 WAPA Trans Use	19	18	19	17	22	16	15	19	16	9	9	16	16	16	16	
65 Imports	85	84	82	79	81	84	64	79	72	66	74	81	81	81	81	
66 Purchase, MW	19	18	21	17	27	29	8	23	11	1	1	27	27	27	27	202
67 % of Total	18	17	20	17	26	27	9	27	13	1	1	23	23	23	23	17

Energy, MWh	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	FY2023 Totals
1 San Juan	0	0	0	0	0	0	0	0	0	0	0	0	0
2 Laramie	7,068	7,068	6,840	7,068	6,840	7,068	7,068	6,612	7,068	3,762	5,358	6,840	78,660
3 El Vado	0	0	0	0	0	0	0	0	1,897	4,896	6,324	3,672	16,789
4 Abiquiu	5,059	4,427	3,060	3,162	0	0	0	0	1,897	5,508	8,854	5,508	37,475
5 Abiquiu LFTG	315	333	443	710	703	633	778	530	776	892	751	274	7,139
7 15MW PPA	11,160	11,160	10,800	11,160	10,800	11,160	11,160	10,080	11,160	10,800	11,160	10,800	131,400
6 LANL On-Site Solar	1,786	1,786	1,728	1,786	1,728	1,786	1,786	1,613	1,786	1,728	1,786	1,728	21,024
7 LANL CT, 25 MW	9,746	9,847	7,635	10,843	11,174	11,603	9,956	0	4,637	0	10,269	9,248	94,958
8 WAPA DOE, Firm	4,963	5,039	4,905	5,079	5,631	5,410	6,183	6,404	6,735	6,316	6,518	6,796	69,979
9 WAPA LAC, Firm	357	339	338	481	501	583	518	461	481	350	343	340	5,092
10 WAPA Peaking	0	0	0	0	0	0	0	0	0	0	0	0	0
11 WAPA WRP and CDP	5,136	5,136	4,992	3,210	3,744	6,420	4,494	5,880	2,568	3,120	642	0	45,342
12 PV Landfill	179	179	173	179	173	179	179	161	179	173	179	173	2,102
13 Future Resource (PPA)	26,040	26,040	32,400	29,760	32,400	29,760	18,600	33,600	14,880	18,000	7,440	18,000	286,920
14 Economy Purchases	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Economy Sales	(200)	(100)	(300)	(200)	(500)	(400)	0	(500)	(600)	(500)	(600)	0	(3,900)
16 Outage Assistance	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Load + Losses	71,554	71,210	72,933	73,177	73,104	74,112	60,664	64,781	53,460	55,000	58,983	63,340	792,317
18 MWh Avail	71,609	71,253	73,013	73,238	73,194	74,201	60,720	64,841	53,464	55,045	59,023	63,379	792,980
19 MWh Scheduled	71,609	71,253	73,013	73,238	73,194	74,201	60,720	64,841	53,464	55,045	59,023	63,379	792,980
20 MWh +Excess/-Deficit	55	44	81	61	89	89	56	60	4	45	40	39	663
21 Peaking PB>Pool	0	0	0	0	0	0	0	0	0	0	0	0	0
22 Peaking PB>Purch	0	0	0	0	0	0	0	0	0	0	0	0	0
23 LANSCE	0	0	0	0	0	0	0	0	0	0	0	0	0
24 LANL-LANSCE	0	0	0	0	0	0	0	0	0	0	0	0	0
25 LEDA	0	0	0	0	0	0	0	0	0	0	0	0	0
26 DOE Raw Load	67,879	68,008	69,712	72,686	72,215	71,633	57,192	52,431	46,548	44,408	57,972	60,446	741,130
27 DOE Total	58,133	58,161	62,077	61,843	61,042	60,030	47,236	52,431	41,911	44,408	47,703	51,199	646,172
28 LAC	11,336	10,974	8,732	9,203	9,933	11,924	11,661	10,463	9,992	8,990	9,562	10,296	123,068
29 Total Load	69,470	69,135	70,808	71,045	70,975	71,954	58,897	62,894	51,903	53,398	57,265	61,495	769,240
30 Losses	2,084	2,074	2,124	2,131	2,129	2,159	1,767	1,887	1,557	1,602	1,718	1,845	23,077
31 DOE %	0.83681	0.84126	0.87669	0.87046	0.86005	0.83428	0.80201	0.83363	0.80748	0.83164	0.83302	0.83257	0.84001
32 LAC %	0.16319	0.15874	0.12331	0.12954	0.13995	0.16572	0.19799	0.16637	0.19252	0.16836	0.16698	0.16743	0.15999
32 Purchase , MWh	31,355	31,355	37,565	33,149	36,317	36,359	23,273	39,641	17,627	21,293	8,261	18,173	334,364
33 % of Total	44	44	52	45	50	49	38	61	33	39	14	29	42
33a SJ Unit-1 Day Avail													
33s SJ Unit-4 Day Avail													

Capacity, MW		Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Totals
33b	LRS Unit-day @100%	62			62	60	62	62	58	62	33	47	60	0
34	San Juan Unit 1	0	0	0	0	0	0	0	0	0	0	0	0	0
35	San Juan Unit 4	10	10	10	10	10	10	10	10	10	6	8	10	113
36	Laramie	0	0	0	0	0	0	0	0	3	8	10	6	27
36	El Vado	8	7	5	5	0	0	0	0	3	9	14	9	60
27	Abiquiu	0.50	0.53	0.72	1.12	1.15	1.00	1.23	0.93	1.23	1.46	1.19	0.45	12
38	Abiquiu LFTG	10	10	10	10	10	10	10	10	10	10	10	10	120
39	LANL On-Site Solar	25	25	25	25	25	25	25	25	25	25	25	25	300
40	LANL CT, 45 MW	10	10	8	10	10	12	12	11	10	8	8	9	118
41	WAPA DOE, Firm	1	1	1	1	1	1	1	1	1	1	1	1	12
42	WAPA LAC, Firm	0	0	0	0	0	0	0	0	0	0	0	0	0
43	WAPA Peaking	1	1	1	1	1	1	1	1	1	1	1	1	12
44	PV Landfill	8	8	8	5	6	10	7	10	4	5	1	0	72
45	WAPA WRP and CDP	0	0	0	0	0	0	0	0	0	0	0	0	0
46	Outage Assistance	35	35	45	40	45	40	25	50	20	25	10	25	395
47	Future Resource (PPA)													
48	Economy Purchases													0
49	Spinning Reserve Purchase													0
50	LANSCE, MW	0	0	0	0	0	0	0	0	0	0	0	0	0
51	LANL-LANSCE, MW	0	0	0	0	0	0	0	0	0	0	0	0	0
52	LEDA, MW													0
53	DOE Total, MW	90.2	90.8	95.3	95.9	96.0	94.0	74.3	74.7	64.9	64.8	81.8	85.7	1,008
54	LAC, MW	20	20	18	14	16	19	19	18	15	16	16	19	211
54a														
55	Total Load, MW	110	111	113	110	112	113	93	93	80	81	98	105	1,219
56	Required Reserve	8	8	8	8	8	8	8	8	8	8	8	8	96
57	Losses, MW	4	4	4	4	4	4	3	3	2	2	3	3	40
58	Total Required, MW	122	123	125	122	124	125	104	104	90	91	109	116	1,355
59	MW Avail	108	108	114	108	109	110	92	119	88	99	89	96	1,241
60	Excess/-Deficit, MW	(14)	(15)	(11)	(14)	(15)	(15)	12	16	(1)	8	(20)	(20)	(90)
61	DOE %	0.81782	0.81825	0.84417	0.87208	0.85463	0.83159	0.79737	0.80623	0.81520	0.79921	0.83464	0.81512	0.82713
62	LAC %	0.18218	0.18175	0.15583	0.12792	0.14537	0.16841	0.20263	0.19377	0.18480	0.20079	0.16536	0.18488	0.17287
63	Load	110	111	113	110	112	113	93	93	80	81	98	105	
64	WAPA Trans Use	19	19	17	16	17	23	20	22	15	14	10	10	
65	Imports	68	68	74	68	69	70	53	80	50	61	50	57	
66	Purchase, MW	44	44	54	46	52	51	33	61	25	31	12	26	479
67	% of Total	36	36	43	38	42	41	32	59	28	34	11	22	35



# County of Los Alamos

## Staff Report

June 16, 2021

Los Alamos, NM 87544  
www.losalamosnm.us

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**Agenda No.:** 6.D.

**Index (Council Goals):** DPU FY2021 - 2.0 Achieve and Maintain Excellence in Financial Performance

**Presenters:** Bob Westervelt

**Legislative File:** AGR0758-21

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### Title

Approval of Amendment No. 8 to Services Agreement AGR16-4289 with Paymentus Corporation in the Amount of \$75,000 for a Revised Total Agreement Amount of \$400,000, plus Applicable Gross Receipts Tax for the Purpose of Credit Card and Electronic Bill Payment Services.

### Recommended Action

**I move that the Board of Public Utilities approve Amendment No. 8 to Services Agreement AGR16-4289 with Paymentus Corporation in the amount of \$75,000.00 for a revised total contract value of \$400,000.00 plus applicable gross receipts tax and forward to Council for consideration.**

### Staff Recommendation

Staff recommends that the Board approve the motion as presented.

### Body

In January 2021 Amendment 7 to this contract was executed which increased the funding to \$325k with the expectation that funding would be sufficient to carry us for the remaining term of the current contract. However, with Covid and the renewed emphasis on contact-less payment alternatives, plus the addition of Paymentus as an option for citizens to make donations to the Utilities Assistance Program, we have seen a sharp increase in usage of the credit card payment alternative and resulting fees. This was the same explanation as was presented with the previous increase. Now, as an additional concern, as the restrictions from the Governor's office look like they are likely to be eased or lifted in the next few weeks, we are working with customers and finding that many of them are seeking to bring their past due accounts current by utilizing their credit cards, most likely to spread the impact over their credit card grace periods or payment schedules, or perhaps simply because of the simplicity and convenience of the payment alternative. While the current contract amount may be sufficient to see us through the December contract expiration date, staff is proposing this increase to ensure we have adequate coverage to maintain this important payment option as people work through this complicated and unprecedented recovery period.

In addition to simply requesting additional funding, to ensure the program is sustainable, and remains an option for the future, staff is working with the contractor on implementing certain program changes. Most utilities payments fall under a special "utilities rate structure", which is a set fee per charge increment, and works out to be significantly lower than the percentage fee normally charged by credit card companies and processing services. Charges designated by

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the credit card issuer as “non-qualified transactions”, however, are still subject to the much higher percentage fee structure. While the rules for “non-qualified transactions” are complicated and subject to the card issuer’s discretion, the most common, and most expensive, exception is for individual charges over \$1,000, or total charges for a single customer exceeding \$1,000 in a 30-day period. As an example, the fee for a charge amount of \$1,000. would be \$6.75 (\$2.25 per \$350. Increment). The fee, however, for a \$1,001 charge amount would be \$29.50 (\$1,000 times 2.95%).

Paymentus does offer the ability to apply “velocity rules”, which can be utilized to eliminate these high-cost transactions. Effective as soon as we can get it programmed in the payment portal, staff proposes to implement a simple “velocity rule” limiting individual transactions or customer total transactions in a thirty-day period to \$1,000. This will primarily affect a few larger commercial customers, and a few multiple unit residential accounts that currently put their entire cumulative monthly charges on a single card. This change would not affect the majority of residential or small business customers that elect to pay by credit card. It is noteworthy that the additional fee does not apply to ACH/eCheck transactions, so those customers that choose to do so could still use our online payment options and pay up \$1,000 on a credit card, and any remaining balance via ACH or eCheck.

Additional background and history was provided with the January staff report, and is repeated here for clarity and ease of reference: For years, the Utilities Department had a “convenience fee” model for accepting credit card payments for utilities bills. Under this model, customers were charged \$4.95 per transaction with a transaction limit of \$450.00. The department received substantial customer feedback that this model was unacceptable in the modern business world. We also got similar indications from trade shows and from publications to which we subscribe. Finally, to successfully deploy our Smart Customer Mobile application, it was apparent that we needed to better support credit card payments. Although that application has since been retired, we did learn that strong support for credit card payments was going to be essential for successful deployment of any type of replacement mobile or “customer self-service” application.

In response to these inputs, Department staff reached out in 2015 to the then current provider, Paymentus Corporation, and to several other potential providers, to look at their fee models and structure. The Procurement Officer determined at the time that such services were exempt from the competition requirements of the Los Alamos Procurement Code, so no formal request for proposals was issued, but staff did conduct extensive “due diligence” to ensure we were obtaining best value for the Department and our customers. After careful consideration, it was determined that Paymentus provides the most cost-effective model, the most flexibility, and the best service for our requirements.

Having not had experience with the “absorbed fee” model, staff had little information on which to base an estimated total contract cost. We also wanted to limit our exposure until we had that history and could gauge success of the program. Thus, we initially funded the contract for only \$49,000. In 2017, funding was increased to \$99,000, which was projected as and which was adequate for the remainder of the initial contract term, based on historical usage and growth.

With almost six years now under the program, we have received very favorable customer feedback. We are still seeing increased utilization as more customers become familiar with and

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utilize its functionality and convenience. Through amendment #3, the contract term was extended in 2018 for a six-year term running through December 27, 2021, but funding was not at that time increased. Later that year, through amendment #4, funding was increased to \$195,000. In February 2020 amendment #5 was executed to increase the limit for a single transaction from \$2,400 to \$99,999, reducing the department's exposure to multiple minimum transaction fees for customers wishing to make larger payment. As noted previously, In June 2020, amendment #6 was executed increasing the funding to \$250,000 and amendment #7 was executed in January 2021 to increase the funding to \$325,000.

Again, DPU is now seeking additional funding authority to support this popular and customer focused payment option. We are anticipating that the proposed funding will be adequate for the remainder of the current contract term and remain confident that the service provides good value for the department and our customers in terms of payment ease and flexibility. At the expiration of the current contract, the plan is to solicit proposals from qualified offerors and procure continuing similar services in accordance with the Los Alamos County Procurement Code.

#### **Alternatives**

If the Board elects not to approve this amendment, we will cancel the current contract when funding runs out and initiate solicitation for replacement services to avoid any lapse in this payment option for our customers. This action may result in a different fee structure, or a return to the "convenience fee" model we were previously under.

#### **Fiscal and Staff Impact**

This proposed additional funding amount is based on the most recent usage data. The attached chart shows, by year, the actual and projected total fees paid over the life of the contract. As noted above, the existing contract amount may be adequate, but this increase is proposed to ensure we have adequate funding available to support this payment option for the remaining term of the contract. The increase of \$75,000 can be covered with existing funds budgeted in the FY22 budgets. There is no staff impact as this is for continuation of an existing service.

#### **Attachments**

- A - AGR16-4289-A8 Paymentus Corporation.
- B - Actual and projected annual fees paid.
- C - AGR16-4289 Original and Amendments 1 to 7

**AMENDMENT NO. 8  
INCORPORATED COUNTY OF LOS ALAMOS  
SERVICES AGREEMENT NO. 16-4289**

This **AMENDMENT NO. 8** is entered into by and between the **Incorporated County of Los Alamos**, an incorporated county of the State of New Mexico ("County"), and **Paymentus Corporation**, a Delaware corporation ("Contractor"), to be effective for all purposes June 30, 2021.

**WHEREAS**, County and Contractor entered into Agreement No. AGR16-4289 dated December 28, 2015, modified by Amendment No. 1 AGR14-4289-A1, dated August 17, 2017, Amendment No. 2 AGR16-4289-A2, dated August 22, 2017, Amendment No. 3 AGR16-4289-A3, dated April 20, 2018, Amendment No. 4 AGR16-4289-A4, Amendment No. 5 AGR16-4289-A5, dated February 28, 2020, Amendment No. 6 AGR16-4289-A6, dated July 1, 2020, and Amendment No. 7 AGR16-4289-A7, dated January 6, 2021 (as amended, the "Agreement") for electronic bill payment services; and

**WHEREAS**, both parties wish to amend the Agreement to increase compensation due to an increasing number of customer payments processed through Contractor during the unforeseen COVID-19 (coronavirus) pandemic; and

**WHEREAS**, the additional compensation does not change terms or an increase in rates; and

**WHEREAS**, the Board of Public Utilities approved this Amendment at a public meeting held on June 16, 2021; and

**WHEREAS**, the County Council approved this Amendment at a public meeting held on June 29, 2021.

**NOW, THEREFORE**, for good and valuable consideration, County and Contractor agree as follows:

- I. Delete **SECTION C. COMPENSATION, Sub-section 1. Amount of Compensation**, in its entirety and replace it with the following:

**SECTION C. COMPENSATION:**

1. **Amount of Compensation.** County shall pay compensation for performance of the Services in accordance with the rate schedule set out in Exhibit "A," attached hereto and made a part hereof. Total compensation shall not exceed FOUR HUNDRED THOUSAND DOLLARS AND NO 00/100 (\$400,000.00), which amount does not include applicable New Mexico Gross Receipts Taxes ("NMGR").
- II. Add two (2) new Sections titled "X." and "Y."

**SECTION X. NO IMPLIED WAIVERS:** The failure of the County to enforce any provision of this Agreement is not a waiver by the County of the provisions or of the right thereafter to enforce any provision(s).

**SECTION Y. SEVERABILITY:** If any provision of this Agreement is held to be unenforceable for any reason: (i) such provision will be reformed only to the extent necessary to make the intent of the language enforceable; and (ii) all other provisions of this Agreement will remain in effect.

Except as expressly modified by this Amendment, the terms and conditions of the Agreement remain unchanged and in effect.

**IN WITNESS WHEREOF**, the parties have executed this Amendment No. 8 on the date(s) set forth opposite the signatures of their authorized representatives to be effective for all purposes on the date first written above.

**ATTEST**

**INCORPORATED COUNTY OF LOS ALAMOS**

\_\_\_\_\_  
**NAOMI D. MAESTAS**  
**COUNTY CLERK**

BY: \_\_\_\_\_  
**PHILO S. SHELTON, III, P.E.**                      **DATE**  
**UTILITIES MANAGER**

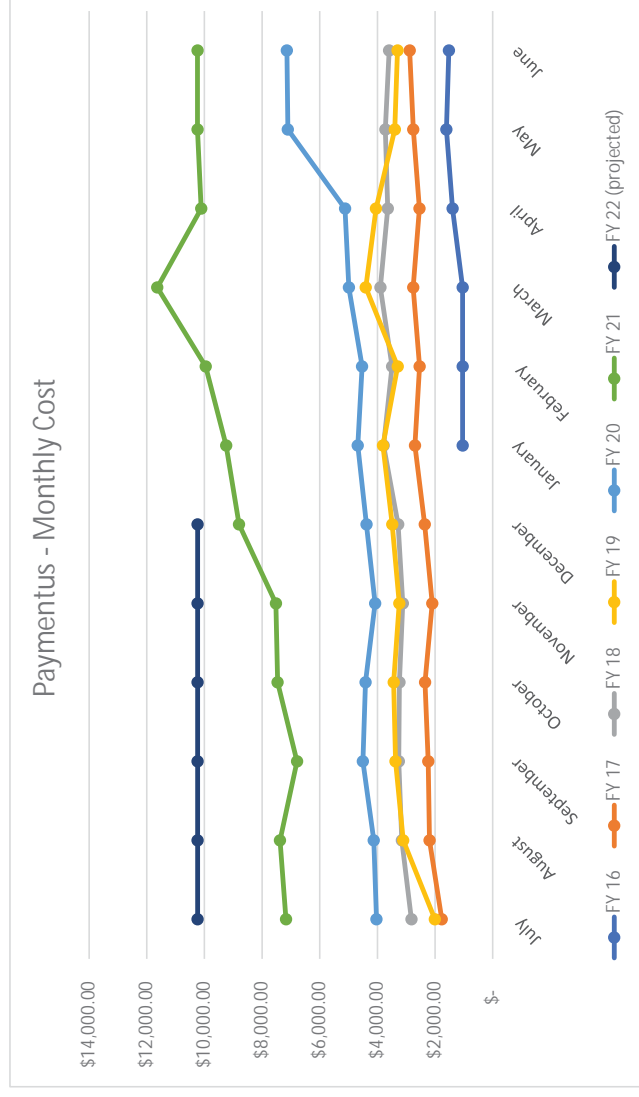
**Approved as to form:**

\_\_\_\_\_  
**J. ALVIN LEAPHART**  
**COUNTY ATTORNEY**

**PAYMENTUS CORPORATION, A DELAWARE CORPORATION**

BY: \_\_\_\_\_  
**DAVID SHAPIRO**                      **DATE**  
**SENIOR VICE PRESIDENT**

	July	August	September	October	November	December	January	February	March	April	May	June
FY 16							\$ 1,043.58	\$ 1,043.58	\$ 1,043.58	\$ 1,391.75	\$ 1,608.25	\$ 1,521.25
FY 17	\$ 1,768.25	\$ 2,192.75	\$ 2,238.25	\$ 2,346.25	\$ 2,098.00	\$ 2,360.25	\$ 2,699.50	\$ 2,537.75	\$ 2,760.50	\$ 2,542.75	\$ 2,756.25	\$ 2,881.50
FY 18	\$ 2,819.50	\$ 3,153.25	\$ 3,258.75	\$ 3,237.25	\$ 3,121.00	\$ 3,280.75	\$ 3,784.75	\$ 3,492.50	\$ 3,897.00	\$ 3,642.25	\$ 3,725.00	\$ 3,594.75
FY 19	\$ 2,008.00	\$ 3,105.75	\$ 3,372.75	\$ 3,436.50	\$ 3,240.75	\$ 3,487.00	\$ 3,806.75	\$ 3,297.50	\$ 4,404.75	\$ 4,049.00	\$ 3,395.75	\$ 3,302.50
FY 20	\$ 4,032.25	\$ 4,126.25	\$ 4,503.50	\$ 4,413.75	\$ 4,078.75	\$ 4,379.00	\$ 4,683.25	\$ 4,533.00	\$ 4,991.50	\$ 5,123.50	\$ 7,107.02	\$ 7,142.45
FY 21	\$ 7,172.47	\$ 7,379.03	\$ 6,788.14	\$ 7,463.06	\$ 7,522.14	\$ 8,802.07	\$ 9,249.05	\$ 9,955.76	\$ 11,638.01	\$ 10,113.65	\$ 10,239.00	\$ 10,239.00
FY 22 (project)	\$ 10,239.00	\$ 10,239.00	\$ 10,239.00	\$ 10,239.00	\$ 10,239.00	\$ 10,239.00						



**AMENDMENT NO. 7  
INCORPORATED COUNTY OF LOS ALAMOS  
SERVICES AGREEMENT NO. 16-4289**

This **AMENDMENT NO. 7** is entered into by and between the **Incorporated County of Los Alamos**, an incorporated county of the State of New Mexico ("County"), and **Paymentus Corporation**, a Delaware corporation ("Contractor"), to be effective for all purposes January 6, 2021.

**WHEREAS**, County and Contractor entered into Agreement No. AGR16-4289 dated December 28, 2015, modified by Amendment No. 1 AGR14-4289-A1, dated August 17, 2017, Amendment No. 2 AGR16-4289-A2, dated August 22, 2017, Amendment No. 3 AGR16-4289-A3, dated April 20, 2018, Amendment No. 4 AGR16-4289-A4, Amendment No. 5 AGR16-4289-A5, dated February 28, 2020 and Amendment No. 6 AGR16-4289-A6, dated July 1, 2020 (as amended, the "Agreement") for electronic bill payment services; and

**WHEREAS**, both parties wish to amend the Agreement to increase compensation due to an increasing number of customer payments processed through Contractor; and

**WHEREAS**, the additional compensation does not change terms or an increase in rates; and

**WHEREAS**, the Board of Public Utilities approved this Amendment at a public meeting held on December 16, 2020; and

**WHEREAS**, the County Council approved this Amendment at a public meeting held on January 5, 2021.

**NOW, THEREFORE**, for good and valuable consideration, County and Contractor agree as follows:

Delete **SECTION C. COMPENSATION, Sub-section 1. Amount of Compensation**, in its entirety and replace it with the following:

**SECTION C. COMPENSATION:**

- 1. Amount of Compensation.** County shall pay compensation for performance of the Services in accordance with the rate schedule set out in Exhibit "A," attached hereto and made a part hereof. Total compensation shall not exceed **THREE HUNDRED TWENTY - FIVE THOUSAND DOLLARS AND NO 00/100 (\$325,000.00)**, which amount does not include applicable New Mexico Gross Receipts Taxes ("NMGR").

Except as expressly modified by this Amendment, the terms and conditions of the Agreement remain unchanged and in effect.



LACF2021-0128      06/02/2021      03:24 PM  
Page(s): 2      Naomi D Maestas - County Clerk  
Los Alamos County, NM      Tori Montoya - Deputy



IN WITNESS WHEREOF, the parties have executed this Amendment No. 7 on the date(s) set forth opposite the signatures of their authorized representatives to be effective for all purposes on the date first written above.

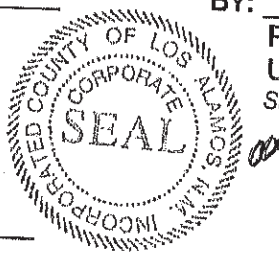
ATTEST

INCORPORATED COUNTY OF LOS ALAMOS

*Naomi D. Maestas*

NAOMI D. MAESTAS  
COUNTY CLERK

BY: *Robert S. Cummins* 1/7/2021  
PHILO S. SHELTON, III, P.E. DATE  
UTILITIES MANAGER  
Steve Cummins Acting for Philo Shelton



Approved as to form:

/s/ Kevin J. Powers for  
J. ALVIN LEAPHART  
COUNTY ATTORNEY

PAYMENTUS CORPORATION, A DELAWARE  
CORPORATION  
BY: *David Shapiro*  
DAVID SHAPIRO  
SENIOR VICE PRESIDENT DATE

**AMENDMENT NO. 6  
INCORPORATED COUNTY OF LOS ALAMOS  
SERVICES AGREEMENT NO. 16-4289**

This **AMENDMENT NO. 6** is entered into by and between the **Incorporated County of Los Alamos**, an incorporated county of the State of New Mexico ("County"), and **Paymentus Corporation**, a Delaware corporation ("Contractor"), to be effective for all purposes July 1, 2020.

**WHEREAS**, County and Contractor entered into Agreement No. AGR16-4289 dated December 28, 2015, modified by Amendment No. 1 AGR14-4289-A1, dated August 17, 2017, Amendment No. 2 AGR16-4289-A2, dated August 22, 2017, Amendment No. 3 AGR16-4289-A3, dated April 20, 2018, Amendment No. 4 AGR16-4289-A4 and Amendment No. 5 AGR16-4289-A5 (as amended, the "Agreement") for electronic bill payment services; and

**WHEREAS**, both parties wish to amend the Agreement to increase compensation; and

**WHEREAS**, the additional compensation does not change terms or an increase in rates; and

**WHEREAS**, the Board of Public Utilities approved this Amendment at a public meeting held on June 17, 2020; and

**WHEREAS**, the County Council approved this Amendment at a public meeting held on June 30, 2020.

**NOW, THEREFORE**, for good and valuable consideration, County and Contractor agree as follows:

- I. Delete **SECTION C. COMPENSATION, Sub-section 1. Amount of Compensation**, in its entirety and replace it with the following:

**SECTION C. COMPENSATION:**

1. **Amount of Compensation.** County shall pay compensation for performance of the Services in accordance with the rate schedule set out in Exhibit "A," attached hereto and made a part hereof. Total compensation shall not exceed TWO HUNDRED FIFTY THOUSAND DOLLARS AND NO 00/100 (\$250,000.00), which amount does not include applicable New Mexico Gross Receipts Taxes ("NMGR").
- II. Add two (2) new Sections titled "V." and "W."

**SECTION V. LEGAL RECOGNITION OF ELECTRONIC SIGNATURES:** Pursuant to NMSA 1978 § 14-16-7, this Agreement may be signed by electronic signature.

**SECTION W. DUPLICATE ORIGINAL DOCUMENTS:** This document may be executed in two (2) counterparts, each of which shall be deemed an original.



Except as expressly modified by this Amendment, the terms and conditions of the Agreement remain unchanged and in effect.

IN WITNESS WHEREOF, the parties have executed this Amendment No. 6 on the date(s) set forth opposite the signatures of their authorized representatives to be effective for all purposes on the date first written above.

ATTEST



\_\_\_\_\_  
NAOMI D. MAESTAS  
COUNTY CLERK

INCORPORATED COUNTY OF LOS ALAMOS

BY: *Philo S. Shelton III*

7-1-2020

PHILO S. SHELTON, III, P.E.  
UTILITIES MANAGER

DATE

Approved as to form:

\_\_\_\_\_  
*/s/ Kevin J. Powers for*  
J. ALVIN LEAPHART  
COUNTY ATTORNEY



PAYMENTUS CORPORATION, A DELAWARE  
CORPORATION

BY: 

NAME: David Shapiro

DATE July 13, 2020

TITLE: Senior Vice President

**Exhibit "A"**  
**Compensation Rate Schedule**  
**AGR16-4289-A6**

Paymentus Service Fee charged to Los Alamos County ("Customer") shall be based on the following Absorbed Fee Structure:

The Paymentus service fee shall be \$2.25 per \$350.00 increment, or portion thereof, paid for Visa, MasterCard, or Discover Card payments, or \$1.25 per \$350.00 increment paid for ACH/e-Check payments. The maximum payment amount accepted in one transaction shall be \$2,400.00.

The Paymentus Service Fee is based on the MasterCard/Visa Utility Rate Model, Cards that do not qualify under the Utility Rate Model ("Non-Qualified Cards") - generally corporate purchase cards, "incentive," "rebate" or "gift" cards, and other cards not tied to an individual consumer, shall result in "non-qualified transactions." An additional 2.95% "Non-Qualified Transaction" fee shall apply for such "non-qualified transactions," insofar as such fees exceed 5% of total Transaction Fees charged by Paymentus to Los Alamos County. Paymentus shall absorb non-qualified transaction fees up to this 5% threshold.

The table below summarizes this fee structure:

Paymentus Service Fee (Absorbed Fee Model)	
Utility Payments	
<ul style="list-style-type: none"><li>• Average Payment Amount: \$270</li><li>• Maximum Payment Amount shall be \$2,400 (billed based upon each \$350 payment increment).</li></ul>	
Paymentus Service Fee per qualified utility rate transaction shall be:	
<ul style="list-style-type: none"><li>• Credit/Debit Card \$2.25 (Visa, MasterCard, Discover Utility Rate Program)</li><li>• ACH/e-Check \$1.25</li></ul>	
Non-qualified Transaction Fee 2.95% Excess Fee	

Paymentus may amend this schedule upon sixty (60) days prior written notice to the Client, only if such change is required due to changes in the Visa and MasterCard regulations or changes in Credit Card interchange fees or changes in the Average Bill Amount.

**AMENDMENT NO. 5  
INCORPORATED COUNTY OF LOS ALAMOS  
SERVICES AGREEMENT NO. 16-4289-A3**

This **AMENDMENT NO. 5** is entered into by and between the **Incorporated County of Los Alamos**, an incorporated county of the State of New Mexico ("County"), and **Paymentus Corporation**, a Delaware corporation ("Contractor"), to be effective for all purposes February 28, 2020.

**WHEREAS**, County and Contractor entered into Agreement No. AGR16-4289 dated December 28, 2015, modified by Amendment No. 1 AGR16-4289-A1, dated August 17, 2017; Amendment No. 2 AGR16-4289-A2, dated August 22, 2017; Amendment No. 3 AGR16-4289-A3, dated April 20, 2018; and Amendment No. 4 AGR16-4289-A4 dated October 18, 2018 (as amended, the "Agreement") for electronic bill payment services; and

**WHEREAS**, the parties wish to amend Exhibit "A" Compensation Rate Schedule of Agreement to accommodate an increase to the Maximum Payment Amount from \$2,400.00 to \$99,999.00.

**NOW, THEREFORE**, for good and valuable consideration, County and Contractor agree as follows:

Exhibit "A" shall be replaced in its entirety and replaced with a new Exhibit "A."

Except as expressly modified by this Amendment, the terms and conditions of the Agreement remain unchanged and in effect.

**IN WITNESS WHEREOF**, the parties have executed this Amendment No. 5 on the date(s) set forth opposite the signatures of their authorized representatives to be effective for all purposes on the date first written above.

ATTEST

  
NAOMI D. MAESTAS  
COUNTY CLERK



Approved as to form:


  
J. ALVIN LEAPHART  
COUNTY ATTORNEY

INCORPORATED COUNTY OF LOS ALAMOS

By:   
PHILO S. SHELTON, III, P.E.  
UTILITIES MANAGER

2-28-2020  
DATE

PAYMENTUS CORPORATION, A DELAWARE CORPORATION

By:   
NAME: David Shapiro  
TITLE: Senior Vice President

DATE May 1, 2020

**AMENDMENT NO. 4  
INCORPORATED COUNTY OF LOS ALAMOS  
SERVICES AGREEMENT NO. 16-4289**

This **AMENDMENT NO. 4** is entered into by and between the **Incorporated County of Los Alamos**, an incorporated county of the State of New Mexico ("County"), and **Paymentus Corporation**, a Delaware corporation ("Contractor"), to be effective for all purposes October 18, 2018.

**WHEREAS**, County and Contractor entered into Agreement No. AGR16-4289 dated December 28, 2015, modified by Amendment No. 1 AGR14-4289-A1, dated August 17, 2017, Amendment No. 2 AGR16-4289-A2, dated August 22, 2017 and Amendment No. 3 AGR16-4289-A3, dated April 20, 2018 (as amended, the "Agreement") for electronic bill payment services; and

**WHEREAS**, term of Agreement was extended in Amendment No. 3, but compensation was not changed to reflect the additional years of the Agreement; and

**WHEREAS**, both parties wish to amend the Agreement to increase compensation; and

**WHEREAS**, the additional compensation does not change terms or an increase in rates; and

**WHEREAS**, the Board of Public Utilities approved this Amendment at a public meeting held on October 17, 2018.

**NOW, THEREFORE**, for good and valuable consideration, County and Contractor agree to amend the Agreement as follows:

Delete **SECTION C. COMPENSATION, Sub-section 1. Amount of Compensation**, in its entirety and replace it with the following:

**SECTION C. COMPENSATION:**


1. **Amount of Compensation.** County shall pay compensation for performance of the Services in accordance with the rate schedule set out in Exhibit "A," attached hereto and made a part hereof. Total compensation shall not exceed ONE HUNDRED NINETY-FIVE THOUSAND DOLLARS AND NO 00/100 (\$195,000.00), which amount does not include applicable New Mexico Gross Receipts Taxes ("NMGR").

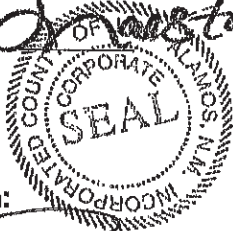
Except as expressly modified by this Amendment, the terms and conditions of the Agreement remain unchanged and in effect.

IN WITNESS WHEREOF, the parties have executed this Amendment No. 4 on the date(s) set forth opposite the signatures of their authorized representatives to be effective for all purposes on the date first written above.

ATTEST

INCORPORATED COUNTY OF LOS ALAMOS

  
NAOMI D. MAESTAS  
COUNTY CLERK




BY:  10-18-18  
TIMOTHY A. GLASCO, P.E. DATE  
UTILITIES MANAGER

Approved as to form:

  
J. ALVIN LEAPHART  
COUNTY ATTORNEY

PAYMENTUS CORPORATION, A DELAWARE  
CORPORATION

BY:   
NAME: David J. Sprague DATE  
TITLE: SU

**Exhibit "A"**  
**Compensation Rate Schedule**  
**AGR16-4289-A4**

Paymentus Service Fee charged to Los Alamos County ("Customer") shall be based on the following Absorbed Fee Structure:

The Paymentus service fee shall be \$2.25 per \$350.00 increment, or portion thereof, paid for Visa, MasterCard, or Discover Card payments, or \$1.25 per \$350.00 increment paid for ACH/e-Check payments. The maximum payment amount accepted in one transaction shall be \$2,400.00.

The Paymentus Service Fee is based on the MasterCard/Visa Utility Rate Model. Cards that do not qualify under the Utility Rate Model ("Non-Qualified Cards") - generally corporate purchase cards, "incentive," "rebate" or "gift" cards, and other cards not tied to an individual consumer, shall result in "non-qualified transactions." An additional 2.95% "Non-Qualified Transaction" fee shall apply for such "non-qualified transactions," insofar as such fees exceed 5% of total Transaction Fees charged by Paymentus to Los Alamos County. Paymentus shall absorb non-qualified transaction fees up to this 5% threshold.

The table below summarizes this fee structure:

Paymentus Service Fee (Absorbed Fee Model)	
Utility Payments	
<ul style="list-style-type: none"><li>Average Payment Amount: \$270</li><li>Maximum Payment Amount shall be \$2,400 (billed based upon each \$350 payment increment).</li></ul>	
Paymentus Service Fee per qualified utility rate transaction shall be:	
<ul style="list-style-type: none"><li>Credit/Debit Card \$2.25 (Visa, MasterCard, Discover Utility Rate Program)</li><li>ACH/e-Check \$1.25</li></ul>	
Non-qualified Transaction Fee 2.95% Excess Fee	

Paymentus may amend this schedule upon sixty (60) days prior written notice to the Client, only if such change is required due to changes in the Visa and MasterCard regulations or changes in Credit Card interchange fees or changes in the Average Bill Amount.

**AMENDMENT NO. 3  
INCORPORATED COUNTY OF LOS ALAMOS  
SERVICES AGREEMENT NO. 16-4289-A3**

This **AMENDMENT NO. 3** is entered into by and between the **Incorporated County of Los Alamos**, an incorporated county of the State of New Mexico ("County"), and **Paymentus Corporation**, a Delaware corporation ("Contractor"), to be effective for all purposes April 20, 2018.

**WHEREAS**, County and Contractor entered into Agreement No. AGR16-4289 dated December 28, 2015, modified by Amendment No. 1 AGR14-4289-A1, dated August 17, 2017 and Amendment No. 2 AGR16-4289-A2, dated August 22, 2017 (as amended, the "Agreement") for electronic bill payment services; and

**WHEREAS**, County has requested Contractor to amend the current Services of the Agreement, in order to accommodate conversion of the existing Cayenta system to the Tyler Munis system; and

**WHEREAS**, the parties wish to amend the services in Section A. Services, to include the new services needed for the conversion, and to extend the term of the Agreement for an additional three (3) year period; and

**WHEREAS**, the additional Services will not increase the rates, compensation, or terms of payment.

**NOW, THEREFORE**, for good and valuable consideration, County and Contractor agree to amend the Agreement as follows:


1. Amend **SECTION A. SERVICES, 1.** by adding a line I. which shall read as follows:
  - I. Contractor shall configure, setup, and implement the Responsive One-time Payment Portal. This will include automation of the Posting File per the Tyler Munis specifications provided and collecting the account number and customer identification during the payment process.
2. Delete **SECTION B. TERM** in its entirety and replace it with the following:

**SECTION B. TERM:** The term of this Agreement shall commence December 28, 2015 and shall continue through December 27, 2021, unless sooner terminated, as provided herein.

Except as expressly modified by this Amendment, the terms and conditions of the Agreement remain unchanged and in effect.

IN WITNESS WHEREOF, the parties have executed this Amendment No. 3 on the date(s) set forth opposite the signatures of their authorized representatives to be effective for all purposes on the date first written above.

ATTEST

  
NAOMI D. MAESTAS  
COUNTY CLERK



INCORPORATED COUNTY OF LOS ALAMOS

BY:  4-17-18  
TIMOTHY A. GLASCO, P.E. DATE  
UTILITIES MANAGER

Approved as to form:

  
J. ALVIN LEAPHART  
COUNTY ATTORNEY

PAYMENTUS CORPORATION, A DELAWARE  
CORPORATION

BY:   
NAME: Sandra Sheppard DATE 5/1/18  
TITLE: SVP

## AMENDING AGREEMENT

Customer:	Los Alamos County
Customer Address:	901 Trinity Drive Los Alamos, NM 87544
Contact for Notices to Customer:	Robert Westervelt

This Amending Agreement is entered into as of the below signature date, by and between the Customer ("Los Alamos County") identified above and **Paymentus Corporation**, a Delaware Corporation ("Paymentus").

**WHEREAS:**

A - The parties entered into a Master Services Agreement originally dated December 28, 2015.

B - The parties now wish to amend "Section B. Term" of the Master Services Agreement to extend the term for an additional three (3) years through December 27, 2021.

**NOW, THEREFORE**, in consideration of the mutual covenants hereinafter set forth, the receipt and sufficiency of which are hereby acknowledged, the parties, intending to be legally bound, hereby covenant and agree as follows:

Except for "Section B. Term" as provided in this Amending Agreement. All provisions of the Master Service Agreement remain in full force and effect, un-amended.

**IN WITNESS WHEREOF**, the parties have caused this Agreement to be executed by their duly authorized representatives

**Customer:**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**Paymentus:**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

# Paymentus

March 23, 2018

Paymentus Corporation  
13024 Ballantyne Corporate Place, Suite 450  
Charlotte, NC 28277

## Statement of Work

To: Incorporated County of Los Alamos  
c/o Robert Westervelt  
1000 Central Avenue, Suite 130  
Los Alamos, NM 87544

**Project Description:** County of Los Alamos is migrating from Tyler Cayenta to Tyler Munis. County will maintain the same setup today with only a daily posting file. File specifications will be included with this request from Tyler as the posting file will now need to include an account number and a customer ID. account number and customer ID will need to be captured within the One-Time Payment Portal. At this time, we will also upgrade the County to Responsive One-Time Payment Portal.

Item	Detail	Amount
Secondary Implementation	Paymentus will configure, setup, and implement the Responsive One-time Payment Portal. This will include automation of the Posting File per the Tyler Munis specifications provided and collecting the account number and customer ID during the payment process.	\$7,500 (Waived)*
Total Due		\$0.00

\*Term has been extended for an additional three (3) years

Customer Authorized Representative (Signature): \_\_\_\_\_

Customer Name/Title (Printed): \_\_\_\_\_ Date: \_\_\_\_\_

**AMENDMENT NO. 2  
INCORPORATED COUNTY OF LOS ALAMOS  
SERVICES AGREEMENT NO. 16-4289-A2**

This **AMENDMENT NO. 2** is entered into by and between the **Incorporated County of Los Alamos**, an incorporated county of the State of New Mexico ("County"), and **Paymentus Corporation**, a Delaware corporation ("Contractor"), to be effective for all purposes August 22, 2017.

**WHEREAS**, County and Contractor entered into Agreement No. AGR16-4289 dated December 28, 2015 and Amendment No. 1, AGR16-4176-A1, dated August 17, 2017 (as modified, the "Agreement") for electronic bill payment services; and

**WHEREAS**, both parties wish to amend **SECTION S: NOTICE**, to update Contractor information.

**NOW, THEREFORE**, for good and valuable consideration, County and Contractor agree to amend the Agreement as follows:

Delete **SECTION S: NOTICE** in its entirety and replace it with the following:

**SECTION S. NOTICE:** Any notices required under this Agreement shall be made in writing, postage prepaid to the following addresses, and shall be deemed given upon hand delivery, verified delivery by telecopy (followed by copy sent by United States Mail), or three (3) days after deposit in the United States Mail:

**County:**

Deputy Utilities Manager, Finance & Admin.  
Incorporated County of Los Alamos  
1000 Central Avenue, Suite 130  
Los Alamos, New Mexico 87544

**Contractor:**

Paymentus Corporation  
President and CEO  
13024 Ballantyne Corporate Place  
Suite 450  
Charlotte, North Carolina 28277

Except as expressly modified by this Amendment, the terms and conditions of the Agreement remain unchanged and in effect.



231913 09/18/2017 01:05 PM  
Book: 177 Page: 798 Naomi D Maestas - County Clerk  
Los Alamos County, NM Gloria A Maestas - Deputy  
LAC-AMENDMENT Page(s): 2



IN WITNESS WHEREOF, the parties have executed this Amendment No. 2 on the date(s) set forth opposite the signatures of their authorized representatives to be effective for all purposes on the date first written above.

ATTEST

  
\_\_\_\_\_  
NAOMI D. MAESTAS  
COUNTY CLERK

INCORPORATED COUNTY OF LOS ALAMOS

BY:

  
\_\_\_\_\_  
TIMOTHY A. GLASCO, P.E.  
UTILITIES MANAGER

DATE

8/22/17

Approved as to form:

  
\_\_\_\_\_  
J. ALVIN LEAPHART  
COUNTY ATTORNEY


PAYMENTUS CORPORATION, A DELAWARE  
CORPORATION

BY:

NAME:

TITLE:

DATE

  
\_\_\_\_\_  
Daniel Shapiro  
SVP

**AMENDMENT NO. 1  
INCORPORATED COUNTY OF LOS ALAMOS  
SERVICES AGREEMENT NO. 16-4289-A1**

This **AMENDMENT NO. 1** is entered into by and between the **Incorporated County of Los Alamos**, an incorporated county of the State of New Mexico ("County"), and **Paymentus Corporation**, a Delaware corporation ("Contractor"), to be effective for all purposes August 17, 2017.

**WHEREAS**, County and Contractor entered into Agreement No. AGR16-4289 dated December 28, 2015 (the "Agreement") for electronic bill payment services; and

**WHEREAS**, both parties wish to amend the Agreement to increase compensation; and

**WHEREAS**, with no history of customer usage of services, original compensation amount was an estimate; and

**WHEREAS**, County is in a better position to estimate amount of compensation it will take for the remainder of this Agreement term; and

**WHEREAS**, the additional compensation does not change terms or an increase in rates; and

**WHEREAS**, the Board of Public Utilities approved this Amendment at a public meeting held on August 16, 2017.

**NOW, THEREFORE**, for good and valuable consideration, County and Contractor agree to amend the Agreement as follows:

Delete **SECTION C. COMPENSATION, Sub-section 1. Amount of Compensation**, in its entirety and replace it with the following:

**SECTION C. COMPENSATION:**

1. **Amount of Compensation.** County shall pay compensation for performance of the Services in accordance with the rate schedule set out in Exhibit "A," attached hereto and made a part hereof. Total compensation shall not exceed NINETY-NINE THOUSAND DOLLARS AND NO 00/100 (\$99,000.00), which amount does not include applicable New Mexico Gross Receipts Taxes ("NMGRT").

Except as expressly modified by this Amendment, the terms and conditions of the Agreement remain unchanged and in effect.

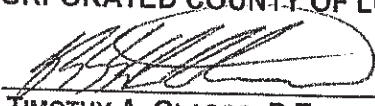


IN WITNESS WHEREOF, the parties have executed this Amendment No. 1 on the date(s) set forth opposite the signatures of their authorized representatives to be effective for all purposes on the date first written above.

ATTEST

  
NAOMI D. MAESTAS  
COUNTY CLERK

INCORPORATED COUNTY OF LOS ALAMOS

BY:   
TIMOTHY A. GLASCO, P.E.  
UTILITIES MANAGER

8-16-17  
DATE

Approved as to form:

  
J. ALVIN LEAPHART  
COUNTY ATTORNEY

PAYMENTUS CORPORATION, A DELAWARE  
CORPORATION

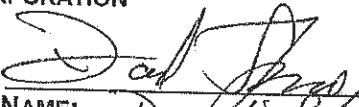
BY:   
NAME: David S. Shapiro DATE \_\_\_\_\_  
TITLE: \_\_\_\_\_

Exhibit "A"  
Compensation Rate Schedule  
AGR16-4289-A1

Paymentus Service Fee charged to Los Alamos County ("Customer") will be based on the following Absorbed Fee Structure:

The Paymentus service fee will be \$2.25 per \$350.00 increment, or portion thereof, paid for Visa, MasterCard, or Discover Card payments, or \$1.25 per \$350.00 increment paid for ACH/e-Check payments. The maximum payment amount accepted in one transaction will be \$2,400.00.

The Paymentus Service Fee is based on the MasterCard/Visa Utility Rate Model. Cards that do not qualify under the Utility Rate Model ("Non-Qualified Cards") - generally corporate purchase cards, "incentive", "rebate" or "gift" cards, and other cards not tied to an individual consumer, will result in "non-qualified transactions". An additional 2.95% "Non-Qualified Transaction" fee will apply for such "non-qualified transactions", insofar as such fees exceed 5% of total Transaction Fees charged by Paymentus to Los Alamos County. Paymentus will absorb non-qualified transaction fees up to this 5% threshold.

The table below summarizes this fee structure:

Paymentus Service Fee (Absorbed Fee Model)
Utility Payments <ul style="list-style-type: none"><li>• Average Payment Amount: \$270</li><li>• Maximum Payment Amount shall be \$2,400 (billed based upon each \$350 payment increment).</li></ul>
Paymentus Service Fee per qualified utility rate transaction shall be: <ul style="list-style-type: none"><li>• Credit/Debit Card \$2.25 (Visa, MasterCard, Discover Utility Rate Program)</li><li>• ACH/e-Check \$1.25</li></ul>
Non-qualified Transaction Fee 2.95% Excess Fee

Paymentus may amend this schedule upon 60 days prior written notice to the Client, only if such change is required due to changes in the Visa and MasterCard regulations or changes in Credit Card interchange fees or changes in the Average Bill Amount.



225600 01/11/2016 02:43 PM  
Book: 171 Page: 485 Sharon Stover - County Clerk  
Los Alamos County, NM Naomi D Maestas - Deputy  
LAC-AGREEMENT Page(s): 8



AGR16-4289

## INCORPORATED COUNTY OF LOS ALAMOS SERVICES AGREEMENT

This **SERVICES AGREEMENT** (this "Agreement") is entered into by and between the **Incorporated County of Los Alamos**, an incorporated county of the State of New Mexico ("County"), and **Paymentus Corporation**, a Delaware corporation ("Contractor"), to be effective for all purposes December 28, 2015.

**WHEREAS**, County is in need of electronic Bill Payment services for County customers; and

**WHEREAS**, procurement of the Services are exempt from the Los Alamos County Procurement Code pursuant to Sec. 31-3 (4); and

**WHEREAS**, Contractor will provide the Services, as described below, to County.

**NOW, THEREFORE**, for and in consideration of the premises and the covenants contained herein, County and Contractor agree as follows:

**SECTION A. SERVICES:** Contractor shall provide electronic Bill Payment services to County customers. The services shall allow for payment of utility bills and/or for purchase of other County related services using a credit card and other payment methods such as eChecks, Pin-less Debit ("Supported Payment Methods"), as deemed necessary by Contractor, and approved by County, through a link provided in the County website, Automated Phone Service or Interactive Voice Response ("IVR"), and other channels Contractor may include from time to time, and approved by County including, but not limited to, mobile payments.

### 1. Contractor Services shall include:

- a. Allow County customers to pay utility bills and/or purchase other County-related services with a credit card including, but not limited to, Master Card and Visa card payments. Contractor may offer other Supported Payment Methods as approved by County.
- b. Provide County full payment for the County services charged.
- c. Provide County with a daily electronic file which shall include each individual payment and the utility account numbers to which the payments apply in a format specified by County.
- d. Payments shall be deposited in County's bank account within two (2) business days after receipt of payment for credit cards and within the standard duration of other Supported Payment Methods.
- e. Provide a link from County's website to Contractor's website where the customer can make payment utilizing Contractor's Services.
- f. Provide an IVR system via a toll-free number where customers can call to make payments utilizing Contractor's Services.
- g. Provide County personnel access to Contractor's website to allow for research on payments.
- h. Accept payments for other County services including, but not limited to, copies of documents from the County Clerk's Office, or other purchases for County-related services.
- i. Contractor shall adjust or modify the daily electronic file, as necessary, according to specifications provided by County.

- j. Immediately after implementation, Contractor shall assist and facilitate incorporating a link into the "County Mobile App" currently being implemented.
- k. Maximum payments accepted in a single transaction will be \$2,400.00, but multiple transactions will be allowed.

## **2. County Responsibilities.**

- a. County shall follow all necessary rules and regulations of different card associations, including the chargeback rules.
- b. County shall make Contractor's Services available to its residential and commercial customers by different means of customer communication including: (1) through bills, invoices and other notices; (2) by providing IVR and Web payment details on the County's website including a "Pay Now" or similar link on a mutually agreed prominent place on the website; (3) by adding an option for this payment through County's general IVR/Phone system; and (4) other channels deemed necessary by County from time to time.

**SECTION B. TERM:** The term of this Agreement shall commence December 28, 2015 and shall continue through December 27, 2018, unless sooner terminated, as provided herein.

## **SECTION C. COMPENSATION:**

- 1. **Amount of Compensation.** County shall pay compensation for performance of the Services in accordance with the rate schedule set out in Exhibit "A," attached hereto and made a part hereof. Total compensation shall not exceed FORTY NINE THOUSAND DOLLARS (\$49,000.00), which amount does not include applicable New Mexico Gross Receipts Taxes ("NMGRT").
- 2. **Monthly Invoices.** Contractor shall submit itemized monthly invoices to County's Project Manager showing amount of compensation due, amount of any NMGRT, and total amount payable. Payment of undisputed amounts shall be due and payable thirty (30) days after County's receipt of the invoice.

**SECTION D. TAXES:** Contractor shall be responsible for remittance of the NMGRT levied on the amounts payable under this Agreement.

**SECTION E. STATUS OF CONTRACTOR, STAFF, AND PERSONNEL:** This Agreement calls for the performance of services by Contractor as an independent contractor. Contractor is not an agent or employee of County and will not be considered an employee of County for any purpose. Contractor, its agents or employees shall make no representation that they are County employees, nor shall they create the appearance of being employees by using a job or position title on a name plate, business cards, or in any other manner, bearing the County's name or logo. Neither Contractor nor any employee of Contractor shall be entitled to any benefits or compensation other than the compensation specified herein. Contractor shall have no authority to bind County to any agreement, contract, duty or obligation. Contractor shall make no representations that are intended to, or create the appearance of binding County to any agreement, contract, duty, or obligation. Contractor shall have full power to continue any outside employment or business, to employ and discharge its employees or associates as it deems appropriate without interference from County; provided, however, that Contractor shall at all times during the term of this Agreement maintain the ability to perform the obligations in a professional, timely and reliable manner.

**SECTION F. STANDARD OF PERFORMANCE:** Contractor agrees and represents that it has and will maintain the personnel, experience and knowledge necessary to qualify it for the

particular duties to be performed under this Agreement. Contractor shall perform the Services described herein in accordance with a standard that exceeds the industry standard of care for performance of the Services.

**SECTION G. DELIVERABLES AND USE OF DOCUMENTS:** All deliverables required under this Agreement, including material, products, reports, policies, procedures, software improvements, databases, and any other products and processes, whether in written or electronic form, shall remain the exclusive property of and shall inure to the benefit of County as works for hire; Contractor shall not use, sell, disclose, or obtain any other compensation for such works for hire. In addition, Contractor may not, with regard to all work, work product, deliverables or works for hire required by this Agreement, apply for, in its name or otherwise, any copyright, patent or other property right and acknowledges that any such property right created or developed remains the exclusive right of County. Contractor shall not use deliverables in any manner for any other purpose without the express written consent of the County.

**SECTION H. EMPLOYEES AND SUB-CONTRACTORS:** Contractor shall be solely responsible for payment of wages, salary or benefits to any and all employees or contractors retained by Contractor in the performance of the Services. Contractor agrees to indemnify, defend and hold harmless County for any and all claims that may arise from Contractor's relationship to its employees and subcontractors.

**SECTION I. INSURANCE:** Contractor shall obtain and maintain insurance of the types and in the amounts set out below throughout the term of this Agreement with an insurer acceptable to County. Contractor shall assure that all subcontractors maintain like insurance. Compliance with the terms and conditions of this Section is a condition precedent to County's obligation to pay compensation for the Services and Contractor shall not provide any Services under this Agreement unless and until Contractor has met the requirements of this Section. County requires Certificates of Insurance or other evidence acceptable to County that Contractor has met its obligation to obtain and maintain insurance and to assure that subcontractors maintain like insurance. General Liability Insurance and Automobile Liability Insurance shall name County as an additional insured.

1. **General Liability Insurance.** ONE MILLION DOLLARS (\$1,000,000.00) combined single limit per occurrence; TWO MILLION DOLLARS (\$2,000,000.00) aggregate.
2. **Workers' Compensation.** In an amount as may be required by law. County may immediately terminate this Agreement if Contractor fails to comply with the Worker's Compensation Act and applicable rules when required to do so.
3. **Automobile Liability Insurance for Contractor and its Employees.** An amount at least equal to the minimum required by state law on any owned, and/or non-owned motor vehicles used in performing Services under this Agreement.

**SECTION J. RECORDS:** Contractor shall maintain, throughout the term of this Agreement and for a period of six (6) years thereafter, records that indicate the date, time, and nature of the services rendered. Contractor shall make available, for inspection by County, all records, books of account, memoranda, and other documents pertaining to County at any reasonable time upon request.

**SECTION K. APPLICABLE LAW:** Contractor shall abide by all applicable federal, state and local laws, regulations, and policies and shall perform the Services in accordance with all applicable laws, regulations, and policies during the term of this Agreement. In any lawsuit or legal dispute

arising from the operation of this Agreement, Contractor agrees that the laws of the State of New Mexico shall govern. Venue shall be in the First Judicial District Court of New Mexico in Los Alamos County, New Mexico.

**SECTION L. NON-DISCRIMINATION:** During the term of this Agreement, Contractor shall not discriminate against any employee or applicant for an employment position to be used in the performance of the obligations of Contractor under this Agreement, with regard to race, color, religion, sex, age, ethnicity, national origin, sexual orientation or gender identity, disability or veteran status.

**SECTION M. INDEMNITY:** Contractor shall indemnify, hold harmless and defend County, its Council members, employees, agents and representatives, from and against all liabilities, damages, claims, demands, actions (legal or equitable), and costs and expenses, including without limitation attorneys' fees, of any kind or nature, arising from Contractor's performance hereunder or breach hereof and the performance of Contractor's employees, agents, representatives and subcontractors.

**SECTION N. FORCE MAJEURE:** Neither County nor Contractor shall be liable for any delay in the performance of this Agreement, nor for any other breach, nor for any loss or damage arising from uncontrollable forces such as fire, theft, storm, war, or any other force majeure that could not have been reasonably avoided by exercise of due diligence.

**SECTION O. NON-ASSIGNMENT:** Contractor may not assign this Agreement or any privileges or obligations herein without the prior written consent of County.

**SECTION P. LICENSES:** Contractor shall maintain all required licenses including, without limitation, all necessary professional and business licenses, throughout the term of this Agreement. Contractor shall require and shall assure that all of Contractor's employees and subcontractors maintain all required licenses including, without limitation, all necessary professional and business licenses.

**SECTION Q. PROHIBITED INTERESTS:** Contractor agrees that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of its services hereunder. Contractor further agrees that it will not employ any person having such an interest to perform services under this Agreement. No County Council member or other elected official of County, or manager or employee of County shall solicit, demand, accept or agree to accept a gratuity or offer of employment contrary to Section 31-282 of the Los Alamos County Code.

#### **SECTION R. TERMINATION:**

1. **Generally.** County may terminate this Agreement with or without cause upon ten (10) days prior written notice to Contractor. Upon such termination, Contractor shall be paid for Services actually completed to the satisfaction of County at the rate set out in Section C. Contractor shall render a final report of the Services performed to the date of termination and shall turn over to County originals of all materials prepared pursuant to this Agreement.
2. **Funding.** This Agreement shall terminate without further action by County on the first day of any County fiscal year for which funds to pay compensation hereunder are not appropriated by the County Council. County shall make reasonable efforts to give Contractor at least ninety (90) days advance notice that funds have not been and are not expected to be appropriated for that purpose.

**SECTION S. NOTICE:** Any notices required under this Agreement shall be made in writing, postage prepaid to the following addresses, and shall be deemed given upon hand delivery, verified delivery by telecopy (followed by copy sent by United States Mail), or three (3) days after deposit in the United States Mail:

**County:**

Deputy Utilities Manager, Finance & Admin.  
Incorporated County of Los Alamos  
1000 Central Avenue, Suite 130  
Los Alamos, New Mexico 87544

**Contractor:**

Bret DiTullio, Account Management  
Paymentus Corporation  
30 West Beaver Creek, Suite 17  
Richmond Hill, Ontario  
Canada L4B 3K1

**SECTION T. INVALIDITY OF PRIOR AGREEMENTS:** This Agreement supersedes all prior contracts or agreements, either oral or written, that may exist between the parties with reference to the services described herein and expresses the entire agreement and understanding between the parties with reference to said services. It cannot be modified or changed by any oral promise made by any person, officer, or employee, nor shall any written modification of it be binding on County until approved in writing by both County and Contractor.

**SECTION U. CAMPAIGN CONTRIBUTION DISCLOSURE FORM:** A Campaign Contribution Disclosure Form is attached as Exhibit "B." Contractor must submit this form with this Agreement, if applicable and in accordance with Chapter 81 of the laws of 2006 of the State of New Mexico.

**IN WITNESS WHEREOF,** the parties have executed this Agreement on the date(s) set forth opposite the signatures of their authorized representatives to be effective for all purposes on the date first written above.



SHARON STOVER  
COUNTY CLERK

Approved as to form:

REBECCA W. EHLE  
COUNTY ATTORNEY

**INCORPORATED COUNTY OF LOS ALAMOS**

BY: Timothy A. Glasco 12-22-15  
TIMOTHY A. GLASCO, P.E. DATE  
UTILITIES MANAGER

**PAYMENTUS CORPORATION, A DELAWARE CORPORATION**

BY: Mark Solan 12-28-2015  
NAME: MARK SOLAN DATE  
TITLE: V.P.

**Exhibit "A"**  
**Compensation Rate Schedule**  
**AGR16-4289**

Paymentus Service Fee charged to Los Alamos County ("Customer") will be based on the following Absorbed Fee Structure:

The Paymentus service fee will be \$2.25 per \$350.00 increment, or portion thereof, paid for Visa, MasterCard, or Discover Card payments, or \$1.25 per \$350.00 increment paid for ACH/e-Check payments. The maximum payment amount accepted in one transaction will be \$2,400.00.

The Paymentus Service Fee is based on the MasterCard/Visa Utility Rate Model. Cards that do not qualify under the Utility Rate Model ("Non-Qualified Cards") - generally corporate purchase cards, "incentive", "rebate" or "gift" cards, and other cards not tied to an individual consumer, will result in "non-qualified transactions". An additional 2.95% "Non-Qualified Transaction" fee will apply for such "non-qualified transactions", insofar as such fees exceed 5% of total Transaction Fees charged by Paymentus to Los Alamos County. Paymentus will absorb non-qualified transaction fees up to this 5% threshold.

The table below summarizes this fee structure:

Paymentus Service Fee (Absorbed Fee Model)	
Utility Payments	
<ul style="list-style-type: none"><li>Average Payment Amount: \$270</li><li>Maximum Payment Amount shall be \$2,400 (billed based upon each \$350 payment increment).</li></ul>	
Paymentus Service Fee per qualified utility rate transaction shall be:	
<ul style="list-style-type: none"><li>Credit/Debit Card \$2.25 (Visa, MasterCard, Discover Utility Rate Program)</li><li>ACH/e-Check \$1.25</li></ul>	
Non-qualified Transaction Fee 2.95% Excess Fee	

Paymentus may amend this schedule upon 60 days prior written notice to the Client, only if such change is required due to changes in the Visa and MasterCard regulations or changes in Credit Card interchange fees or changes in the Average Bill Amount.

Exhibit "B"  
AGR16-4289

**CAMPAIGN CONTRIBUTION DISCLOSURE FORM**

Pursuant to Chapter 81, Laws of 2006, any prospective contractor seeking to enter into a contract with any state agency or local public body must file this form with that state agency or local public body. The prospective contractor must disclose whether they, a family member or a representative of the prospective contractor has made a campaign contribution to an applicable public official of the state or a local public body during the two years prior to the date on which the contractor submits a proposal or, in the case of a sole source or small purchase contract, the two years prior to the date the contractor signs the contract, if the aggregate total of contributions given by the prospective contractor, a family member or a representative of the prospective contractor to the public official exceeds two hundred and fifty dollars (\$250) over the two year period.

THIS FORM MUST BE FILED BY ANY PROSPECTIVE CONTRACTOR WHETHER OR NOT THEY, THEIR FAMILY MEMBER, OR THEIR REPRESENTATIVE HAS MADE ANY CONTRIBUTIONS SUBJECT TO DISCLOSURE.

The following definitions apply:

**"Applicable public official"** means a person elected to an office or a person appointed to complete a term of an elected office, who has the authority to award or influence the award of the contract for which the prospective contractor is submitting a competitive sealed proposal or who has the authority to negotiate a sole source or small purchase contract that may be awarded without submission of a sealed competitive proposal.

**"Campaign Contribution"** means a gift, subscription, loan, advance or deposit of money or other things of value, including the estimated value of an in-kind contribution, that is made to or received by an applicable public official or any person authorized to raise, collect or expend contributions on that official's behalf for the purpose of electing the official to either statewide or local office. "Campaign Contribution" includes the payment of a debt incurred in an election campaign, but does not include the value of services provided without compensation or unreimbursed travel or other personal expenses of individuals who volunteer a portion or all of their time on behalf of a candidate or political committee, nor does it include the administrative or solicitation expenses of a political committee that are paid by an organization that sponsors the committee.

**"Contract"** means any agreement for the procurement of items of tangible personal property, services, professional services, or construction.

**"Family member"** means spouse, father, mother, child, father-in-law, mother-in-law, daughter-in-law or son-in-law.

**"Pendency of the procurement process"** means the time period commencing with the public notice of the request for proposals and ending with the award of the contract or the cancellation of the request for proposals.

**"Person"** means any corporation, partnership, individual, joint venture, association or any other private legal entity.

**"Prospective contractor"** means a person who is subject to the competitive sealed proposal process set forth in the Procurement Code or is not required to submit a competitive sealed proposal because that person qualifies for a sole source or a small purchase contract.

**"Representative of a prospective contractor"** means an officer or director of a corporation, a member or manager of a limited liability corporation, a partner of a partnership or a trustee of a trust of the prospective contractor.

**DISCLOSURE OF CONTRIBUTIONS:** (Report any applicable contributions made to the following  
- COUNTY COUNCILORS: Kristin Henderson, David Izraelevitz, James Chrobocinski, Steve Girrens, Susan O'Leary, Rick Reiss, and Peter Sheehey.)

Contribution Made by: \_\_\_\_\_

Relation to Prospective Contractor: \_\_\_\_\_

Name of Applicable Public Official: \_\_\_\_\_

Date Contribution(s) Made: \_\_\_\_\_

Amount(s) of Contribution(s) \_\_\_\_\_

Nature of Contribution(s) \_\_\_\_\_

Purpose of Contribution(s) \_\_\_\_\_

(The above fields are unlimited in size)

Signature \_\_\_\_\_ Date \_\_\_\_\_

\_\_\_\_\_  
Title (position)

—OR—

**NO CONTRIBUTIONS IN THE AGGREGATE TOTAL OVER TWO HUNDRED FIFTY DOLLARS (\$250) WERE MADE** to an applicable public official by me, a family member or representative.

 \_\_\_\_\_  
Signature Date 12-28-2015

 \_\_\_\_\_  
Title (position)



# County of Los Alamos

## Staff Report

June 16, 2021

Los Alamos, NM 87544  
www.losalamosnm.us

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**Agenda No.:** 6.E.

**Index (Council Goals):** DPU FY2021 - 3.0 Be a Customer Service Oriented Organization that is Communicative, Efficient, and Transparent

**Presenters:** Julie Williams-Hill

**Legislative File:** AGR0744-21

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### Title

Approval of AGR21-31 General Services Agreement with GreatBlue Research for the DPU Customer Satisfaction Survey Program for a period of seven (7) years.

### Recommended Action

**I move that the Board of Public Utilities approve Agreement No. AGR21-31 between the Incorporated County of Los Alamos and GreatBlue Research in a total amount not to exceed \$329,000 plus applicable NMGRT for a period of seven years and forward to County Council for final approval.**

### Staff Recommendation

Staff recommends approving Agreement No. AGR21-31 between the Incorporated County of Los Alamos and the GreatBlue Research as presented and forward to council for final approval.

### Body

The overall scope of this Agreement is modeled after the JD Powers Customer Satisfaction Program. The Contractor will develop and implement a customer satisfaction survey program that measures the satisfaction, engagement and loyalty of the Department of Public Utilities' customers using survey instruments that will include benchmark comparisons to appropriate peer utility organizations and provide actionable recommendations to improve the department's overall services to its customers. Two survey instruments will be developed:

- 1) General Survey: Will measure the Voice of the Customer and Customer Engagement. It will be conducted annually over a period of seven years and will assess customers' satisfaction for the department's quality and reliability of utility services; price; bill and payment services; corporate/organizational citizenship; and communication.
- 2) Transactional Survey: Will measure customers' satisfaction with their transactional experiences with department employees (field employee, customer care center representative, etc.) and assess the employee's job knowledge, courtesy, resolution of an issue and overall service provided. This survey instrument will capture the customer experience within 48 hours of the transaction and generate reports to the department quarterly (four times per year) for a period of seven years.

The Agreement includes the option for the Department to request the contractor to conduct a focus group for (1) a specific customer segment that may be underrepresented in survey results or (2) a topic such as a single policy, procedure, goal or project.

Reports and presentations from the contractor to the department and/or stakeholders will present the department's results, compare results to peer utility organizations, provide insights and recommendations on how the department can improve results and its relationship with customers.

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**Background:** The department has been conducting customer satisfaction surveys every two years since 2005 using a 4-point scale (1 = poor and 4 = excellent) and reporting the average response with a goal to achieve a customer satisfaction score of 3.5. While our results are good, averaging above 3.0, results have been relatively flat over the years. Further, these surveys neither show how the Department's results compare with other peer utility organizations nor is the department capturing real-time customers' transactional experiences. As the Department has been pursuing quality performance excellence as part of the Malcolm Baldrige and the Quality New Mexico (QNM) awards programs, our satisfaction surveys are an area that has been identified repeatedly as an opportunity for improvement. Recommendations from QNM examiners have been for the department to use a survey instrument that can provide a deeper understanding of customers' sentiments and put the results in a larger context.

The department looked at pursuing the JD Powers customer satisfaction program for utilities. A representative from J.D. Powers indicated that the baseline price is \$41,500 per year, the program is subscription-based, and JD Powers does not respond to RFPs. Lastly, because our customer base is small, the Department would never be eligible to win a JD Power's award. Based on this information, the Department issued an RFP with a similar JD Powers' scope. GreatBlue responded to the RFP with a baseline price that is less than JD Powers (starting at \$39,500 and dropping to \$36,500 by year seven); they bring 40 years' experience in utility specific market research; and developed with the American Public Power Association a nation-wide Public Power Data Source of public power utilities' customers responses since 2014. Additionally, should focus group work be requested and on site work be requested, the contract allows for \$7,500 of focus group work and \$1,500 of travel expenses per year.

#### **Alternatives**

Continue with the customer satisfaction survey method that the Department has been using since 2005 or discontinue surveying customers.

#### **Fiscal and Staff Impact**

The fiscal impact of this contract without GRT is an amount not to exceed as follows: Year 1 = \$48,500; Year 2 = \$48,000; Year 3 = \$47,500; Year 4 = \$47,000; Year 5 = \$46,500; Year 6 = \$46,000; Year 7 = \$45,500. The public relations manager for the Department will work closely with the Contractor to ensure a successful roll out of the customer satisfaction surveys, pulling necessary customer contact data, coordinating with appropriate staff on questions and focus areas, sharing survey results and incorporating, as appropriate, results and Contractor recommendations in the department's strategic planning process to initiate improvements.

#### **Attachments**

A - AGR21-31 GreatBlue Research Agreement



**INCORPORATED COUNTY OF LOS ALAMOS  
SERVICES AGREEMENT**

This **SERVICES AGREEMENT** ("Agreement") is entered into by and between the **Incorporated County of Los Alamos**, an incorporated county of the State of New Mexico ("County"), and **GreatBlue Research**, a Connecticut corporation ("Contractor"), to be effective for all purposes June 30, 2021.

**WHEREAS** the County, through the Department of Public Utilities ("Department"), provides various public utility services within the county which includes the production and distribution of electricity, and potable water, collection and treatment of wastewater, and distribution of natural gas; and

**WHEREAS**, the Department's governing board adopted a strategic objective and long-term goal for the Department to measure and improve its customer satisfaction and engagement; and

**WHEREAS**, the County Purchasing Officer determined in writing that the use of competitive sealed bidding was either not practical or not advantageous to County for procurement of the services and County issued Request for Proposals No. 21-31 (the "RFP") on December 17, 2020, requesting proposals for Customer Satisfaction Survey/Program, as described in the RFP; and

**WHEREAS**, Contractor timely responded to the RFP by submitting a response dated January 14, 2021 ("Contractor's Response"); and

**WHEREAS**, based on the evaluation factors set out in the RFP, Contractor was the successful Offeror for the services listed in the RFP; and

**WHEREAS**, the Board of Public Utilities approved this Agreement at a public meeting held on June 16, 2021; and

**WHEREAS**, the County Council approved this Agreement at a public meeting held on June 29, 2021; and

**WHEREAS**, Contractor shall provide the Services, as described below, to County.

**NOW, THEREFORE**, for and in consideration of the premises and the covenants contained herein, County and Contractor agree as follows:

**SECTION A. SERVICES.** The overall scope of this Agreement is for the Contractor to develop and implement a customer satisfaction survey program that measures County Department of Public Utility ("Department") customer satisfaction and engagement and loyalty of the Department's customers using survey instruments to provide benchmarks comparisons to appropriate peer utility organizations and provide actionable recommendations to improve the Department's overall services to its customers. The following are the specific services ("Services") that will be provided by Contractor:

**1. Definitions.** The following are definitions used in this Agreement, unless otherwise noted:

- a) **“Voice of the Customer”** is the customers’ perception of the Department’s performance in the following areas:
  - i. Quality and Reliability which measures customers’ satisfaction with reliability and quality of all four (4) utility services.
  - ii. Price of service and the customers’ satisfaction regarding the price for all four (4) utility services both combined and individually.
  - iii. Billing and Payment services for and customer-based satisfaction related to Departmental interactions, Department website, and Department online services including billing and payment services.
  - iv. Corporate/Organizational Citizenship and customers’ satisfaction with the Department’s organizational citizenship which is how the Department responsibly manages not only its financial performance but also the environmental and social impacts as a community partner in the County and the region.
  - v. Communications and the customers’ satisfaction with regard to communication quality, timeliness, and method.
- b) **Customer Engagement** is the customer’s loyalty to the Department or the degree to which the customer would advocate the Department’s services over a peer utility company using a standard industry accepted methodology.
- c) **Customer Care** is the measure of the Department’s customers’ satisfaction of their transactional experience with Department’s employees’ (Customer Care Center and Field Crews) in the following areas:
  - i. job knowledge,
  - ii. courtesy,
  - iii. resolution of issue, and
  - iv. overall service provided.

**2. Project Kick-Off Meeting.**

- a) The Contractor shall, within thirty (30) calendar days from the Effective Date of this Agreement host a virtual meeting (1-2 hours) with the Department’s designated Project team. As part of the Project kick-off meeting, the parties shall:
  - i. Introduce and assign the Contractor’s Project Manager, Department Project Manager and other Contractor and Department team members.
  - ii. Establish a mutually agreed on project schedule including appropriate steps, timelines and milestones for the development and deployment of surveys, collection of data, presentation of executive briefings, receipt of written reports of findings, deliverable due dates, and communication protocols (“Project Schedule”).
  - iii. As part of the Project Kick-Off meeting, the Contractor and Department Project teams shall agree on the: a) work scopes for each survey instrument, questions, survey scales, b) measurement goals to capture the “Voice of the Customer,” “Customer Engagement” sentiments as well as transactional “Customer Care” experiences, each as defined herein, c) survey methodologies, d) data collection, e) benchmarking, f) reports and briefings, g) planning assumptions and project progression.

- iv. Contractor shall provide a written memorandum to the Department's Project Manager within ten (10) business days from the date of the kick-off meeting outlining the final Project Schedule and methods for performing the Services, which may include separate schedule for the General Survey and the Transactional Survey. The Project Schedule may be modified by mutual written agreement of the parties during the Term of this Agreement.
  - v. Identify the data file types and transfer methods for Department Project Staff to provide customer contact information (phone numbers, emails, transaction dates) and other information needed by Contractor in performance of this Agreement.
- b) Department Project Staff shall, as agreed to in the Project Kick-Off meeting, issue communications and outreach to the Department's customers in the form of press releases, emails and/or text messages to support the collection of customer responses.

3. **Survey Instruments:**

- a) Pursuant to the Project Schedule, Contractor shall design the first draft of the two survey instruments (General and Transactional) and provide the drafts to Department Project team. The Department Project team will review the initial drafts and provide comments and suggested edits to the Contractor pursuant to the Project Schedule. In accordance with the Project Schedule, Contractor shall finalize the survey instruments and provide discussion on what Department Project team recommendations were included or rejected. Upon the Department Project Manager approval, the Contractor shall conduct the two (2) surveys in accordance with this Agreement and Project Schedule.

b) **Survey Instrument: General Survey.**

- i. The Contractor shall develop and conduct an annual General Survey that assesses the "Voice of the Customer" ("VOC") and "Customer Engagement" for each year of the Term of this Agreement.
- ii. The General Survey shall be a maximum of forty (40) questions and shall not to exceed ten minutes in length for the customer response time and shall be deployed to:
  - (a) Appropriate sample of Department's residential customers (see SECTION A.4.a) at the time of the survey, and
  - (b) Appropriate sample of Department's commercial customers (see SECTION A.4.a) at the time of the survey.

c) **Survey Instrument: Transactional Surveys.**

- i. Contractor shall conduct a transactional survey once every three months per year, via digital survey of Department customers who have interacted with Department employees.
- ii. The survey shall be a maximum of fifteen (15) questions and answerable in five (5) minutes for the customers' response time.
- iii. Contractor in the digital survey shall measure Customer Care as defined herein.
- iv. Contractor shall quantify the factors that drive overall customer satisfaction and engagement among the Department's residential and business customers and compare Department's results to established relative performance of peer electric, natural gas, water, and wastewater utility companies in the United States in terms of how well they satisfy their residential and business customers.

- v. Contractor shall provide to the Department information that may be acted on by the Department by developing insights about the needs of its utility customers.
  - vi. Contractor shall review prior DPU performance results from 2005 and compare, where and if information is available for comparison, to show upward or downward trends in comparable areas of Voice of Customer and Customer Engagement. Comparisons shall be made for each year of the Term of this Agreement.
4. **Survey Sample Size.** The Contractor shall utilize the following in setting survey sample sizes:
- a) **Sample Size: General Survey**  
Contractor shall sample an adequate number of the Department's residential customers and commercial customers by conduct digital, telephone surveys, and possible yearly focus groups to ensure a minimum 95% confidence level with a +/- 5% confidence interval.
  - b) **Sample Size: Transactional Survey**
    - i. The sample size of Department customers which Contractor shall utilize in the Transactional Surveys shall be determined based on the pool of customers who have interacted with a Department employee and meet the agreed upon criteria established by the Department and Contractor Project teams at the Project Kick-Off meeting.
    - ii. The Department's Project Manager or designee will provide a digital survey link, or mailable document, to each customer meeting the agreed upon criteria.
    - iii. The Contractor shall use completed customer survey responses for the Transactional Survey.
5. **Survey Methodologies.** The Contractor shall utilize the following Survey Methodologies:
- a) **Digital Surveys-**  
Contractor will allow for unlimited number of completed digital surveys to be collected on the Contractor's web-based platform for both the Department's residential and commercial customers within the pre-determined timeframe established by the Department and Contractor project teams at the Project Kick-Off meeting.
    - i. **Digital Surveys: General Survey**  
For the General Survey, the Contractor will distribute the survey to the appropriate number of customers to achieve the sample size defined in A.3.a. for the Department's residential and commercial customers through its web-based survey platform. The Department will provide to the Contractor customer contact information such as telephone numbers, email addresses and other data as deemed necessary to allow Contractor to achieve appropriate sample sizes defined herein. The Department will work with Contractor, where necessary, to distribute the web-based survey link to its customers either through an email, SMS (text) message, press release, or social media.
    - ii. **Digital Surveys: Transactional Survey**  
The Contractor shall distribute the Transactional Survey as provided herein.
  - b) **Telephone Surveys: General Survey**  
Where online surveys do not meet the appropriate sample size, Contractor shall conduct telephone surveys through its in-house call-center to ensure that the per customer class

response meets the applicable sample size thresholds. Contractor shall not be responsible for conducting no more than 400 completed residential surveys and no more than 400 completed telephone surveys per year. Contractor shall attempt to call the customers up to three times.

- c) **Survey Platform** - Contractor shall provide the two survey methods to the Department for testing and approval, prior to full scale launch of the survey instruments. Contractor shall collect and capture data once through the Contractor's in-house call center and web-based survey platform which shall be accessible by the Department Project Team at any time. Contractor shall monitor completion rates and progress throughout the entire survey fielding process. Contractor shall provide regular status updates to the Department as agreed upon at kick-off meeting.

- d) **Focus Groups: General Survey**

The Department's Project Manager reserves the option to request the Contractor, for an additional Focus Group fee set forth in Exhibit A, to conduct a virtual focus group, no more than one per year of either the commercial customers or of the residential customers. Contractor shall schedule, select, and recruit between 8 and 10 appropriate customers. Contractor shall develop a guidebook for each focus group and moderate the group discussion with pre-determined questions and talking points as approved by the Project Manager. Contractor shall analyze the responses and provide a written report of findings to the Department within 10 business days after the Focus Group or as may be agreed upon by the Parties.

## 6. **Data Analysis and Compilation**

- a) Contractor shall prepare collected data for final reporting: compiling all data collected in a single, organized file based on Department specific goals utilizing Contractor's statistical software ("SPSS").
- b) Contractor shall review and clean all collected data and information to ensure accuracy of entire data set.
- c) Contractor shall classify all open-ended responses for purposes of quantifying and analyzing results to include in final reports and executive briefings.
- d) Contractor shall run cross tabulations and frequencies per specific goals and objectives of the study.
- e) Contractor shall provide raw data files to the Department's Project Team.
- f) Contractor shall review data, prepare an outline the report, and determine where the most important insights and actionable recommendations are based on the Contractor's review.
- g) Contractor shall provide to the Department's Project Team, as part of the Project, any and all: 1) research assistance and information; 2) unlimited data reports and cross tabulations; 3) maintenance of all data and unlimited access to data.
- h) Contractor shall provide data analysis for the General Survey within ten (10) business days upon completion of data collection, and data analysis for the Transactional Surveys within ten (10) business days upon completion of data collection for the quarter.

7. **Benchmarking**

- a) Contractor shall provide the Department with benchmarking and comparison data via its Public Power Data Source ("PPDS") to 3,000 residential public power customers.
- b) Contractor shall also benchmark Department's survey results with Contractor's pool of research data for residential customers and their electric, water, and gas services to non-specific utilities with information such as utility size, type, and geographic region information.
- c) Contractor shall benchmark Department's survey results for wastewater or sewer services using a methodology agreed to by the Department and Contractor Project teams at the Project Kick-Off meeting.

8. **Final Deliverables.** Contractor shall, pursuant to the Project Schedule, deliver to the County the following:

- a) **General Survey Instrument** as described in SECTION A.3.b.
- b) **Transaction Survey Instrument** as described in SECTION A.3.c.
- c) **Reports of Findings: General Survey**
  - i. Contractor shall provide to the Department a full report on an annual basis for the General Survey within ten business days upon completion of data analysis.
  - ii. Contractor shall include in the annual report key comparisons per question, metrics, graphics, actionable recommendations as they relate to the categories for the VOC: Quality and Reliability, Price, Billing and Payment, Organizational Citizenship, and Communications (set forth in A.1.a.); and Customer Engagement and Loyalty (set forth in A.1.b.).
  - iii. Each report prepared by the Contractor shall also include:
    - (1) Respondent overview;
    - (2) Methodology;
    - (3) Key findings;
    - (4) Benchmarking data as described in SECTION A.7;
    - (5) All respondent data by question;
    - (6) Comparison data from previous research findings for tracking purposes; and
    - (7) Overarching themes, opportunities, and gaps to be addressed through considerations.
- d) **Reports of Finding: Transactional Survey**
  - i. Contractor shall provide automated reports of the Transactional Survey to the Department on a quarterly basis within ten business days upon completion of data analysis for the quarter.
  - ii. Contractor shall ensure that automated reports include key comparisons per question, metrics, graphics, actionable recommendations as they relate to the Customer Care: job knowledge, courtesy, resolution of issue, and overall service provided (set forth in A.1.c.).
  - iii. Each automated report generated from Contractor's survey platform shall also include:
    - (1) Respondent overview;
    - (2) Methodology;
    - (3) Key findings;

- (4) Benchmarking data as described in SECTION A.6;
- (5) All respondent data by question;
- (6) Comparison data from previous research findings for tracking purposes; and
- (7) Overarching themes, opportunities, and gaps to be addressed through considerations.

e) **Executive Briefings**

Contractor shall provide a minimum of one executive briefing per year of each year's final reports' findings to the Department Project team. Contractor shall focus on providing the Department's management with insights including strategic recommendations, study results, recommended ongoing best practices, and analyses of high performing peer utilities. Department Project Manager may request the Contractor to also present executive briefings to the Board of Public Utilities, County Council and/or other key stakeholders all included in the Project Fee. Executive briefing(s) will be onsite and in-person, unless otherwise agreed to by the Department Project Manager and Contractor Project Manager to conduct briefing(s) virtually. Contractor shall be reimbursed travel costs, as found in Exhibit "A" ("Reimbursable"), for any travel related to in-person presentation(s).

f) **Calculator and Simulator**

Contractor shall design a calculator at the completion of the data collection for the General Survey that shall assist the Department Project team with identifying improvement opportunities to adapt to different scenarios depending on the various inputs. In addition to the calculator, Contractor shall also design a simulator to work together with the calculator that shall create cause and effect models to continually improve customer service. Both tools shall be created in an Excel™ spreadsheet and made available to the Department at the time of the first final report and will be accessible to the Department at any time thereafter through an online dashboard. The Excel spreadsheet shall permit the Department to manipulate the metrics for key demographic groups and/or home in on specific question(s) using cross-tabulation survey results and rolling results into average index numbers to determine how changes to these results positively or negatively impact the overall customer satisfaction scores which shall assist the Department to strategically focus resources and target specific customer demographics to improve overall customer satisfaction results in areas it deems most important.

**SECTION B. TERM:** The term of this Agreement shall commence June 30, 2021 and shall continue through June 29, 2028, unless sooner terminated, as provided herein.

**SECTION C. COMPENSATION:**

1. **Amount of Compensation.** County shall pay compensation for performance of the Services in an amount not to exceed THREE HUNDRED TWENTY- NINE THOUSAND DOLLARS (\$329,000.00 US), which amount does not include applicable New Mexico gross receipts taxes ("NMGR") or reimbursable travel expenses. Compensation shall be paid in accordance with the rate schedule set out in Exhibit "A," attached hereto and made a part hereof for all purposes.
2. **Invoices.** Contractor shall submit itemized invoices to County's Project Manager in accordance with Exhibit A showing amount of compensation due, amount of any NMGR,

and total amount payable. Payment of undisputed amounts shall be due and payable fifteen (15) days after County's receipt of the invoice.

**SECTION D. TAXES:** Contractor shall be solely responsible for timely and correctly billing, collecting, and remitting all NMGRS levied on the amounts payable under this Agreement.

**SECTION E. STATUS OF CONTRACTOR, STAFF, AND PERSONNEL:** This Agreement calls for the performance of services by Contractor as an independent contractor. Contractor is not an agent or employee of County and shall not be considered an employee of County for any purpose. Contractor, its agents or employees shall make no representation that they are County employees, nor shall they create the appearance of being employees by using a job or position title on a name plate, business cards, or in any other manner, bearing County's name or logo. Neither Contractor nor any employee of Contractor shall be entitled to any benefits or compensation other than the compensation specified herein. Contractor shall have no authority to bind County to any agreement, contract, duty, or obligation. Contractor shall make no representations that are intended to, or create the appearance of, binding County to any agreement, contract, duty, or obligation. Contractor shall have full power to continue any outside employment or business, to employ and discharge its employees or associates as it deems appropriate without interference from County; provided, however, that Contractor shall at all times during the term of this Agreement maintain the ability to perform the obligations in a professional, timely and reliable manner.

**SECTION F. STANDARD OF PERFORMANCE:** Contractor agrees and represents that it has and shall maintain the personnel, experience, and knowledge necessary to qualify it for the particular duties to be performed under this Agreement. Contractor shall perform the Services described herein in accordance with a standard that meets the industry standard of care for performance of the Services.

**SECTION G. DELIVERABLES AND USE OF DOCUMENTS:** All deliverables required under this Agreement, including material, products, reports, policies, procedures, software improvements, databases, and any other products and processes, whether in written or electronic form, shall remain the exclusive property of and shall inure to the benefit of County as works for hire; Contractor shall not use, sell, disclose, or obtain any other compensation for such works for hire. In addition, Contractor may not, with regard to all work, work product, deliverables or works for hire required by this Agreement, apply for, in its name or otherwise, any copyright, patent or other property right and acknowledges that any such property right created or developed remains the exclusive right of County. Contractor shall not use deliverables in any manner for any other purpose without the express written consent of County.

**SECTION H. EMPLOYEES AND SUB-CONTRACTORS:** Contractor shall be solely responsible for payment of wages, salary, or benefits to any and all employees or contractors retained by Contractor in the performance of the Services. Contractor agrees to indemnify, defend, and hold harmless County for any and all claims that may arise from Contractor's relationship to its employees and subcontractors.

**SECTION I. INSURANCE:** Contractor shall obtain and maintain insurance of the types and in the amounts set out below throughout the term of this Agreement with an insurer acceptable to County. Contractor shall assure that all subcontractors maintain like insurance. Compliance with the terms and conditions of this Section is a condition precedent to County's obligation to pay

compensation for the Services and Contractor shall not provide any Services under this Agreement unless and until Contractor has met the requirements of this Section. County requires Certificates of Insurance or other evidence acceptable to County that Contractor has met its obligation to obtain and maintain insurance and to assure that subcontractors maintain like insurance. Should any of the policies described below be cancelled before the expiration date thereof, notice shall be delivered in accordance with the policy provisions. General Liability Insurance and Automobile Liability Insurance shall name County as an additional insured.

1. **General Liability Insurance:** ONE MILLION DOLLARS (\$1,000,000.00) per occurrence; TWO MILLION DOLLARS (\$2,000,000.00) aggregate.
2. **Workers' Compensation:** In an amount as may be required by law. County may immediately terminate this Agreement if Contractor fails to comply with the Worker's Compensation Act and applicable rules when required to do so.
3. **Automobile Liability Insurance for Contractor and its Employees:** ONE MILLION DOLLARS (\$1,000,000.00) combined single limit per occurrence; TWO MILLION DOLLARS (\$2,000,000.00) aggregate on any owned, and/or non-owned motor vehicles used in performing Services under this Agreement.

**SECTION J. RECORDS:** Contractor shall maintain, throughout the term of this Agreement and for a period of six (6) years thereafter, records that indicate the date, time, and nature of the services rendered. Contractor shall make available, for inspection by County, all records, books of account, memoranda, and other documents pertaining to County at any reasonable time upon request.

**SECTION K. APPLICABLE LAW:** Contractor shall abide by all applicable federal, state and local laws, regulations, and policies and shall perform the Services in accordance with all applicable laws, regulations, and policies during the term of this Agreement. In any lawsuit or legal dispute arising from the operation of this Agreement, Contractor agrees that the laws of the State of New Mexico shall govern. Venue shall be in the First Judicial District Court of New Mexico in Los Alamos County, New Mexico.

**SECTION L. NON-DISCRIMINATION:** During the term of this Agreement, Contractor shall not discriminate against any employee or applicant for an employment position to be used in the performance of the obligations of Contractor under this Agreement, with regard to race, color, religion, sex, age, ethnicity, national origin, sexual orientation or gender identity, disability, or veteran status.

**SECTION M. INDEMNITY:** Contractor shall indemnify, hold harmless and defend County, its Council members, employees, agents and representatives, from and against all liabilities, damages, claims, demands, actions (legal or equitable), and costs and expenses, including without limitation attorneys' fees, of any kind or nature, arising from Contractor's performance hereunder or breach hereof and the performance of Contractor's employees, agents, representatives and subcontractors.

**SECTION N. FORCE MAJEURE:** Neither County nor Contractor shall be liable for any delay in the performance of this Agreement, nor for any other breach, nor for any loss or damage arising from uncontrollable forces such as fire, theft, storm, war, or any other force majeure that could not have been reasonably avoided by exercise of due diligence.

**SECTION O. NON-ASSIGNMENT:** Contractor may not assign this Agreement or any privileges or obligations herein without the prior written consent of County.

**SECTION P. LICENSES:** Contractor shall maintain all required licenses including, without limitation, all necessary professional and business licenses, throughout the term of this Agreement. Contractor shall require and shall assure that all of Contractor's employees and subcontractors maintain all required licenses including, without limitation, all necessary professional and business licenses.

**SECTION Q. PROHIBITED INTERESTS:** Contractor agrees that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of its services hereunder. Contractor further agrees that it shall not employ any person having such an interest to perform services under this Agreement. No County Council member or other elected official of County, or manager or employee of County shall solicit, demand, accept or agree to accept a gratuity or offer of employment contrary to Section 31-282 of the Los Alamos County Code.

**SECTION R. TERMINATION:**

1. **Generally.** County may terminate this Agreement with or without cause upon ten (10) days prior written notice to Contractor. Upon such termination, Contractor shall be paid for Services actually completed to the satisfaction of County at the rate set out in Section C. Contractor shall render a final report of the Services performed to the date of termination and shall turn over to County originals of all materials prepared pursuant to this Agreement.
2. **Funding.** This Agreement shall terminate without further action by County on the first day of any County fiscal year for which funds to pay compensation hereunder are not appropriated by County Council. County shall make reasonable efforts to give Contractor at least ninety (90) days advance notice that funds have not been and are not expected to be appropriated for that purpose.

**SECTION S. NOTICE:** Any notices required under this Agreement shall be made in writing, postage prepaid to the following addresses, and shall be deemed given upon hand delivery, verified delivery by telecopy (followed by copy sent by United States Mail), or three (3) days after deposit in the United States Mail:

County:

Project Manager  
Incorporated County of Los Alamos  
1000 Central Avenue, Suite 130  
Los Alamos, New Mexico 87544

Contractor:

Brady Lee  
GreatBlue Research, Inc.  
20 Western Boulevard, First Floor  
Glastonbury, Connecticut 06033

**SECTION T. INVALIDITY OF PRIOR AGREEMENTS:** This Agreement supersedes all prior contracts or agreements, either oral or written, that may exist between the parties with reference to the services described herein and expresses the entire agreement and understanding between the parties with reference to said services. It cannot be modified or changed by any oral promise made by any person, officer, or employee, nor shall any written modification of it be binding on County until approved in writing by both County and Contractor.

**SECTION U. NO IMPLIED WAIVERS:** The failure of the County to enforce any provision of this Agreement is not a waiver by the County of the provisions or of the right thereafter to enforce any provision(s).

**SECTION V. SEVERABILITY:** If any provision of this Agreement is held to be unenforceable for any reason: (i) such provision shall be reformed only to the extent necessary to make the intent of the language enforceable; and (ii) all other provisions of this Agreement shall remain in effect.

**SECTION W. CAMPAIGN CONTRIBUTION DISCLOSURE FORM:** A Campaign Contribution Disclosure Form was submitted as part of the Contractor's Response and is incorporated herein by reference for all purposes.

**SECTION X. LEGAL RECOGNITION OF ELECTRONIC SIGNATURES:** Pursuant to NMSA 1978 § 14-16-7, this Agreement may be signed by electronic signature.

**SECTION Y. DUPLICATE ORIGINAL DOCUMENTS:** This document may be executed in two (2) counterparts, each of which shall be deemed an original.

**IN WITNESS WHEREOF,** the parties have executed this Agreement on the date(s) set forth opposite the signatures of their authorized representatives to be effective for all purposes on the date first written above.

**ATTEST**

**INCORPORATED COUNTY OF LOS ALAMOS**

\_\_\_\_\_  
**NAOMI D. MAESTAS**  
**COUNTY CLERK**

BY: \_\_\_\_\_  
**PHILO S. SHELTON, III, P.E.** **DATE**  
**UTILITIES MANAGER**

**Approved as to form:**

\_\_\_\_\_  
**J. ALVIN LEAPHART**  
**COUNTY ATTORNEY**

**GREATBLUE RESEARCH, INC. A CONNECTICUT CORPORATION**

BY: \_\_\_\_\_  
**MICHAEL VIGEANT** **DATE**  
**CEO**

**Exhibit "A"**  
**Compensation Rate Schedule**  
**AGR21-31**

<b>COST CATEGORY</b>		<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>	<b>Year 7</b>
<b>1. Project Fee</b>	Project Management & Kick-Off meeting	\$39,500.00						
	Design, Development & Programming of Survey Instruments (General & Transactional)							
	Data Collection Annual Study (General Survey)							
	Data Collection Quarterly Study (Transactional Survey)							
	Data Analysis & Reporting (1 written annual report – General Survey; 4 automated reports – Transactional Survey)							
	Custom Calculator & Simulator Development							
	Executive Briefing(s) - a minimum of one per year, to be conducted onsite, unless otherwise agreed to by Department Project Manager and Contractors Project Manager,							
2. Focus Group		\$7,500.00	\$7,500.00	\$7,500.00	\$7,500.00	\$7,500.00	\$7,500.00	\$7,500.00
3. Travel Reimbursement (billed at cost, not to exceed \$1500)		\$1,500.00	\$1,500.00	\$1,500.00	\$1,500.00	\$1,500.00	\$1,500.00	\$1,500.00
<b>TOTAL Not to Exceed</b>		<b>\$48,500.00</b>	<b>\$48,000.00</b>	<b>\$47,500.00</b>	<b>\$47,000.00</b>	<b>\$46,500.00</b>	<b>\$46,000.00</b>	<b>\$45,500.00</b>

**Notes and Additional Payment Terms:**

1. Payment terms are Net 15 days.
2. PROJECT FEE: Contractor shall bill the Department for services rendered as follows:
  - a. Year 1: Contractor shall bill the Department in an amount of \$13,825.00 after the Project Kick-Off Meeting and upon delivery to the Department the memorandum summarizing the agreed upon project schedule and project details as described herein. Contractor shall issue to the Department: a second bill in the amount of \$17,775 after data collection for the annual General Survey, and a final bill for the remaining year one project fee in the amount of \$7,900 upon delivery of the written report of findings for the General Survey.
  - b. Years 2 – 7: Contractor shall bill the Department an amount equal to 25% of the corresponding yearly Project Fee upon delivery to the Department the quarterly transactional survey (generated every three months).

3. FOCUS GROUP FEE:

- a. Focus Group: Upon the Department Project Manager's written request to Contractor's Project team to conduct a Focus Group, Contractor shall bill the Department in an amount equal to 50% or \$3,750 of the annual Focus Group fee. The balance of the Focus Group fee shall be billed by the Contractor to the Department after the Focus Group has been conducted and findings shared with the Department.

4. TRAVEL REIMBURSEMENT:

- a. Travel for Contractor in-person presentations (once per year) shall be reimbursed at actual cost and will not exceed \$1,500 per trip. Copies of all travel expenses must accompany invoices submitted to County and shall only include the following:
  1. The most economical means of transportation shall be used, commercial airlines coach fare rates;
  2. Business-related tolls and parking fees;
  3. Rental car, taxi service or shuttle services;
  4. Mileage shall be reimbursed at the standard mileage rate for business miles driven as established from time to time by the Internal Revenue Service;
  5. Hotel or motel lodging;
  6. Meals, per Los Alamos County Travel Policy, currently \$60.00 per diem daily;
  7. Internet connectivity charges;
  8. Any other reasonable costs directly associated with conducting business with County.
  9. If reimbursement for lodging or airfare is sought and no receipt is furnished by Contractor showing the actual cost, the travel expense shall be deemed unreasonable and non-reimbursable.
- b. Travel Expenses that will not be reimbursed are as follows:
  1. Entertainment; in-room movies, games, etc. and
  2. Alcoholic beverages, mini bar refreshments or tobacco products.



# County of Los Alamos

## Staff Report

June 16, 2021

Los Alamos, NM 87544  
www.losalamosnm.us

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**Agenda No.:** 7.A.  
**Index (Council Goals):** DPU FY2021 - 1.0 Provide Safe and Reliable Utility Services  
**Presenters:** James Alarid  
**Legislative File:** 14159-21

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### Title

**Award of IFB 21-43 Otowi Well #2 Well House & Equipment and Otowi Well #4 MCC Replacement Project**

### Recommended Action

**I move that the Board of Public Utilities approve the Award of IFB 21-43 with RMCI, Inc. for the purpose of Otowi Well #2 Well House & Equipment and Otowi Well #4 MCC Replacement Project in the amount of \$3,240,836, and a contingency of \$282,001, plus New Mexico Gross Receipts Tax, and approve related Budget Revision 2022-02, Option A, as summarized on Attachment D and that the attachment be made part of the minutes of this meeting, and forward to Council for approval.**

### Staff Recommendation

Staff recommends that the Board approve as presented.

### Body

This project will construct the new well house, vertical turbine pump and electric gear to bring the new Otowi Well #2 online. The new well will produce 1,300 gallons-per-minute when in service and will provide water to White Rock and LANL. This project was initiated in 2016 to supplement the Pajarito Well field which has three existing wells which are nearing the end of their service life. The well drilling, development and water transmission line were completed in 2019. In addition, the motor control center (MCC) at Otowi Well #4 will be replaced. This well is located about a mile west of Otowi Well #2, and is also in Los Alamos Canyon, and was added to the project to take advantage of the economy of scale while performing similar work in the vicinity. The MCC at Otowi Well #4 is at the end of its service life and in need of replacement for continued reliable operation of the well. The construction drawings are provided as Attachment A.

The Otowi Well #2 site is adjacent to an existing natural gas line owned and operated by New Mexico Gas Company. Prior to beginning the design of the new well house an evaluation (Attachment E) was performed to compare a natural gas driven well versus an electric driven well and a hybrid design. The results were presented to the Utility Board on July 15, 2020. The evaluation recommended a hybrid design which included an electric drive with a natural gas powered generator that could serve as a back-up power supply or be run as the primary power source when gas is more economical than electricity. The well house was designed to accommodate the natural gas generator and furnishing the generator was bid as an additive alternate. Based on the discussion during the presentation of the evaluation in July 2020, and

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given the significant cost of the generator, DPU proceeded to further explore the need and justification of installing the gas powered generator now. As part of an ongoing Risk and Resiliency Study of the water production system, we asked our consultant to evaluate if installing the generator now was justified based on the risk of failing to meet our water supply needs. Based on the available supply and the redundancy in our water production system, the expense of installing the generator at this time is not justified. The price for the generator in RMCI's bid is \$668,000 (less GRT). We are not recommending award of the additive alternate for the generator. The evaluation is provided as Attachment B.

Two bids were received which were both significantly higher than the engineer's estimate. This has been typical given the drastic price increases in construction materials in recent months due to the supply shortages with the economy reactivating after the COVID-19 Pandemic. The second bid was over \$500,000 higher than the bid submitted by RMCI, Inc. A bid tabulation is provided as Attachment C.

#### **Alternatives**

If the project is not awarded staff will assess whether to re-bid the project immediately or defer for a short time, considering the terms of the existing Drinking Water State Revolving Loan. Completing the well in a timely manner is critical to maintaining an adequate water supply.

#### **Fiscal and Staff Impact/Planned Item**

A Drinking Water State Revolving Loan has been secured in the amount of \$2,852,444 based on the engineer's estimate prepared six months ago. DPU is pursuing an amendment to the loan to increase the amount to \$3,780,444 (base bid, contingency and NMGR). Budget Revision 2022-02, Option A, for the purpose of increasing the water production revenues and expenditure budget (from loan proceeds) by an amount of \$928,000 for the base bid is provided as Attachment D. Option B is also included in Budget Revision 2022-02 which will increase the water production revenues and expenditure budget (from loan proceeds) by an amount of \$1,644,848 for the base bid and additive alternate if the Utility Board chooses to award the additive alternate. Utility Board authorization is being sought to proceed with the loan modification as a separate agenda item in this meeting. The loan amendment process will take months to finalize. For the purposes of this award additional funding will be directed from other planned FY2022 capital projects temporarily until the loan is amended, or permanently if the additional loan funds are not secured. Proposed FY2022 water capital funds to be applied to this award are: NM-4 Transmission Line Design \$180,000; Tank Pipe Upgrades \$300,000; 33rd & 34th Street Waterline Replacement \$448,000; for a total of \$928,000.

#### **Attachments**

- A - Construction Drawings
- B - Otowi Well #2 Generator Risk Analysis
- C - Bid Tabulation
- D - Budget Revision 2022-02
- E - Otowi Well #2 Pump Drive Life Cycle Analysis



CONSTRUCTION PLANS FOR

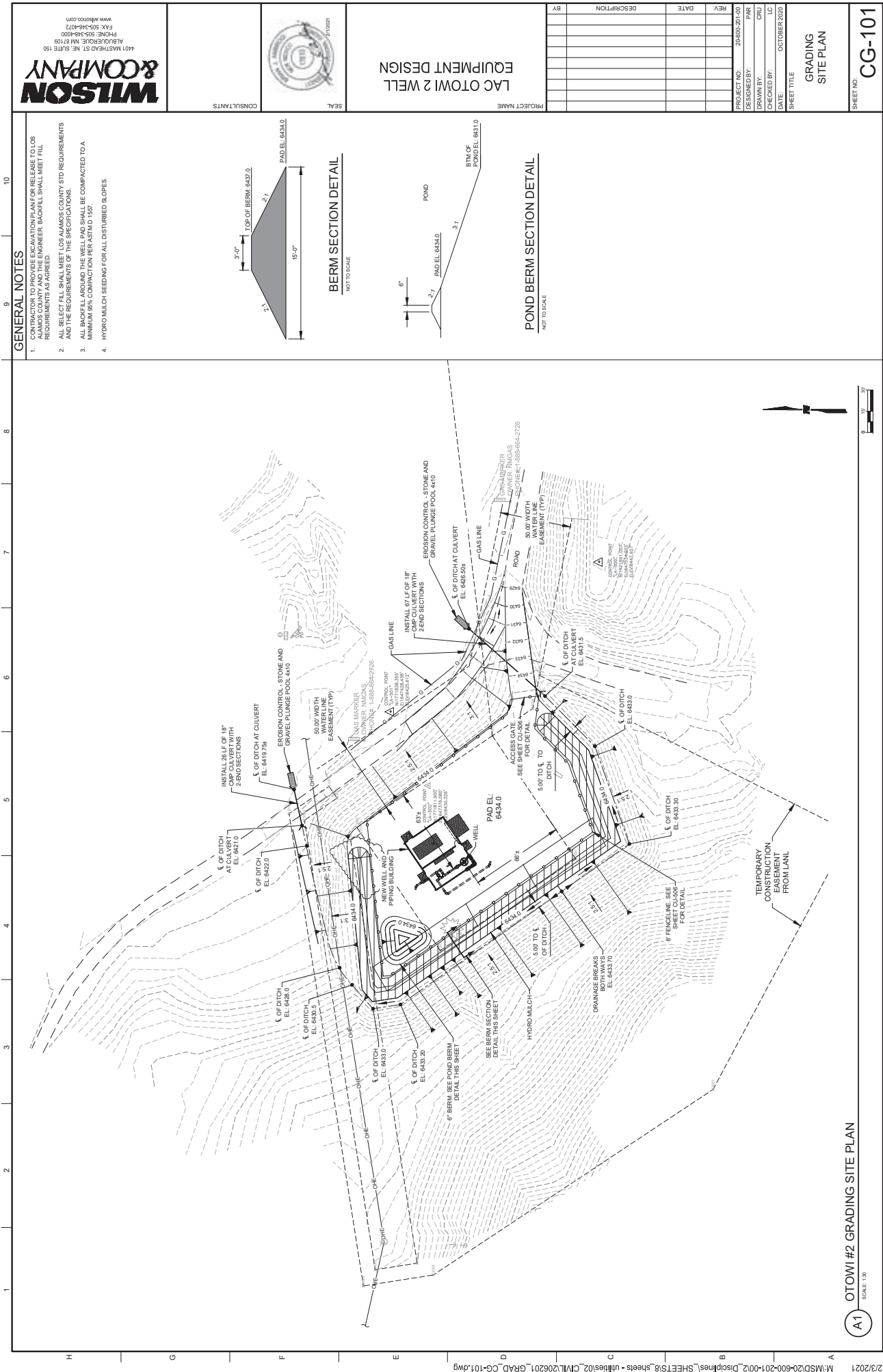
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LOS ALAMOS COUNTY  
OTOWI WELL # 2  
EQUIPMENT

INDEX DRAWINGS	
SHEET NO.	SHEET TITLE
ED-604	ELECTRICAL ONE-LINE DIAGRAM DEMO
E-604	ELECTRICAL ONE-LINE DIAGRAM
E-701	PANEL SCHEDULES
E-702	POWER SCHEDULES
I-101	ELECTRICAL INSTRUMENTATION PLAN
I-104	ELECTRICAL PLAN NEW
I-501	INSTRUMENTATION DETAILS
I-502	INSTRUMENTATION CP-SCADA OTOWI WELL #2
I-503	INSTRUMENTATION CP-SCADA OTOWI WELL #2
I-600	INSTRUMENTATION GROUNDING DIAGRAM
I-701	INSTRUMENTATION SCHEDULE
I-702	INSTRUMENTATION SCHEDULES
M-001	MECHANICAL SYMBOLS AND LEGEND
MS-101	MECHANICAL SITE PLAN
M-101	MECHANICAL FLOOR PLAN
M-501	MECHANICAL DETAILS



GENERAL NOTES	
1.	<p>DETECT PIPE JOINTS AS NECESSARY TO MAINTAIN ALIGNMENT SHOWN. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING LOCATION OF ALL UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE LOCATIONS. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES BEFORE COMMENCING WORK.</p>
2.	<p>ALL UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE LOCATIONS. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES BEFORE COMMENCING WORK.</p>
3.	<p>ALL FITTINGS AND VALVES SHALL BE RESTRAINED PER PRESSURE PIPE DESIGN. ALL FITTINGS AND VALVES SHALL BE RESTRAINED TO THE FULL JOINT RESTRAINT LENGTH. JOINTS SHALL NOT BE CONSTRUCTED. CONCRETE BLOCKING SHALL BE USED PER SHEET C-604.</p>



**GENERAL NOTES**

1. ALL EROSION CONTROL MEASUREMENTS SHALL BE TAKEN TO THE TOP OF THE EROSION CONTROL MEASUREMENT AS AGREED.
2. ALL SELECT FILL SHALL MEET LOS ANGELES COUNTY STD REQUIREMENTS AND THE REQUIREMENTS OF THE SPECIFICATIONS.
3. ALL BACKFILL AROUND THE WELL PAD SHALL BE COMPACTED TO A MINIMUM 95% COMPACTION PER ASTM D 1557.
4. HYDRO MULCH SEEDING FOR ALL DISTURBED SLOPES.

**BERM SECTION DETAIL**  
NOT TO SCALE

**POND BERM SECTION DETAIL**  
NOT TO SCALE

**WILSON & COMPANY**

4401 WASHINGTON ST. NE, SUITE 150  
ALBUQUERQUE, NM 87109  
PHONE: 505-348-4000  
FAX: 505-348-4072  
www.wilsonco.com

**LAC OTOWI 2 WELL**  
EQUIPMENT DESIGN

PROJECT NAME

BY

DESCRIPTION

DATE

REV.

PROJECT NO: 20-600-261-00

DESIGNED BY: PAR

DRAWN BY: CRU

CHECKED BY: LC

DATE: OCTOBER 2020

SHEET TITLE


**GRADING**  
**SITE PLAN**

SHEET NO: **CG-101**

4401 MORTHEAD ST. NE, SUITE 150  
ALBUQUERQUE, NM 87109  
PHONE: 505-348-4000  
FAX: 505-348-4072  
www.wilsonandcompany.com

**WILSON & COMPANY**

CONSULTANTS



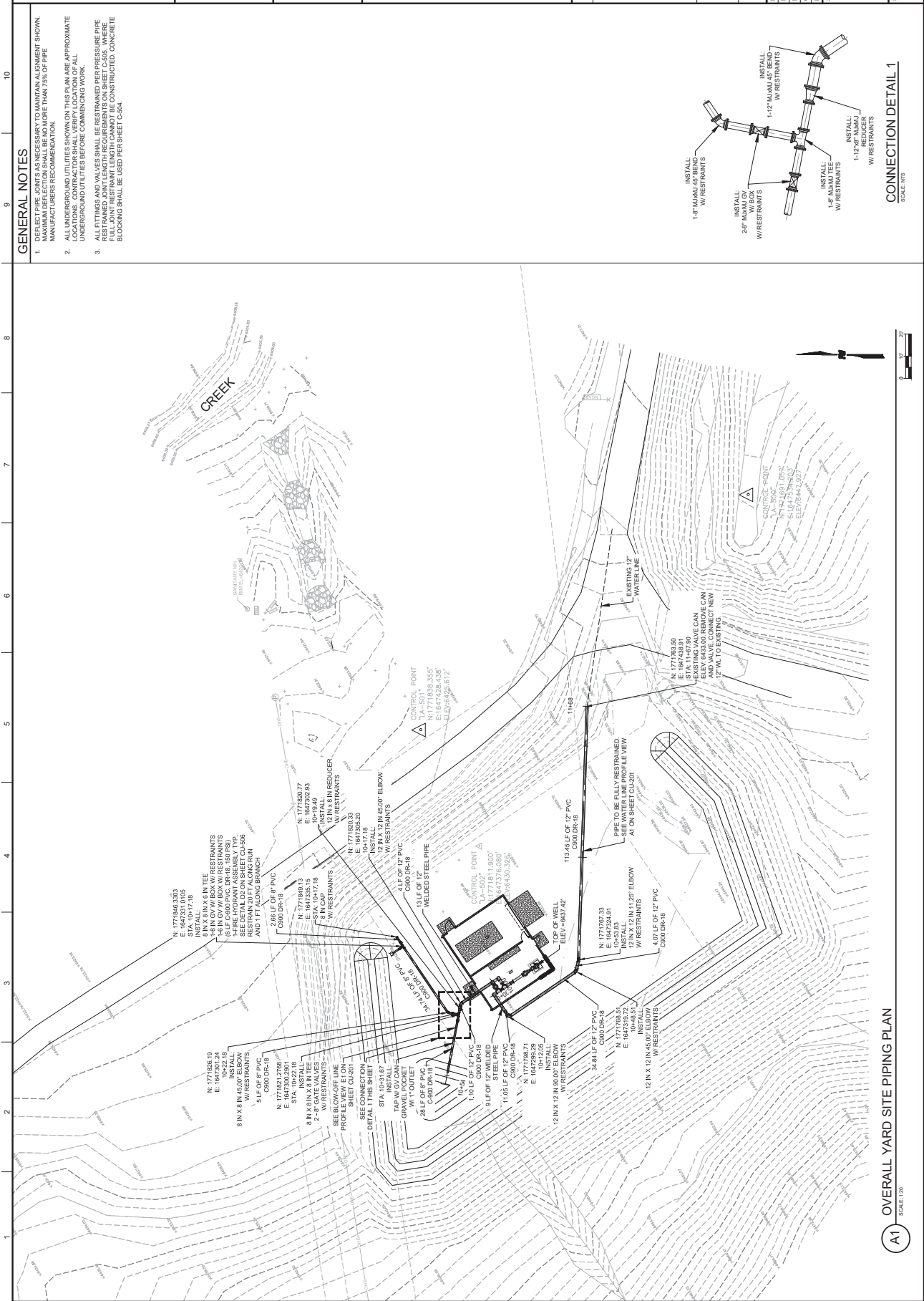
LAC OTOMI 2 WELL  
EQUIPMENT DESIGN

PROJECT NAME

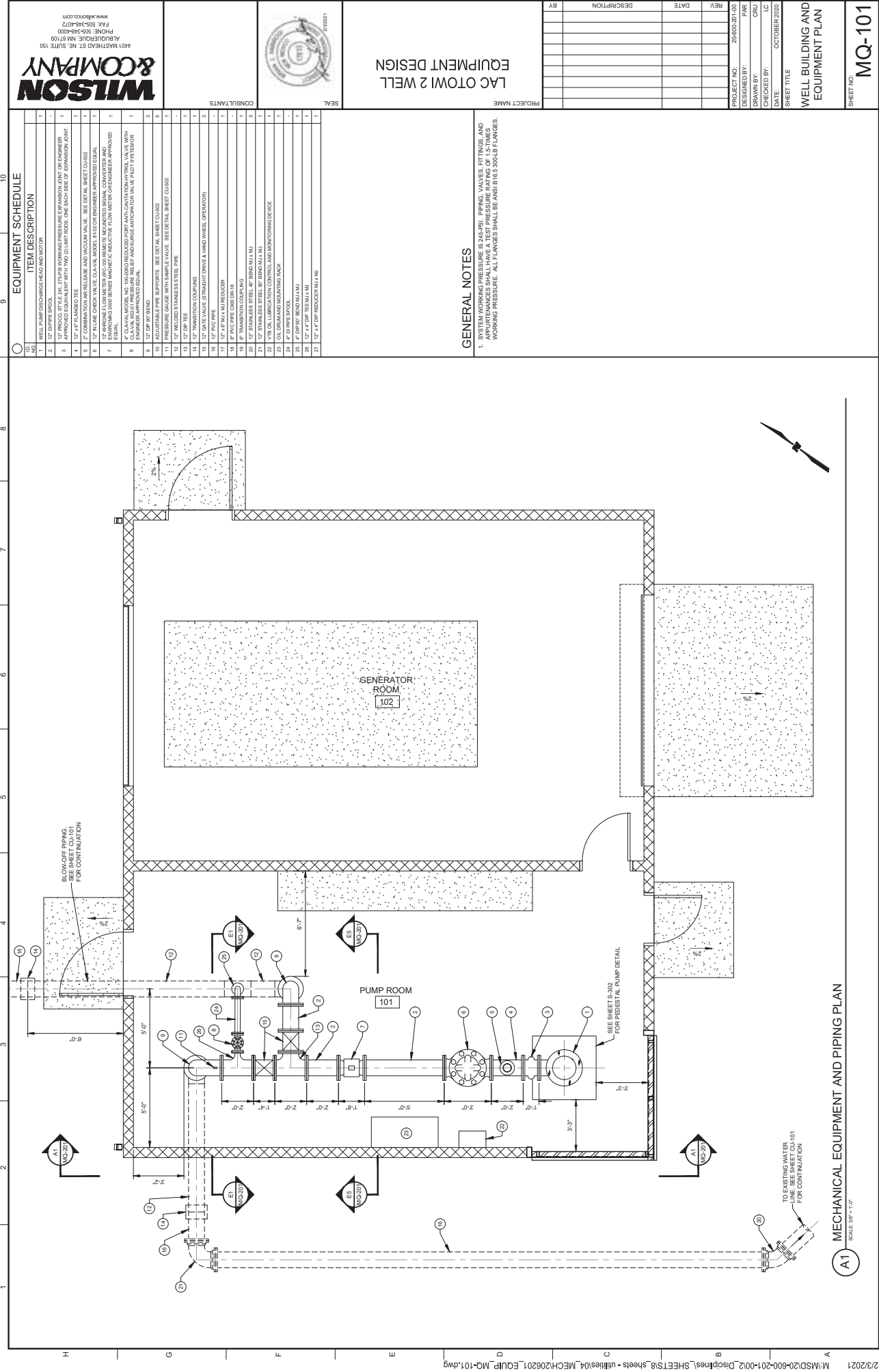
BY	DESCRIPTION	DATE	REV

PROJECT NO: 20-600-261-00  
DESIGNED BY: PAR  
DRAWN BY: CRJ  
CHECKED BY: LC  
DATE: OCTOBER 2020  
SHEET TITLE: YARD PIPING SITE PLAN

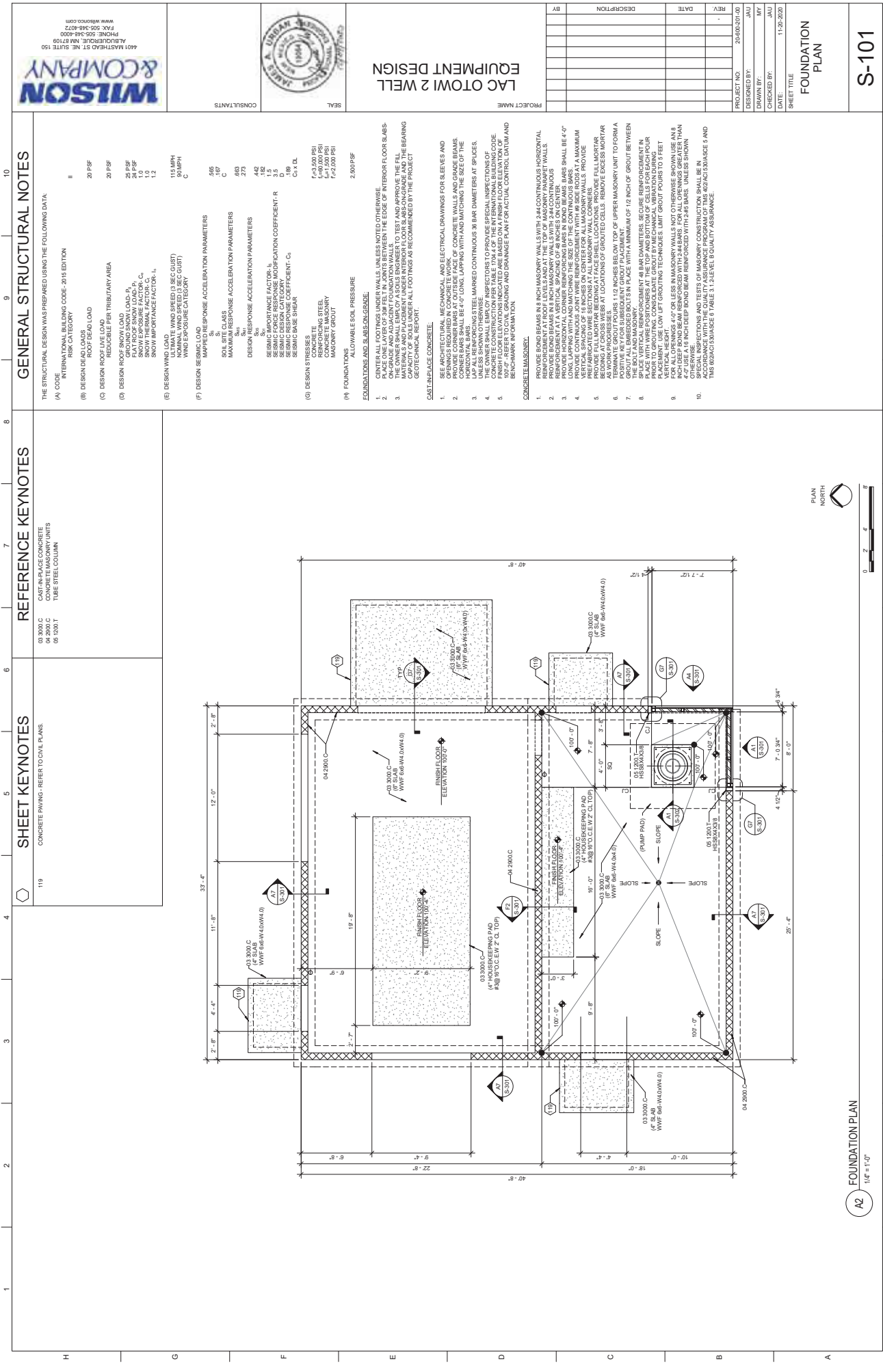
SHEET NO: CU-101

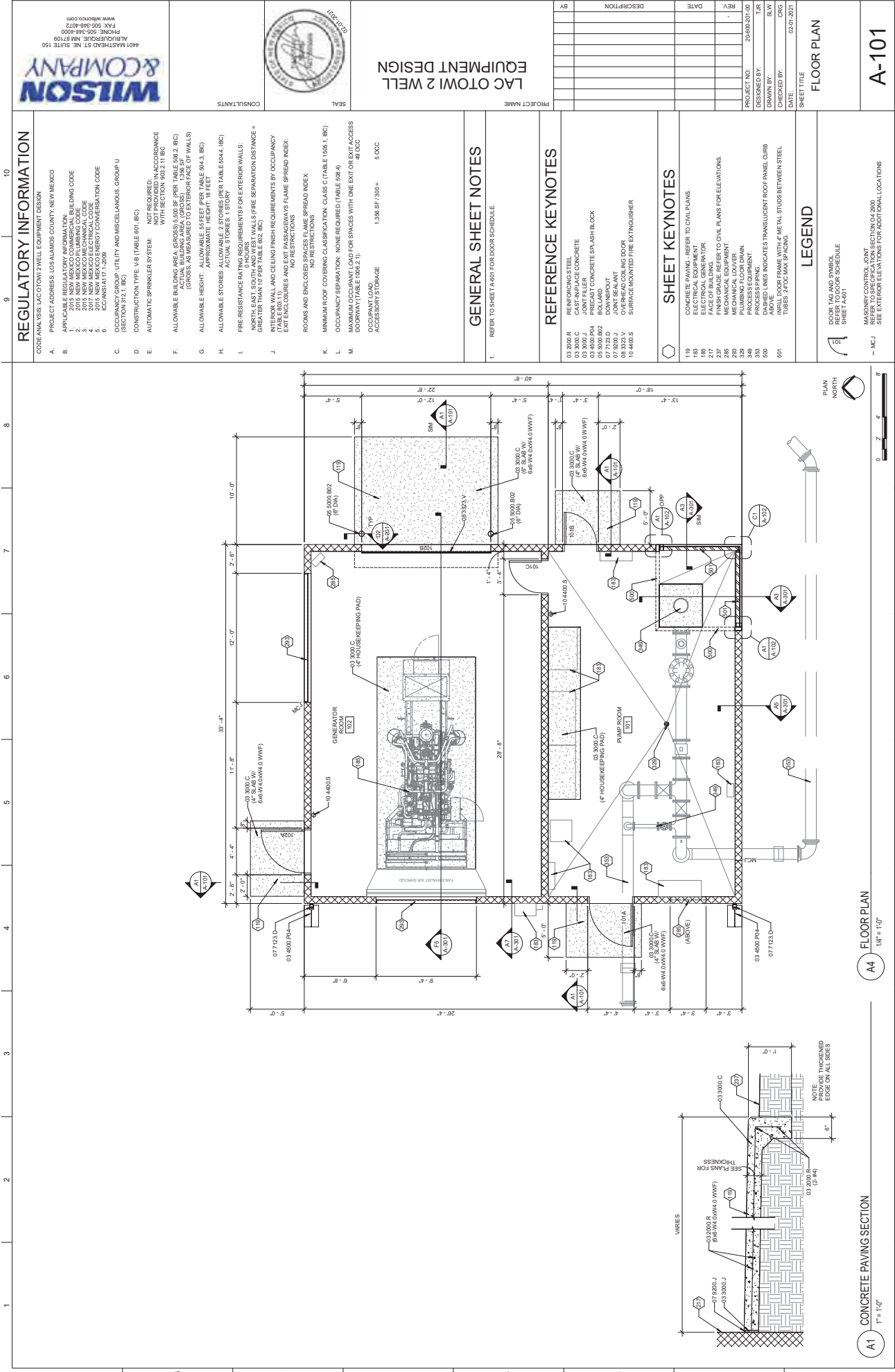




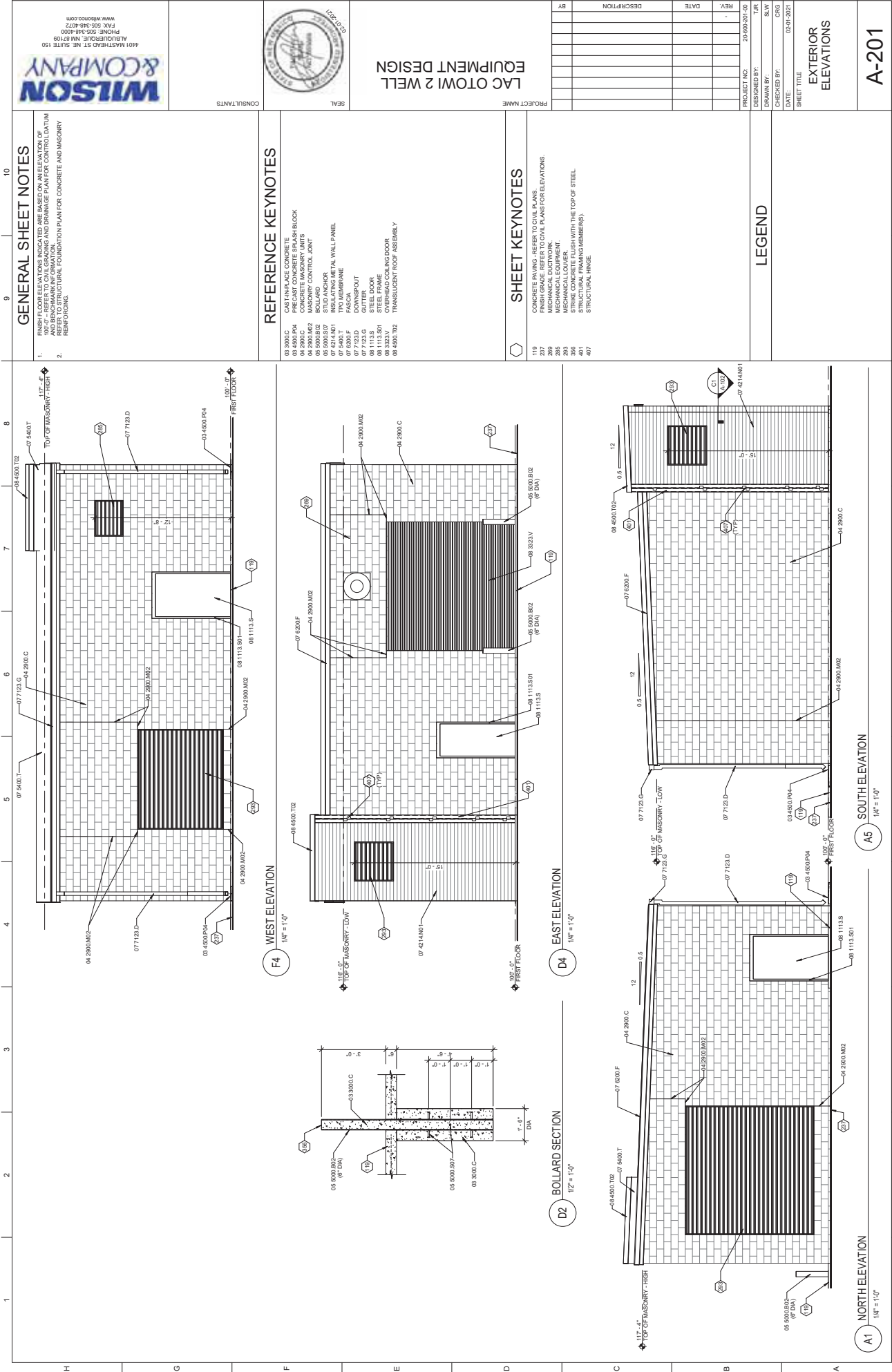


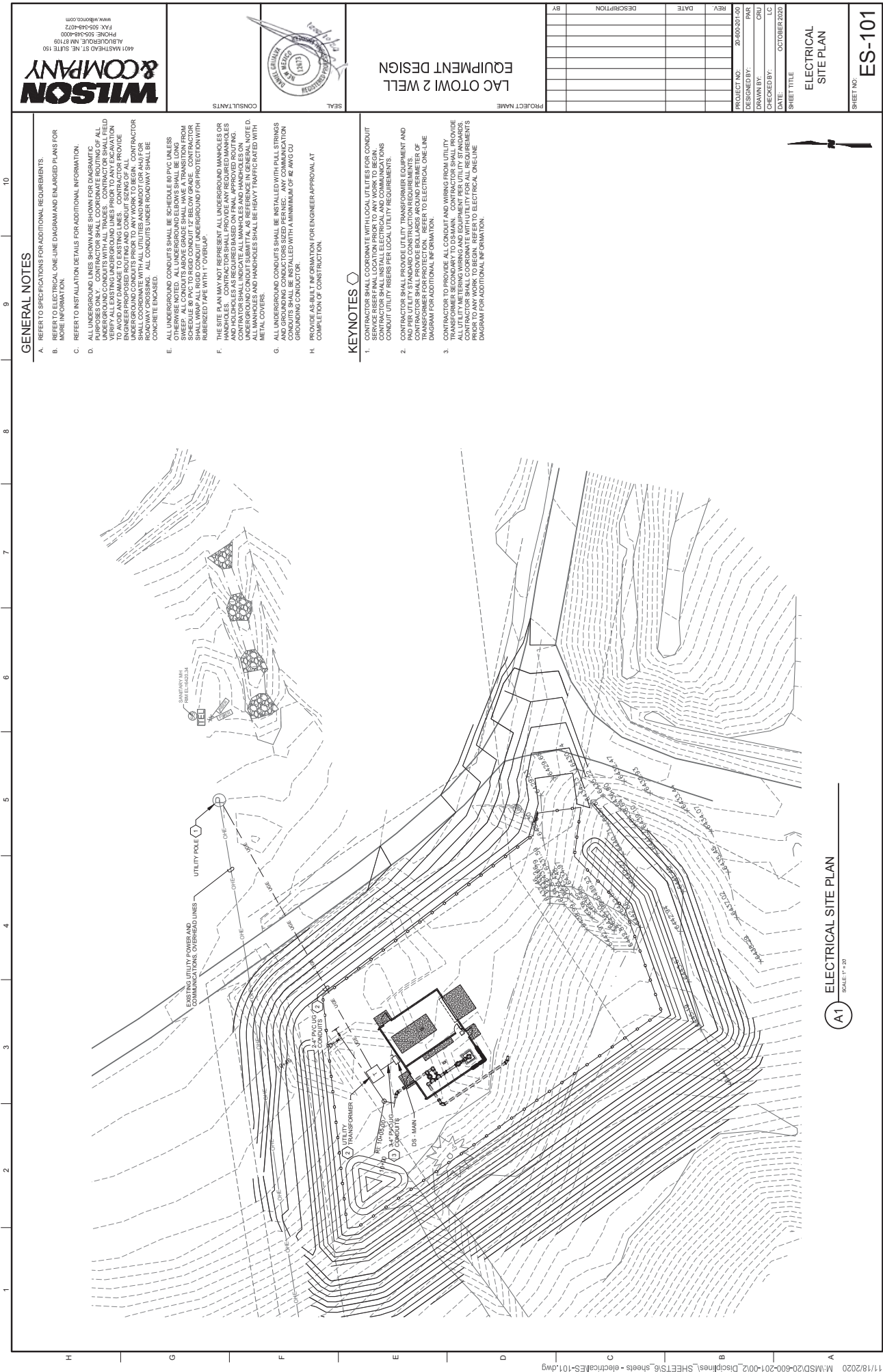






REGULATORY INFORMATION	
CODE ANALYSIS LAC OTOWI 2 WELL EQUIPMENT DESIGN	
A. PROJECT ADDRESS: LOS ALAMOS COUNTY, NEW MEXICO	
B. APPLICABLE REGULATORY INFORMATION:	
1. 2015 NEW MEXICO COMMERCIAL BUILDING CODE	
2. 2015 NEW MEXICO ELECTRICAL CODE	
3. 2015 NEW MEXICO MECHANICAL CODE	
4. 2017 NEW MEXICO ELECTRICAL CODE	
5. 2017 NEW MEXICO MECHANICAL CODE	
6. ICC/ANSI A17.1-2009	
C. OCCUPANCY GROUP: UTILITY AND MISCELLANEOUS, GROUP U (SECTION 312.1, IBC)	
D. CONSTRUCTION TYPE: V8 (TABLE 601, IBC)	
E. AUTOMATIC SPRINKLER SYSTEM: NOT REQUIRED; NOT REQUIRED FOR OCCUPANCY GROUP U WITH SECTION 902.2.1, IBC	
F. ALLOWABLE BUILDING AREA: GROSS 5,400 SF (PER TABLE 503.2, IBC) ACTUAL BUILDING AREA (GROSS): 1,398 SF (GROSS, AS MEASURED TO EXTERIOR FACE OF WALLS)	
G. ALLOWABLE HEIGHT: ALLOWABLE SHEET PIER TABLE 504.3, IBC) ACTUAL HEIGHT: 1 STORY	
H. ALLOWABLE STORES: ALLOWABLE 2 STORES (PER TABLE 504.4, IBC) ACTUAL STORES: 1 STORY	
I. FIRE RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS: 0 HOURS NORTH EAST, SOUTH WALLS (FIRE SEPARATION DISTANCE > 10 FEET) INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY (TABLE 601.1) EXTERIOR WALLS: 2 HOURS INTERIOR WALLS: 1 HOUR NO RESTRICTIONS	
J. ROOMS AND ENCLOSED SPACES: FLAME SPREAD INDEX: NO RESTRICTIONS	
K. MINIMUM ROOF COVERING CLASSIFICATION: CLASS C (TABLE 1505.1, IBC)	
L. OCCUPANCY SEPARATION: NONE REQUIRED (TABLE 508.4)	
M. MAXIMUM OCCUPANT LOAD FOR SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY (TABLE 1008.2.1): 49 OCC	
OCCUPANT LOAD: 1,398 SF / 300 = 4.65	
ACCESSORY STORAGE: 5 OCC	
GENERAL SHEET NOTES	
1. REFER TO SHEET A-601 FOR DOOR SCHEDULE	
REFERENCE KEYNOTES	
03 2000 R REINFORCING STEEL 03 2000 J JOINT FILLER 03 3000 J PRECAST CONCRETE JOINT FILLER 03 4000 P4 POLYMER MODIFIED ASPHALT PAVING 05 5000 B02 BOLLARD 07 5000 J JOINT SEALANT 08 3000 V OVERHEAD COILING DOOR 10 4000 S SURFACE MOUNTED FIRE EXTINGUISHER	
SHEET KEYNOTES	
119 CONCRETE FINISH: REFER TO CIVIL PLANS 118 ELECTRICAL EQUIPMENT 117 FACE OF BUILDING 217 FACE OF BUILDING TO CIVIL PLANS FOR ELEVATIONS 285 MECHANICAL EQUIPMENT 293 MECHANICAL EQUIPMENT 353 PROCESS PIPING 501 INFILL DOOR FRAME WITH 4" METAL STUDS BETWEEN STEEL STUDS, 4" O.C. MAX. SPACING	
LEGEND	
DOOR TAG AND SYMBOLS REFER TO DOOR SCHEDULE SHEET A-601	
MAXIMUM OCCUPANT LOAD REFER TO SPECIFICATION SECTION 04 200 SEE EXTERIOR ELEVATIONS FOR ADDITIONAL LOCATIONS	
- MCJ	





GENERAL NOTES

- A. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- B. REFER TO ELECTRICAL ONE-LINE DIAGRAM AND ENLARGED PLANS FOR MORE INFORMATION.
- C. REFER TO INSTALLATION DETAILS FOR ADDITIONAL INFORMATION.
- D. ALL UNDERGROUND LINES SHOWN ARE SHOWN FOR DIAGRAMATIC PURPOSES ONLY. CONTRACTOR SHALL VERIFY ALL EXISTING UNDERGROUND LINES PRIOR TO ANY EXCAVATION AND SHALL BE RESPONSIBLE FOR PROVIDING ENGINEER PROPOSED ROUTING AND CONDUIT SIZES OF ALL UNDERGROUND CONDUITS PRIOR TO ANY WORK TO BEGIN. CONTRACTOR SHALL PROVIDE A MINIMUM OF 18" CLEARANCE FROM ALL EXISTING UNDERGROUND LINES AND ROADWAY CROSSING. ALL CONDUITS UNDER ROADWAY SHALL BE CONCRETE ENCASED.
- E. ALL UNDERGROUND CONDUITS SHALL BE SCHEDULE 80 PVC UNLESS OTHERWISE NOTED. ALL UNDERGROUND ELBOWS SHALL BE LONG SCHEDULE 80 PVC TO RIGID CONDUIT 12" BELOW GRADE. CONTRACTOR SHALL PROVIDE A MINIMUM OF 18" CLEARANCE FROM ALL EXISTING UNDERGROUND LINES AND ROADWAY CROSSING. ALL CONDUITS UNDER ROADWAY SHALL BE CONCRETE ENCASED.
- F. THE SITE PLAN AND ALL INFORMATION REGARDING ALL UNDERGROUND MANHOLES OR HANDHOLES CONTRACTOR SHALL PROVIDE ANY REQUIRED MANHOLES AND HANDHOLES AS REQUIRED BASED ON FINAL APPROVED ROUTING. CONTRACTOR SHALL PROVIDE A MINIMUM OF 18" CLEARANCE FROM ALL EXISTING UNDERGROUND CONDUIT SUBMITTAL, AS REFERENCE IN GENERAL NOTE D. ALL MANHOLES AND HANDHOLES SHALL BE HEAVY TRAFFIC RATED WITH METAL COVERS.
- G. ALL UNDERGROUND CONDUITS SHALL BE INSTALLED WITH PULL STRINGS AND SHALL BE INSTALLED WITH A MINIMUM OF 18" AWG CU GROUNDING CONDUCTOR.
- H. PROVIDE AS-BUILT INFORMATION FOR ENGINEER APPROVAL AT COMPLETION OF CONSTRUCTION.

KEYNOTES

- 1. CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITIES FOR CONDUIT SERVICE RIBS FINAL LOCATION PRIOR TO ANY WORK TO BEGIN. CONTRACTOR SHALL PROVIDE A MINIMUM OF 18" CLEARANCE FROM ALL EXISTING UNDERGROUND LINES AND ROADWAY CROSSING. ALL CONDUITS UNDER ROADWAY SHALL BE CONCRETE ENCASED.
- 2. CONTRACTOR SHALL PROVIDE UTILITY TRANSFORMER EQUIPMENT AND PAD PER UTILITY STANDARD CONSTRUCTION REQUIREMENTS. CONTRACTOR SHALL PROVIDE DOLLARS AROUND PERIMETER OF TRANSFORMER EQUIPMENT AND PAD PER UTILITY STANDARD CONSTRUCTION REQUIREMENTS FOR ADDITIONAL INFORMATION.
- 3. CONTRACTOR TO PROVIDE ALL CONDUIT AND WIRING FROM UTILITY TRANSFORMER SECONDARY TO DS-MAN. CONTRACTOR SHALL PROVIDE A MINIMUM OF 18" CLEARANCE FROM ALL EXISTING UNDERGROUND LINES AND ROADWAY CROSSING. ALL CONDUITS UNDER ROADWAY SHALL BE CONCRETE ENCASED. CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITIES FOR ALL REQUIREMENTS PRIOR TO ANY WORK TO BEGIN. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.

A1 ELECTRICAL SITE PLAN

SCALE: 1" = 20'

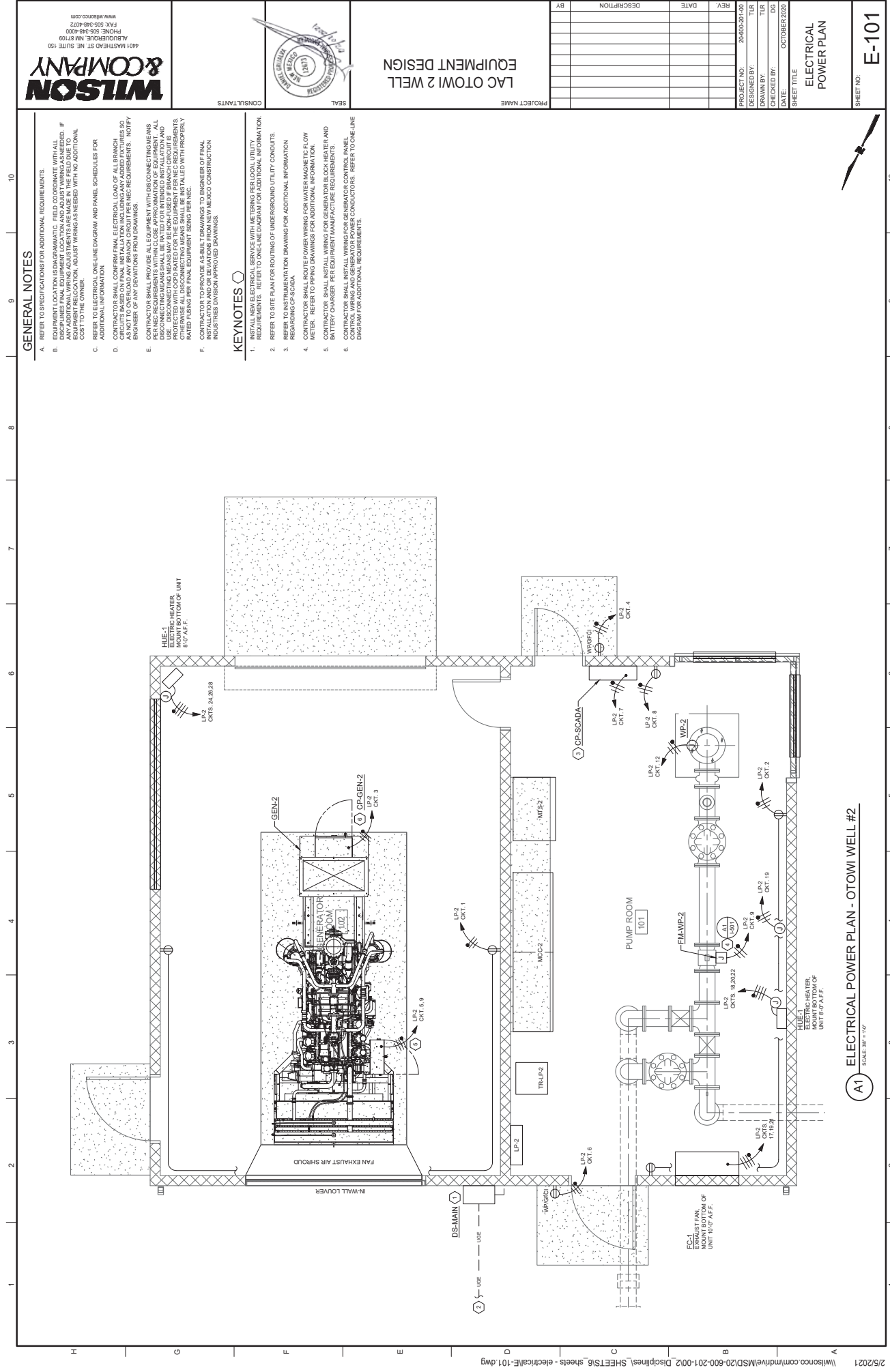
4401 MASHHEAD ST. NE, SUITE 150  
ALBUQUERQUE, NM 87109  
PHONE: 505-448-0000  
FAX: 505-448-0772  
www.wilsonco.com

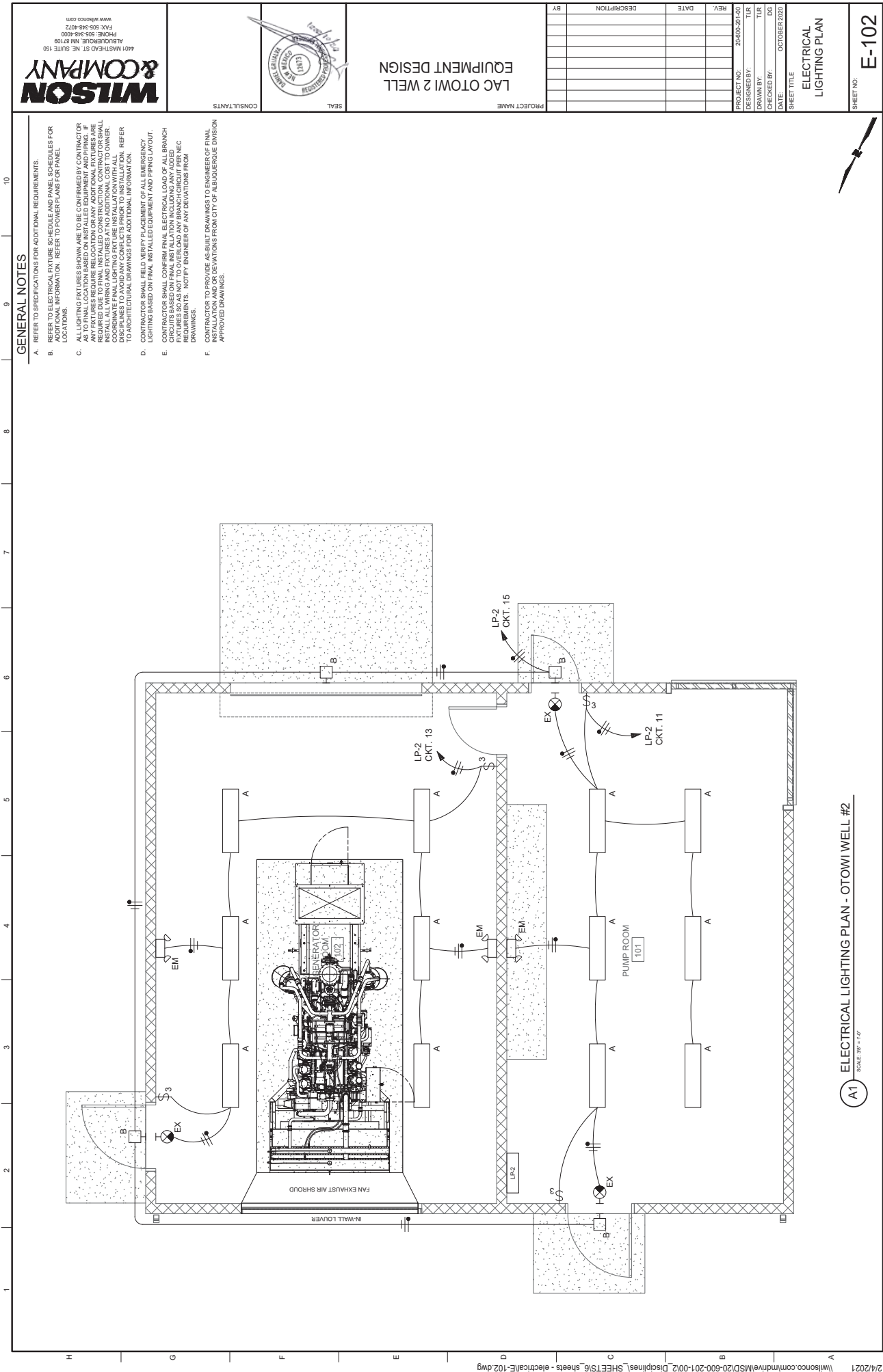
CONSULTANTS

PROJECT NAME  
LAC OTOWI 2 WELL  
EQUIPMENT DESIGN

REV.	DATE	DESCRIPTION	BY

PROJECT NO.: 22-600201-00  
DESIGNED BY: PHE  
DRAWN BY: CRJ  
CHECKED BY: LC  
DATE: OCTOBER 2023  
SHEET TITLE  
ELECTRICAL  
SITE PLAN  
SHEET NO.  
ES-101





- GENERAL NOTES**
- A. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
  - B. REFER TO ELECTRICAL FIXTURE SCHEDULE AND PANEL SCHEDULES FOR ADDITIONAL INFORMATION. REFER TO POWER PLANS FOR PANEL LOCATIONS.
  - C. ALL LIGHTING FIXTURES SHOWN ARE TO BE CONFIRMED BY CONTRACTOR OR ARCHITECT. ANY FIXTURES REQUIRING RELOCATION OR ANY ADDITIONAL FIXTURES ARE REQUIRED DUE TO FINAL INSTALLATION. CONTRACTOR SHALL COORDINATE FINAL LIGHTING FIXTURE INSTALLATION WITH ALL DISCIPLINES TO AVOID ANY CONFLICTS PRIOR TO INSTALLATION. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
  - D. CONTRACTOR SHALL PROVIDE ALL NECESSARY ELECTRICAL AND Piping WORK. LIGHTING BASED ON FINAL INSTALLED EQUIPMENT AND Piping LAYOUT.
  - E. CONTRACTOR SHALL CONFIRM FINAL ELECTRICAL LOADS OF ALL BRANCH CIRCUITS BASED ON FINAL INSTALLATION INCLUDING ANY ADDER FIXTURES SO AS NOT TO OVERLOAD ANY BRANCH CIRCUIT PER NEC REQUIREMENTS. NOTIFY ENGINEER OF ANY DEVIATIONS FROM DRAWINGS.
  - F. CONTRACTOR TO PROVIDE AS BUILT DRAWINGS TO ENGINEER OF FINAL INSTALLATION AND OR DEVIATIONS FROM CITY OF ALBUQUERQUE DIVISION APPROVED DRAWINGS.

PROJECT NO:

20-600-201-002

DESIGNED BY:

TJR

DRAWN BY:

TJR

CHECKED BY:

DC

DATE:

OCTOBER 2020

SHEET TITLE

ELECTRICAL LIGHTING PLAN

SHEET NO:

E-102

PROJECT NAME

LAC OTOWI 2 WELL EQUIPMENT DESIGN

BY

DESCRIPTION

DATE

REV

WILSON & COMPANY

4001 MARSHHEAD ST. N.E. SUITE 150

ALBUQUERQUE, NM 87109

PHONE: 505-348-4000

FAX: 505-348-6072

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SEAL

WILSON & COMPANY

10073

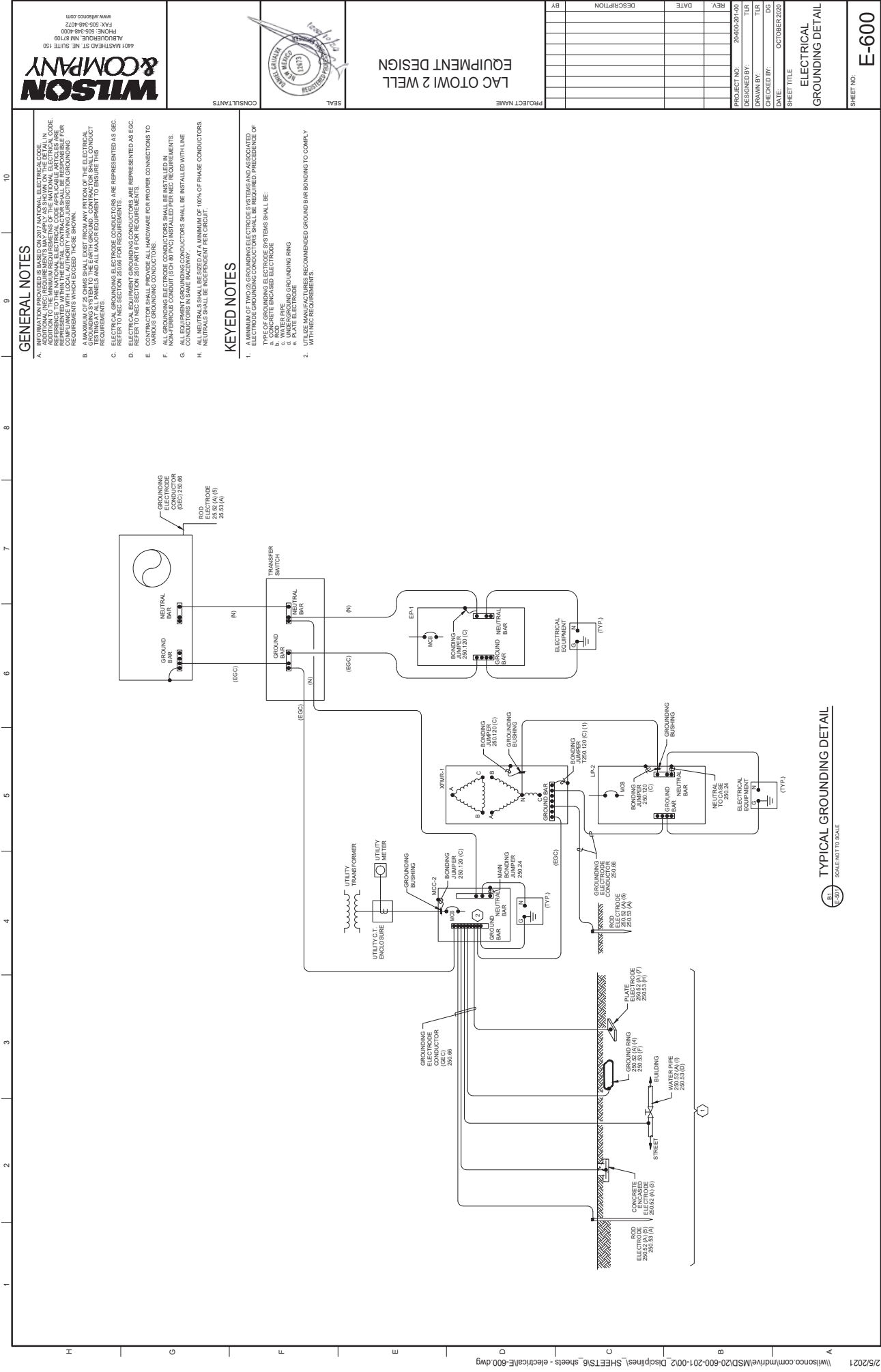
CONSULTANTS

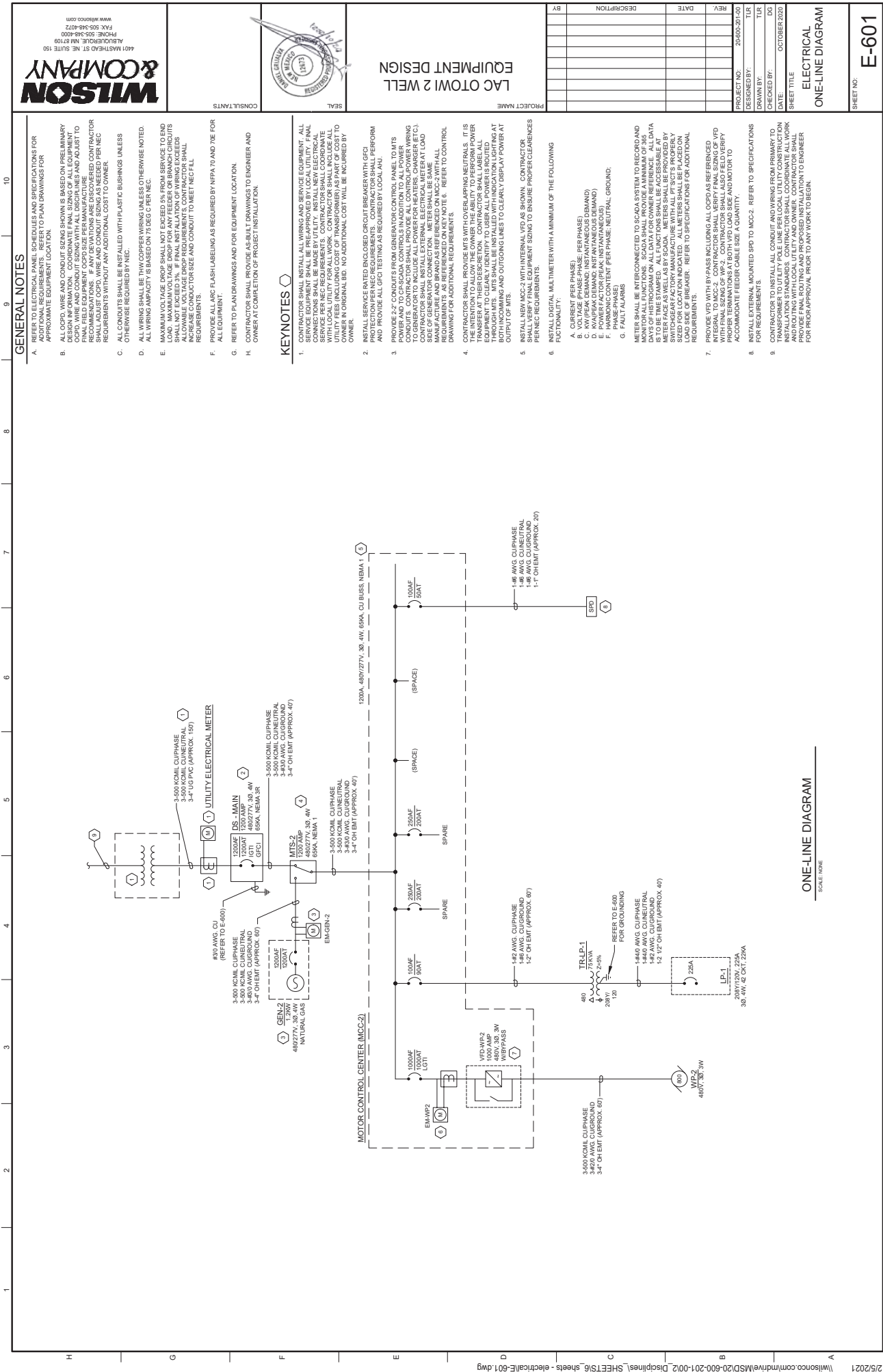
A1 ELECTRICAL LIGHTING PLAN - OTOWI WELL #2  
SCALE 3/8" = 1'-0"

Page 153 of 369









**GENERAL NOTES**

REFER TO ELECTRICAL PANEL SCHEDULES AND SPECIFICATIONS FOR APPROXIMATE EQUIPMENT LOCATION.

ALL OPD, WIRE AND CONDUIT SIZING SHOWN IS BASED ON PRELIMINARY DESIGN INFORMATION. COORDINATE FINAL SIZING OF ALL EQUIPMENT WITH THE APPROVED DESIGN. ALL SIZING SHALL BE BASED ON THE FINAL YIELD EQUIPMENT ODD SIZE PER MANUFACTURE, AND ADJUST TO MEET ALL REQUIREMENTS. IF ANY DEVIATIONS ARE DISCOVERED CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING THEM AT HIS OWN RISK. PER NEC REQUIREMENTS WITHOUT ANY ADDITIONAL COST TO OWNER.

ALL CONDUITS SHALL BE INSTALLED WITH PLASTIC BUSHINGS UNLESS OTHERWISE REQUIRED BY NEC.

ALL WIRING SHALL BE THIN COPPER WIRING UNLESS OTHERWISE NOTED.

MAXIMUM VOLTAGE DROP SHALL NOT EXCEED 5% FROM SERVICE TO END LOAD. MAXIMUM VOLTAGE DROP FOR ANY FEEDER OR BRANCH CIRCUITS SHALL NOT EXCEED 3%. IF FINAL INSTALLATION OF WIRING EXCEEDS 3% VOLTAGE DROP, CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING THEM AT HIS OWN RISK. PER NEC REQUIREMENTS WITHOUT ANY ADDITIONAL COST TO OWNER.

PROVIDE ALL ARC FLASH LABELING AS REQUIRED BY NFPA 70 AND THE FOR ALL EQUIPMENT.

REFER TO PLAN DRAWINGS AND FOR EQUIPMENT LOCATION.

CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS TO ENGINEER AND OWNER AT COMPLETION OF PROJECT INSTALLATION.

**KEYNOTES**

CONTRACTOR SHALL INSTALL ALL WIRING AND SERVICE EQUIPMENT. ALL SERVICE EQUIPMENT SHALL BE PRE-APPROVED BY LOCAL UTILITY. FINAL INSTALLATION SHALL BE BASED ON THE APPROVED DESIGN. ALL SIZING SHALL BE BASED ON THE FINAL YIELD EQUIPMENT ODD SIZE PER MANUFACTURE, AND ADJUST TO MEET ALL REQUIREMENTS. IF ANY DEVIATIONS ARE DISCOVERED CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING THEM AT HIS OWN RISK. PER NEC REQUIREMENTS WITHOUT ANY ADDITIONAL COST TO OWNER.

INSTALL SERVICE RATED ENCLOSED CIRCUIT BREAKER WITH GFCI PROTECTION FOR ALL 120V/250V/480V/600V EQUIPMENT. PERFORM AND PROVIDE ALL GFCI TESTING AS REQUIRED BY LOCAL AUTHORITY.

PROVIDE 3-2\"/>

CONTRACTOR SHALL PROVIDE ALL CONTROL POWER WIRING THROUGH MTS. CONTRACTOR SHALL INSTALL EXTERNAL ELECTRICAL METER AT LOAD SIDE OF GENERATOR CONNECTION. METER SHALL BE SAME TYPE AND RATING AS THE METER INSTALLED AT THE GENERATOR. PER NEC REQUIREMENTS AS REFERENCED ON KEYNOTE 8. REFER TO CONTROL DRAWING FOR ADDITIONAL REQUIREMENTS.

CONTRACTOR SHALL PROVIDE ITS WITH OVERLAPPING NEUTRALS. IT IS THE INTENTION TO ALLOW THE OWNER THE ABILITY TO PERFORM POWER TRANSFER FROM ONE MTS TO ANOTHER WITHOUT THE NEED TO DISCONNECT THROUGH MTS. MTS SHALL BE INSTALLED WITH INDICATION LIGHTING AT EACH MTS. CONTRACTOR SHALL PROVIDE 1\"/>

INSTALL NEW MCC-2 WITH INTERNAL VFD AS SHOWN. CONTRACTOR SHALL VERIFY FINAL EQUIPMENT SIZING TO ENSURE PROPER CLEARANCES PER NEC REQUIREMENTS.

INSTALL DIGITAL MULTIMETER WITH A MINIMUM OF THE FOLLOWING FUNCTIONALITY:

- A. CURRENT (PER PHASE)
- B. VOLTAGE (PER PHASE)
- C. KW (PEAK DEMAND, INSTANTANEOUS DEMAND)
- D. KW (PEAK DEMAND, INSTANTANEOUS DEMAND)
- E. HARMONIC CONTENT (PER PHASE, NEUTRAL GROUND, PHASE-TO-PHASE)
- F. HARMONIC CONTENT (PER PHASE, NEUTRAL GROUND, PHASE-TO-PHASE)
- G. FAULT ALARMS

METER SHALL BE INTERCONNECTED TO SCADA SYSTEM TO RECORD AND LOG ALL DATA. CONTRACTOR SHALL PROVIDE ALL DATA TO OWNER DURING THE 180 DAY TIME STAMPED. ALL FUNCTIONS SHALL BE ACCESSIBLE AT THE METER. CONTRACTOR SHALL PROVIDE ALL DATA TO OWNER DURING THE 180 DAY TIME STAMPED. ALL FUNCTIONS SHALL BE ACCESSIBLE AT THE METER. CONTRACTOR SHALL PROVIDE ALL DATA TO OWNER DURING THE 180 DAY TIME STAMPED. ALL FUNCTIONS SHALL BE ACCESSIBLE AT THE METER.

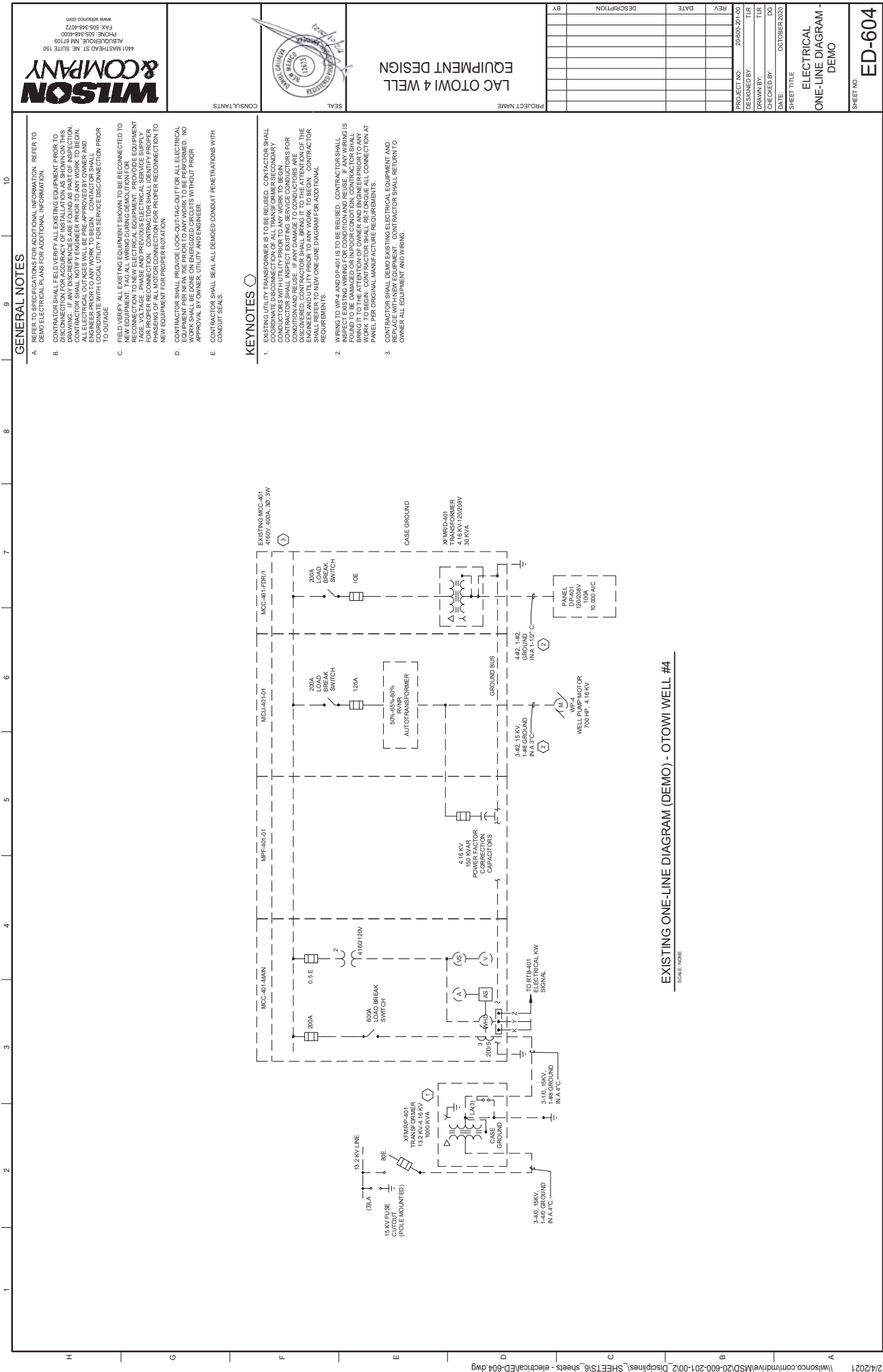
PROVIDE VFD WITH BY-PASS INCLUDING ALL OPD/AS REFERENCED IN KEYNOTE 8. CONTRACTOR SHALL VERIFY FINAL SIZING OF VFD WITH THE APPROVED DESIGN. ALL SIZING SHALL BE BASED ON THE FINAL YIELD EQUIPMENT ODD SIZE PER MANUFACTURE, AND ADJUST TO MEET ALL REQUIREMENTS. IF ANY DEVIATIONS ARE DISCOVERED CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING THEM AT HIS OWN RISK. PER NEC REQUIREMENTS WITHOUT ANY ADDITIONAL COST TO OWNER.

INSTALL EXTERNAL MOUNTED SPD TO MCC-2. REFER TO SPECIFICATIONS FOR REQUIREMENTS.

CONTRACTOR TO INSTALL ALL CONDUIT AND WIRING FROM PRIMARY TO TRANSFORMER TO UTILITY POLE LINE PER LOCAL UTILITY CONSTRUCTION REQUIREMENTS. CONTRACTOR SHALL PROVIDE ALL DATA TO OWNER DURING THE 180 DAY TIME STAMPED. ALL FUNCTIONS SHALL BE ACCESSIBLE AT THE METER. CONTRACTOR SHALL PROVIDE ALL DATA TO OWNER DURING THE 180 DAY TIME STAMPED. ALL FUNCTIONS SHALL BE ACCESSIBLE AT THE METER.

PROVIDE FINAL ROUTING AND PROPOSED INSTALLATION TO ENGINEER FOR FINAL APPROVAL PRIOR TO ANY WORK TO BEGIN.





**GENERAL NOTES**

A. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION. REFER TO DEMO ELECTRICAL PLANS FOR ADDITIONAL INFORMATION.

B. FIELD VERIFY ALL EXISTING EQUIPMENT PRIOR TO DISCONNECTION FOR DEMO. IF ANY DISCREPANCIES ARE FOUND AS PART OF INSPECTION, DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER PRIOR TO ANY WORK TO BEGIN. CONTRACTOR SHALL PROVIDE APPROVED BY OWNER AND ENGINEER PRIOR TO ANY WORK TO BEGIN. CONTRACTOR SHALL PROVIDE APPROVED BY OWNER AND ENGINEER PRIOR TO ANY WORK TO BEGIN. CONTRACTOR SHALL PROVIDE APPROVED BY OWNER AND ENGINEER PRIOR TO ANY WORK TO BEGIN.

C. FIELD VERIFY ALL EXISTING EQUIPMENT SHOWN TO BE RECONNECTED TO NEW EQUIPMENT. TAG ALL WIRING DURING DEMOLITION FOR RECONNECTION TO NEW ELECTRICAL EQUIPMENT. PROVIDE EQUIPMENT FOR PROPER RECONNECTION. CONTRACTOR SHALL IDENTIFY PROPER PHASING OF ALL MOTOR CONNECTION FOR PROPER RECONNECTION TO NEW EQUIPMENT FOR PROPAGATION.

D. CONTRACTOR SHALL PROVIDE LOCK-OUT-TAG-OUT FOR ALL ELECTRICAL EQUIPMENT PRIOR TO ANY WORK TO BEGIN. CONTRACTOR SHALL NO WORK SHALL BE DONE ON ENERGIZED CIRCUITS WITHOUT PRIOR APPROVAL BY OWNER, UTILITY AND ENGINEER.

E. CONTRACTOR SHALL SEAL ALL DEMOLISHED CONDUIT PENETRATIONS WITH CONDUIT SEALS.

**KEYNOTES**

- EXISTING UTILITY TRANSFORMER IS TO BE REUSED. CONTRACTOR SHALL INSPECT EXISTING SERVICE CONDUCTORS PRIOR TO ANY WORK TO BEGIN. CONTRACTOR SHALL INSPECT EXISTING SERVICE CONDUCTORS FOR DISCREPANCIES PRIOR TO ANY WORK TO BEGIN. CONTRACTOR SHALL DISCOVERED. CONTRACTOR SHALL BRING IT TO THE ATTENTION OF THE ENGINEER AND UTILITY PRIOR TO ANY WORK TO BEGIN. CONTRACTOR SHALL PROVIDE APPROVED BY OWNER AND ENGINEER PRIOR TO ANY WORK TO BEGIN.
- WIRING TO WP-4 AND DP-401 IS TO BE REUSED. CONTRACTOR SHALL INSPECT EXISTING WIRING FOR CONDITION AND REUSE. IF ANY WIRING IS FOUND TO BE DAMAGED OR IN POOR CONDITION, CONTRACTOR SHALL PROVIDE APPROVED BY OWNER AND ENGINEER PRIOR TO ANY WORK TO BEGIN. CONTRACTOR SHALL RESTORE ALL CONNECTION AT PANEL PER ORIGINAL MANUFACTURE REQUIREMENTS.
- CONTRACTOR SHALL DEMO EXISTING ELECTRICAL EQUIPMENT AND INSPECT EXISTING SERVICE CONDUCTORS PRIOR TO ANY WORK TO BEGIN. CONTRACTOR SHALL RETURN TO OWNER ALL EQUIPMENT AND WIRING.

401 WESTHEAD ST. NE SUITE 150  
ALBUQUERQUE, NM 87109  
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FAX: 505-348-4072  
www.wilsonco.com

CONSULTANTS

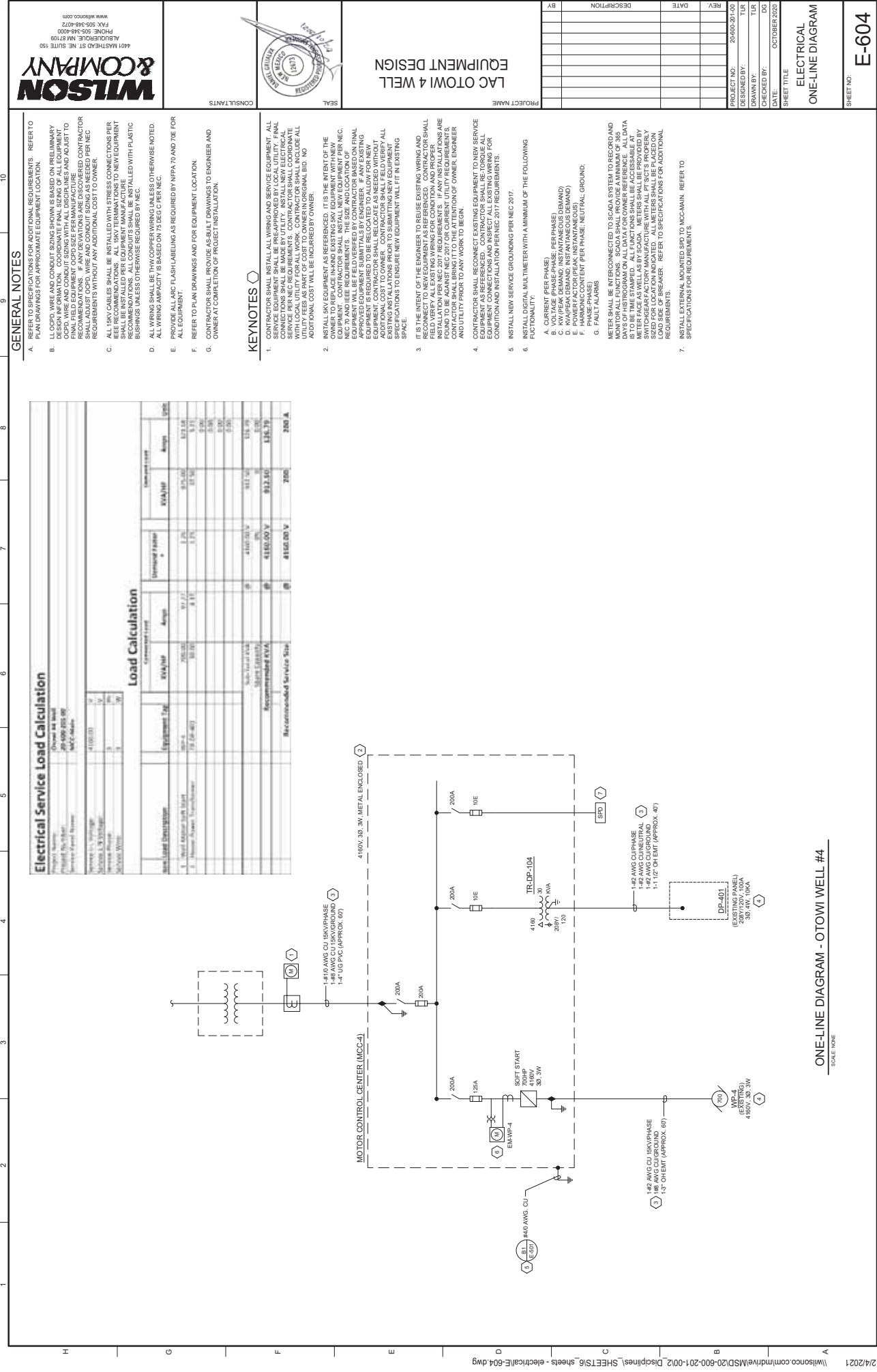
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LAC OTOWI 4 WELL  
EQUIPMENT DESIGN

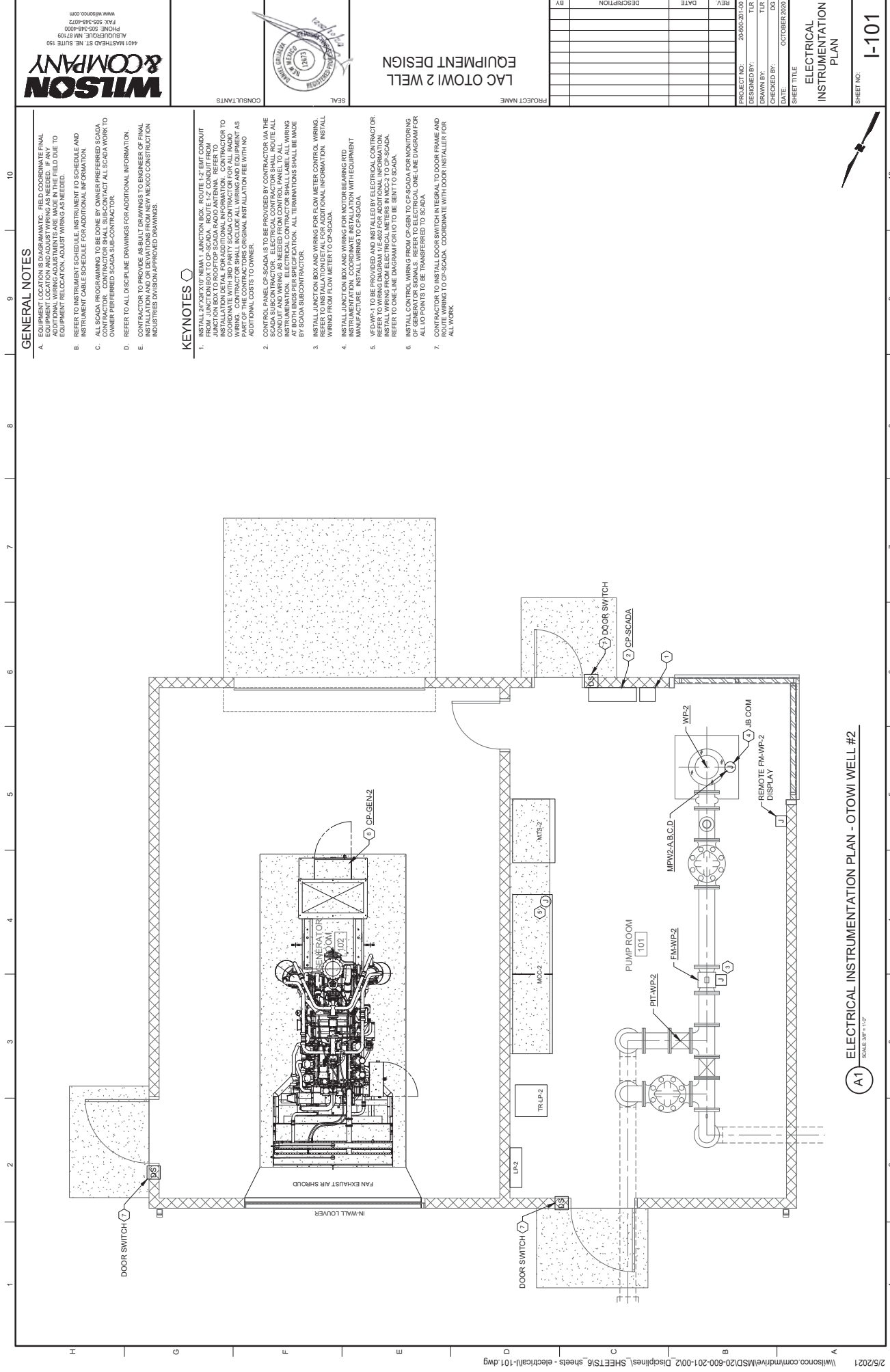
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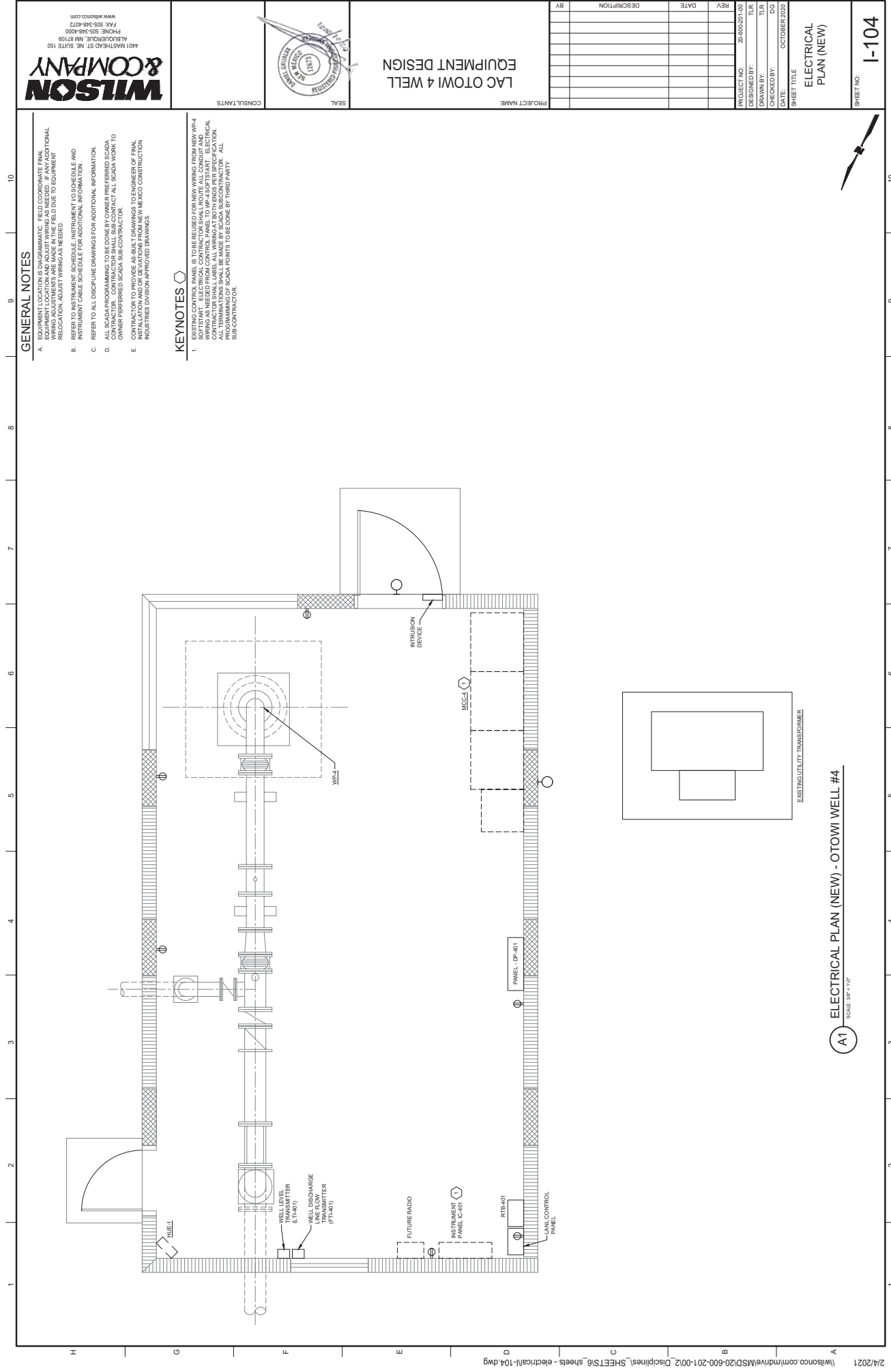
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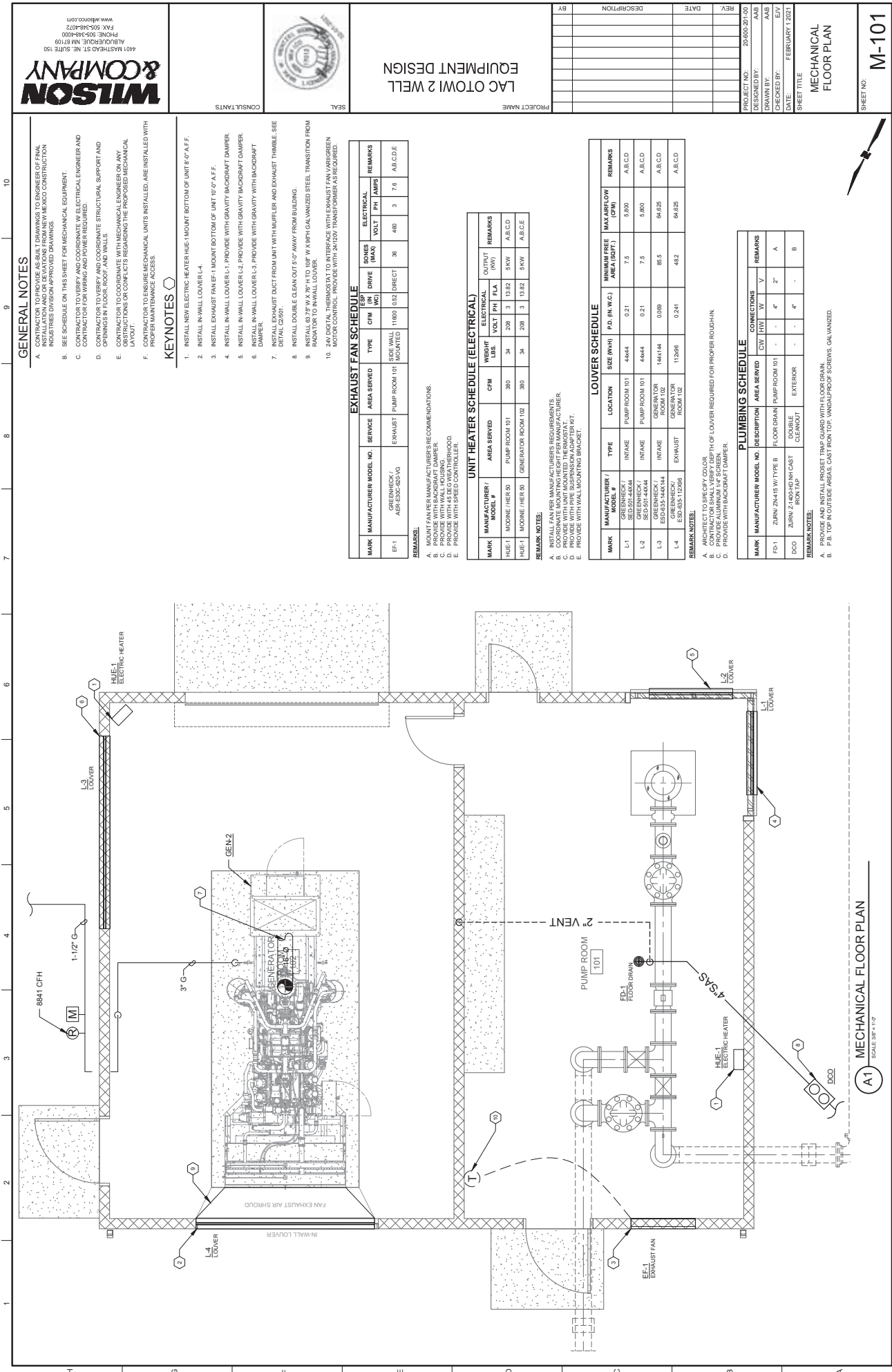
PROJECT NO: 20-600-201-002  
DESIGNED BY: TLF  
DRAWN BY: TLF  
CHECKED BY: DG  
DATE: OCTOBER 2020  
SHEET TITLE  
ELECTRICAL  
ONE-LINE DIAGRAM -  
DEMO  
SHEET NO: ED-604

EXISTING ONE-LINE DIAGRAM (DEMO) - OTOWI WELL #4  
SCALE NONE









GENERAL NOTES

- A. CONTRACTOR TO PROVIDE AS-BUILT DRAWINGS TO ENGINEER OF FINAL INSTALLATION. DRAWINGS SHALL BE IN ACCORDANCE WITH MEXICO CONSTRUCTION INDUSTRIES DIVISION APPROVED DRAWINGS.
- B. SEE SCHEDULE ON THIS SHEET FOR MECHANICAL EQUIPMENT.
- C. CONTRACTOR SHALL PROVIDE ALL NECESSARY ELECTRICAL ENGINEER AND MECHANICAL ENGINEER APPROVED DRAWINGS.
- D. CONTRACTOR TO VERIFY AND COORDINATE STRUCTURAL, SUPPORT AND OPENINGS IN FLOOR, ROOF, AND WALLS.
- E. CONTRACTOR TO COORDINATE WITH MECHANICAL ENGINEER ON ANY OBSTRUCTIONS OR CONFLICTS REGARDING THE PROPOSED MECHANICAL LAYOUT.
- F. CONTRACTOR TO ENSURE MECHANICAL UNITS INSTALLED ARE INSTALLED WITH PROPER MAINTENANCE ACCESS.

KEYNOTES

- 1. INSTALL NEW ELECTRIC HEATER (HUE-1) MOUNT BOTTOM OF UNIT 5' 6\"/>
- 3. INSTALL EXHAUST FAN EF-1 MOUNT BOTTOM OF UNIT 10' 0\"/>
- 4. INSTALL IN-WALL LOUVER L-1. PROVIDE WITH GRAVITY BACKDRAFT DAMPER.
- 5. INSTALL IN-WALL LOUVER L-2. PROVIDE WITH GRAVITY BACKDRAFT DAMPER.
- 6. INSTALL IN-WALL LOUVER L-3. PROVIDE WITH GRAVITY WITH BACKDRAFT DAMPER.
- 7. INSTALL EXHAUST DUCT FROM UNIT WITH MUFFLER AND EXHAUST THIMBLE. SEE DETAIL C2001.
- 8. INSTALL DOUBLE CLEAN OUT 5'-0\"/>
- 9. INSTALL 60\" 2\" W X 70\" H TO 96\" W X 96\" H GALVANIZED STEEL TRANSITION FROM RADIATOR TO IN-WALL LOUVER.
- 10. 24V DIGITAL THERMOSTAT TO INTERFACE WITH EXHAUST FAN VARI-GEN MOTOR CONTROL. PROVIDE WITH 24/120V TRANSFORMER AS REQUIRED.

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER / MODEL NO.	SERVICE	AREA SERVED	TYPE	CFM	IN (IN)	DRIVE	PHASE	VOLTS	PH	AMPS	ELECTRICAL REMARKS
EF-1	GREENHECK / ASD-EDC-60-VG	EXHAUST	PUMP ROOM 101	SIDE WALL MOUNTED	11000	0.52	DIRECT	3Ø	480	3	7.5	A.B.C.D.E

- REMARKS:
- A. MOUNT FAN PER MANUFACTURER'S RECOMMENDATIONS.
  - B. PROVIDE WITH BACKDRAFT DAMPER.
  - C. PROVIDE WITH 2\"/>
  - D. PROVIDE WITH 4\"/>
  - E. PROVIDE WITH SPEED CONTROLLER.

UNIT HEATER SCHEDULE (ELECTRICAL)

MARK	MANUFACTURER / MODEL #	AREA SERVED	CFM	WEIGHT (LBS)	WATT	VOLTS	PH	FLA	OUTPUT (KW)	REMARKS
HUE-1	MOORE / HER-90	PUMP ROOM 101	380	34	208	3	13.52	5KW	A.B.C.D	
HUE-1	MOORE / HER-90	GENERATOR ROOM 102	380	34	208	3	13.52	5KW	A.B.C.E	

- REMARKS:
- A. INSTALL FAN PER MANUFACTURER'S RECOMMENDATIONS.
  - B. COORDINATE MOUNTING HEIGHT PER MANUFACTURER.
  - C. PROVIDE WITH UNIT MOUNTED THERMOSTAT.
  - D. PROVIDE WITH 2\"/>
  - E. PROVIDE WITH WALL MOUNTING BRACKET.

LOUVER SCHEDULE

MARK	MANUFACTURER / MODEL #	TYPE	LOCATION	SIZE (W/H)	P.D. (IN W.C.)	MINIMUM FREE AREA (SQ.FT.)	MAX. ARIELOW (CFM)	REMARKS
L-1	GREENHECK / SED-501-445-04	INTAKE	PUMP ROOM 101	44x44	0.21	7.5	5,800	A.B.C.D
L-2	GREENHECK / SED-501-445-04	INTAKE	PUMP ROOM 101	44x44	0.21	7.5	5,800	A.B.C.D
L-3	GREENHECK / SED-501-445-04	INTAKE	GENERATOR ROOM 102	144x144	0.099	86.5	64,825	A.B.C.D
L-4	GREENHECK / SED-501-445-04	EXHAUST	GENERATOR ROOM 102	112x86	0.241	48.2	64,825	A.B.C.D

- REMARKS:
- A. ARCHITECT TO SPECIFY COLOR.
  - B. CONTRACTOR SHALL VERIFY DEPTH OF LOUVER REQUIRED FOR PROPER ROUGH-IN.
  - C. PROVIDE WITH GRAVITY BACKDRAFT DAMPER.
  - D. PROVIDE WITH BACKDRAFT DAMPER.

PLUMBING SCHEDULE

MARK	MANUFACTURER/ MODEL NO.	DESCRIPTION	AREA SERVED	CONNECTIONS			REMARKS
				CW	HW	V	
FD-1	ZURN/ ZN-415 W/TYPE B	FLOOR DRAIN	PUMP ROOM 101	-	-	4" 2"	A
DCO	ZURN/ Z-1400-HD NH CAST IRON TAP	DOUBLE CLEANOUT	EXTERIOR	-	-	4" -	B

- REMARKS:
- A. PROVIDE AND INSTALL PROSET TRAP GUARD WITH FLOOR DRAIN.
  - B. P.B. TOP IN OUTSIDE AREAS. CAST IRON TOP. VANGAULP/CP SCREWS. GALVANIZED.

MECHANICAL FLOOR PLAN

SCALE 3/8\"/>



LAC OTOMI 2 WELL  
EQUIPMENT DESIGN

PROJECT NAME: \_\_\_\_\_

BY: \_\_\_\_\_

DESCRIPTION: \_\_\_\_\_

DATE: \_\_\_\_\_

REV: \_\_\_\_\_

PROJECT NO: 29-602-201-00

DESIGNED BY: AAB

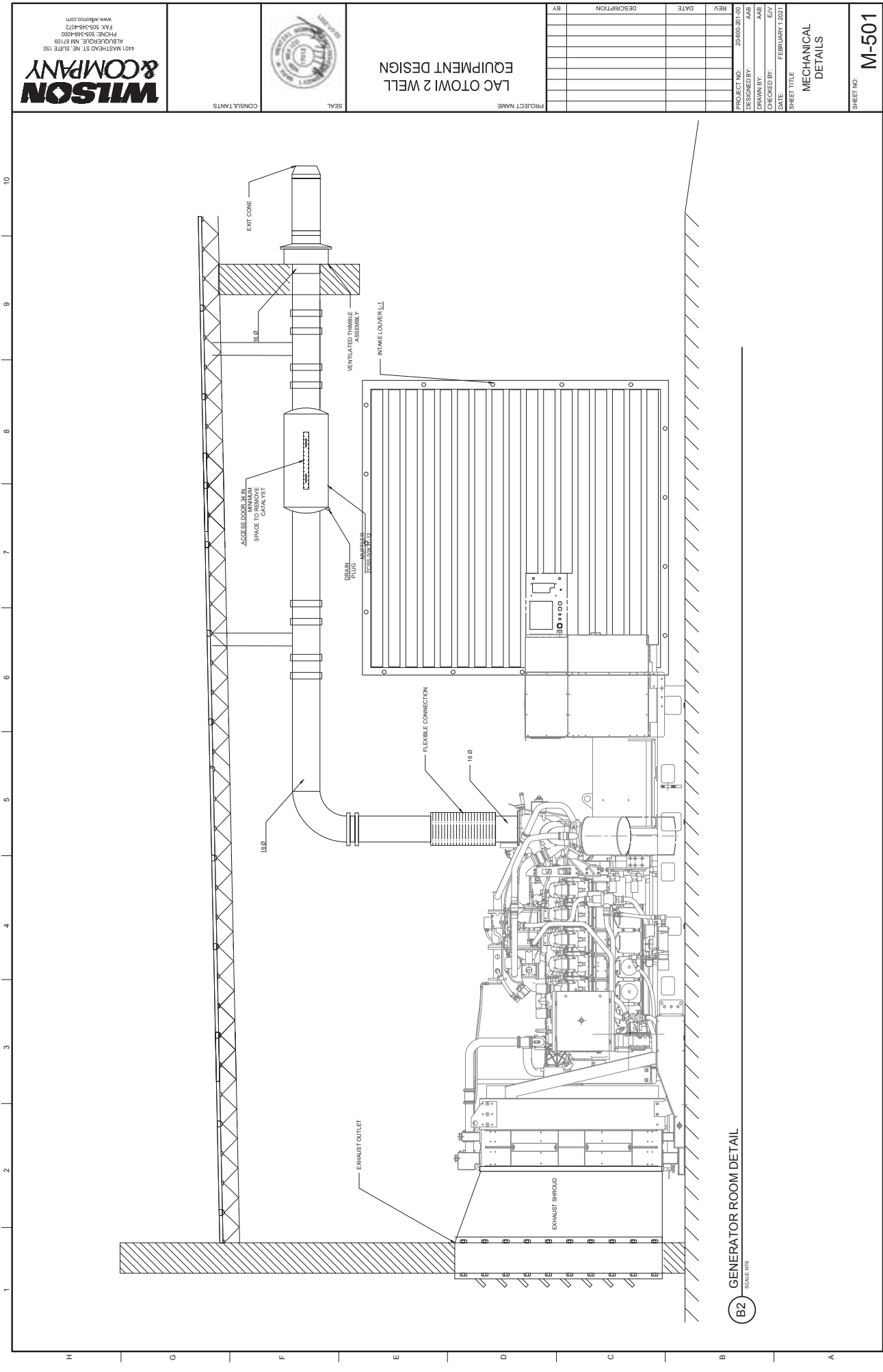
DRAWN BY: AAB

CHECKED BY: EJV

DATE: FEBRUARY 1, 2021

SHEET TITLE: MECHANICAL FLOOR PLAN

SHEET NO: M-101



B2  
 GENERATOR ROOM DETAIL  
 SCALE: 1/8" = 1'-0"

**WILSON & COMPANY**  
 4401 MAISTHEAD ST. NE. SUITE 150  
 ALBUQUERQUE, NM 87109  
 PHONE: 505-348-4000  
 FAX: 505-348-4072  
 www.wilsonco.com



PROJECT NAME  
 LAC OTOMI 2 WELL  
 EQUIPMENT DESIGN

REV.	DATE	DESCRIPTION	BY

PROJECT NO: 20-600-201-00  
 DESIGNED BY: AAB  
 DRAWN BY: AAB  
 CHECKED BY: EJV  
 DATE: FEBRUARY 1, 2021

SHEET TITLE  
 MECHANICAL  
 DETAILS

SHEET NO:  
 M-501

Courtyard I  
7500 Jefferson St. NE  
Albuquerque, NM  
87109-4335

[www.bhinc.com](http://www.bhinc.com)

voice: 505.823.1000  
facsimile: 505.798.7988  
toll free: 800.877.5332

## MEMORANDUM

**DATE:** May 28, 2021

**TO:** James Alarid, Los Alamos County

**FROM:** Nathan Roberts, PE  
Ciara Pino-Recovo

**SUBJECT:** Los Alamos County Power Study

### Summary

Bohannon Huston, Inc., (BHI) was contracted with Los Alamos County (LAC) to complete a Risk and Resilience Assessment (RRA) and Emergency Response Plan (ERP) to comply with America's Water Infrastructure Act of 2018. Part of the RRA is to find the critical dependencies in the system. Critical dependencies are major parts of the system in that if they were to fail, would put the system at high risk. A critical dependency to operate the wells and booster stations is power. The RRA concluded that providing a back-up generator would help reduce the risk and increase resiliency in the system. Back-up generators at every site may be cost prohibitive, but if strategically located, can play key roles in maintaining system operations during emergencies. This memorandum specifically reviews the criticality of placing a back-up generator at the Otowi Well 2 site.

### Overview

As of 2019, Los Alamos County has an estimated population of 19,369 individuals. The County is also home to the Los Alamos National Laboratory (LANL), which is a government laboratory that operates under the Department of Energy. The Los Alamos Municipal Water System consists of 13 wells, 25 storage tanks, approximately 118 miles of water distribution lines, 44 miles of water transmission lines and valves, 18 booster stations, and numerous pressure reducing valves. See Figure 1 for an overview of the system with the wells and tanks highlighted for this analysis. There are three main well fields used for potable water supply; Guaje well field, Otowi well field, and Pajarito well field. The various facilities are said to be located on separate power grids. BHI has not received power grid information to verify that the fields run on separate grids. For this analysis, it is assumed that the Guaje, Otowi, and Pajarito wells, tanks, booster stations, and transmission lines are not on the same grid.

### Water Demand and Storage

Based on historical ground water diversions between 2010 and 2016, the average day demand is approximately 3.5 million gallons per day (MGD). Utilizing a peaking factor of 2.5, the peak day demand is estimated to be 8.75 MGD. Assuming all wells are operational and continuously pumping, the production capacity is 11,256 gallons per minute (gpm) (16.21 MGD). Therefore, peak day demand requires 54% of the ground water production and average day only requires

22%. Table 1 shows the list of wells in the Los Alamos Water System. For the basis of this analysis, it is assumed that all wells are operational. Currently, Otowi Wells 1 and 2 and Guaje Well 1A are offline.

**Table 1 – Groundwater Wells**

<b>NAME</b>	<b>INSTALL YEAR</b>	<b>WELL CAPACITY (GPM)</b>
Guaje Well 1A	1998	600
Guaje Well 2A	1998	800
Guaje Well 3A	1998	585
Guaje Well 4A	1998	500
Guaje Well 5A	1998	364
Otowi Well 1	1990	585
Otowi Well 2	2020	1,350
Otowi Well 4	1990	1,370
Pajarito Well 1	1965	550
Pajarito Well 2	1965	1,185
Pajarito Well 3	1966	1,445
Pajarito Well 4	1981	910
Pajarito Well 5	1982	1,010
<b>TOTAL</b>		<b>11,254</b>

There are 25 tanks in the Los Alamos Water System that have the capacity to hold approximately 37.5 million gallon (MG) of potable water. The County typically stores approximately 30 MG of water. At 30 MG, the County maintains almost 3.4 days of peak demands, or 8.5 days of average day demands. Table 2 shows the list of tanks in the Los Alamos Water System.

**Table 2 – Water Tanks**

<b>NAME</b>	<b>INSTALL YEAR</b>	<b>TANK CAPACITY (MG)</b>
Arizona Tank	2003	7.75
Barranca Tank 1	1958	0.10
Barranca Tank 2	1962	0.20
Community Tank	1947	1.00
Guaje Booster Station 1 Tank	1950	0.15
Guaje Booster Station 2 Tank 1	1948	0.10
Guaje Booster Station 2 Tank 2	1950	0.06
Guaje Booster Station 3 Tank 1	1964	1.00
Guaje Booster Station 3 Tank 2	1950	0.06
North Mesa Tank	2000	0.20
Otowi Booster Station 1 Tank 1	1947	0.06
Otowi Booster Station 1 Tank 2	1990	0.20
Otowi Booster Station 2 Tank	1947	0.06
Otowi Well 4 Tank 1	1992	0.25
Pajarito Booster Station 1 Tank	1966	1.50
Pajarito Booster Station 2 Tank 1	1966	1.50
Pajarito Booster Station 2 Tank 2	2012	0.25
Pajarito Booster Station 3 Tank	1966	1.00
Pajarito Tank 4	1966	1.50
Pajarito Tank 4A	1982	4.00
Pajarito Well 5 Tank	1984	0.10
Quemazon Tank	1999	0.75
Sycamore Tank	1950	7.75
Twin Tank	1949	7.75
Western Tank	1947	0.25
<b>TOTAL</b>		<b>37.54</b>

### **Otowi Well Field Infrastructure**

The Otowi well field consists of three wells; Otowi Well 1, Otowi Well 2, and Otowi Well 4. Currently, only Otowi Well 4 is online. Otowi Well 1 is out of service until the Otowi Booster Station 1 is constructed. Otowi Booster Station 1 is estimated to be completed by the end of 2028. Otowi Well 2 is estimated to be online by 2022. For this analysis, all Otowi Wells are assumed to be operational. Otowi Wells 2 and 4 are two of the County's largest pumps.

Under normal conditions, Otowi Well 1 and Well 4 serve Los Alamos. Otowi Well 2 serves White Rock and LANL as a compliment to the Pajarito well field. Based on the well capacity provided by the County's GIS data, the wells have a combined capacity of 3,305 gpm (4.76 MGD). This accounts for 29% of the total production capacity when all wells are operational and operating continuously. In the event that these wells lose power, they would be unavailable to supply the County.

However, without the Otowi well field, the Pajarito and Guaje well fields will have sufficient supply to serve County customers. The peak day demand requires 76% of the ground water production from the Pajarito and Guaje Wells, and 31% for average day, under continuous operations.

Condition A of the Curtailment Plan assumes the highest producing well is out of service and the firm capacity is limited to 70%. The sum of the Otowi well fields is greater than the largest producing well. Assuming the Otowi well field is out of service and Pajarito and Guaje well fields are limited to 70% capacity, the supply system will be unable to meet peak day demands under these conditions as peak demands are projected to be 109% of available supply. However, average day demands are projected to require 44% of the available supply. This scenario demonstrates additional capacity is needed with the loss of Otowi wells and partial loss of Guaje and Pajarito wells for peak day demands.

In order to manage supply versus demand for peak day under Condition A of the Curtailment Plan, the following controls are implemented:

- LANL reduces irrigation to two days per week;
- County and LANL discontinue vehicle washing;
- No fire hydrant testing on County and LANL distribution systems; and
- County informs Public of situation via media.

The intent of these controls would be to decrease peak day demand below the available supply. In the event that peak day supply is not adequately reduced, the Pajarito and Guaje wells would need to operate at 77% firm capacity.

In the event that the site loses power, tanks upstream of the facility which directly serve customers still hold about 3.4 days of peak demands, or 8.4 days of average day demands. Therefore, the remaining tanks still have capacity to maintain the system without putting strain on the system for the durations noted.

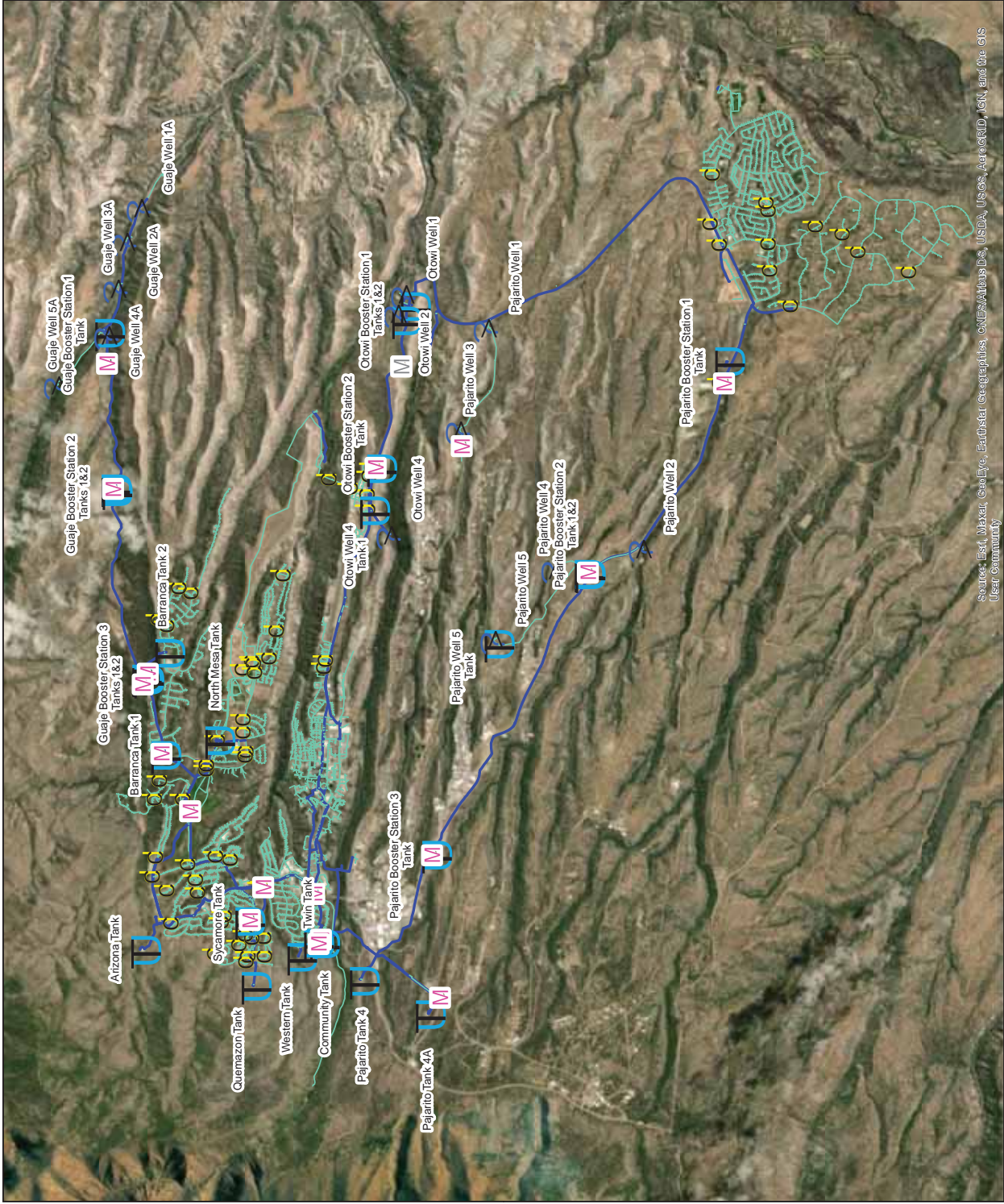
## Conclusion

In the event that Otowi well fields, booster stations, and tanks are offline due to a power outage, there is still sufficient water supply and connectivity within the system to maintain service to customers. Under the Curtailment Plan Condition A, this is also true assuming the controls implemented reduce peak day demand by 9% or Guaje Wells and Pajarito Wells operate at 77% of their firm capacity. Therefore a backup generator is not recommended at this time

Currently Otowi Well 1 and Well 2 do not convey water into Los Alamos. A planned project to construct a replacement Otowi Booster Station 1 will be constructed in 2028. The Department of Public Utilities has, within its 10-year CIP and O&M project planning period, projects planned that will upgrade and replace the existing standby power generators at both the Los Alamos and White Rock wastewater treatment plants. Additionally, Otowi Well 2 well house will be built to accommodate a natural gas generator which may be equipped at the time of these improvements or in the future. As future planning for water system reliability and resiliency occurs, the possibility of utilizing these salvaged large scale generators should be evaluated for incorporation into the water system reliability and resiliency assessment. At the time of the Otowi Booster Station 1 project, an evaluation should be completed to conclude:

- Cost/benefit of adding a generator at Otowi Booster Station 1
- Cost/benefit of adding a generator at Otowi Well 2
- Cost/benefit of adding a generator at both locations
- Cost/benefit of using salvaged generators at these locations

NR/CPR/ab  
Attachment



Source: Esri, Mapbox, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

IFB21-43 OTOWI WELL #2 WELL HOUSE & EQUIPMENT AND OTOWI #4 MCC REPLACEMENT PROJECT				ENGINEERS ESTAMATE		RMCI BID		AUI BID	
ITEM NO.	ITEM DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST	UNIT COST	TOTAL COST	UNIT COST	TOTAL COST
1	Mobilization	LS	1	\$ 171,907.08	\$ 171,907.08	\$ 290,000.00	\$ 290,000.00	\$ 341,579.00	\$ 341,579.00
2	SWPPP	LS	1	\$ 98,232.62	\$ 98,232.62	\$ 5,000.00	\$ 5,000.00	\$ 11,182.00	\$ 11,182.00
3	Permitting	LS	1	\$ 12,279.08	\$ 12,279.08	\$ 20,000.00	\$ 20,000.00	\$ 1,492.00	\$ 1,492.00
4	Traffic Control	LS	1	\$ 24,558.15	\$ 24,558.15	\$ 15,000.00	\$ 15,000.00	\$ 12,188.00	\$ 12,188.00
5	Construction Survey & Staking	LS	1	\$ 49,116.31	\$ 49,116.31	\$ 21,000.00	\$ 21,000.00	\$ 15,264.00	\$ 15,264.00
6	Well Disinfection	LS	1	\$ 1,500.00	\$ 1,500.00	\$ 3,000.00	\$ 3,000.00	\$ 3,842.00	\$ 3,842.00
7	Water Quality Testing	LS	1	\$ 2,500.00	\$ 2,500.00	\$ 5,000.00	\$ 5,000.00	\$ 674.00	\$ 674.00
SITE CIVIL					\$ -		\$ -		\$ -
8	Excavation/Embankment	CY	1441	\$ 12.50	\$ 18,012.50	\$ 48.00	\$ 69,168.00	\$ 14.00	\$ 20,174.00
9	Subgrade Prep	SY	2912	\$ 3.50	\$ 10,192.00	\$ 4.00	\$ 11,648.00	\$ 3.50	\$ 10,192.00
10	Furnish and install new 6-FT chainlink fence, CIP.	SF	3330	\$ 6.50	\$ 21,645.00	\$ 20.00	\$ 66,600.00	\$ 15.00	\$ 49,950.00
11	Laboratory Testing	LS	1	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00
12	Hydro Mulch Seeding, See Sheet CG-101	AC	0.15	\$ 5,000.00	\$ 750.00	\$ 30,000.00	\$ 4,500.00	\$ 29,120.00	\$ 4,368.00
13	Furnish and install new 18-inch CMP w/ end sections, CIP	LS	1	\$ 17,200.00	\$ 17,200.00	\$ 12,000.00	\$ 12,000.00	\$ 16,701.00	\$ 16,701.00
14	Furnish and install stone and gravel plunge pool, 4'x8'x3', CIP	EA	2	\$ 1,200.00	\$ 2,400.00	\$ 1,200.00	\$ 2,400.00	\$ 1,223.00	\$ 2,446.00
15	Furnish and install 60-mil HDPE pond liner, anchoring, associated penetrations, and all appurtenances, CIP	LS	1	\$ 12,000.00	\$ 12,000.00	\$ 80,000.00	\$ 80,000.00	\$ 69,590.00	\$ 69,590.00
BUILDING									
16	CMU Building incl. foundation, roof system, doors, hardware, architectural treatments, and all appurtenances, CIP	SF	1356	\$ 317.00	\$ 429,852.00	\$ 360.00	\$ 488,160.00	\$ 454.00	\$ 615,624.00
WELL EQUIPPING									
17	Furnish, Install, and start-up new Deep Well Turbine Pump capable of 1300-gpm @ 1,374-ft TDH, incl. motor, well head, controls, wiring, column check valve, and all appurtenances, CIP.	Ea	1	\$ 450,000.00	\$ 450,000.00	\$ 440,000.00	\$ 440,000.00	\$ 515,144.00	\$ 515,144.00
18	Furnish and install new 12-inch ductile iron piping, fittings, and appurtenances within the well house, CIP.	LS	1	\$ 10,250.00	\$ 10,250.00	\$ 68,000.00	\$ 68,000.00	\$ 58,800.00	\$ 58,800.00
19	Furnish and install new 12-inch stainless steel piping, fittings, and appurtenances buried underneath well house, CIP.	LS	1	\$ 7,500.00	\$ 7,500.00	\$ 77,000.00	\$ 77,000.00	\$ 81,108.00	\$ 81,108.00
20	Furnish and install 2-inch air/vacuum release valve and appurtenances in well house, CIP.	Ea	1	\$ 3,000.00	\$ 3,000.00	\$ 5,500.00	\$ 5,500.00	\$ 5,208.00	\$ 5,208.00
21	Furnish and install 12-inch check valve and appurtenances in well house, CIP.	Ea	1	\$ 6,500.00	\$ 6,500.00	\$ 34,000.00	\$ 34,000.00	\$ 37,573.00	\$ 37,573.00
22	Furnish and install 12-inch electromagnetic flow meter, including remote mounted magnetic inductive flow converter, mounting hardware, and appurtenances, CIP	Ea	1	\$ 8,000.00	\$ 8,000.00	\$ 25,000.00	\$ 25,000.00	\$ 30,408.00	\$ 30,408.00
23	Furnish and install, 12" gate valve FLxFL, incl. operator and appurtenances, CIP	Ea	3	\$ 2,850.00	\$ 8,550.00	\$ 6,500.00	\$ 19,500.00	\$ 7,146.00	\$ 21,438.00
24	Furnish and install 4-inch surge anticipator valve and appurtenances, CIP	Ea	1	\$ 10,400.00	\$ 10,400.00	\$ 22,000.00	\$ 22,000.00	\$ 21,863.00	\$ 21,863.00
25	Furnish and install pressure gauge and all associated appurtenances, CIP	Ea	1	\$ 800.00	\$ 800.00	\$ 700.00	\$ 700.00	\$ 1,061.00	\$ 1,061.00
26	Furnish and install adjustable pipe supports, CIP	EA	5	\$ 650.00	\$ 3,250.00	\$ 1,200.00	\$ 6,000.00	\$ 1,273.00	\$ 6,365.00
YARD PIPING					\$ -		\$ -		\$ -
27	Trenching, backfill and compaction, for up to 12-inch pipe, 8-ft or less in depth, pipe not included.	LF	235	\$ 55.00	\$ 12,925.00	\$ 100.00	\$ 23,500.00	\$ 83.00	\$ 19,505.00
28	Furnish and place in open trench, 12-inch PVC C-900 DR-18, harness incidental to pipe, CIP	LF	165	\$ 325.00	\$ 53,625.00	\$ 50.00	\$ 8,250.00	\$ 64.00	\$ 10,560.00
29	Furnish and install 12-inch ductile iron fittings with jointing materials, CIP	Lbs	770	\$ 3.50	\$ 2,695.00	\$ 7.00	\$ 5,390.00	\$ 8.00	\$ 6,160.00
30	Furnish and install 8-inch ductile iron fittings with jointing materials, CIP	Lbs	460	\$ 3.00	\$ 1,380.00	\$ 5.00	\$ 2,300.00	\$ 7.00	\$ 3,220.00
31	Connect to existing 12-inch piping outside of building at existing valve can, remove existing can and valve, CIP.	Ea	1	\$ 2,100.00	\$ 2,100.00	\$ 5,000.00	\$ 5,000.00	\$ 3,610.50	\$ 3,610.50
32	Furnish and place in open trench, 8-inch PVC C-900 DR-18, harness incidental to pipe, CIP	LF	70	\$ 225.00	\$ 15,750.00	\$ 26.00	\$ 1,820.00	\$ 52.00	\$ 3,640.00
33	Furnish and install 8-inch gate valve, CIP	Ea.	3	\$ 2,500.00	\$ 7,500.00	\$ 2,300.00	\$ 6,900.00	\$ 2,409.00	\$ 7,227.00
34	Furnish and install 6-inch gate valve, CIP	Ea.	1	\$ 1,800.00	\$ 1,800.00	\$ 1,800.00	\$ 1,800.00	\$ 1,642.00	\$ 1,642.00
35	Furnish and install 6-inch PVC C-900 DR-18 with Fire Hydrant Assembly, CIP	EA	1	\$ 6,000.00	\$ 6,000.00	\$ 5,000.00	\$ 5,000.00	\$ 4,824.00	\$ 4,824.00
36	Furnish and install "Blow-Off" Line with Concrete Pipe Support per Details on Sheet CU-505, CIP	LS	1	\$ 5,000.00	\$ 5,000.00	\$ 8,000.00	\$ 8,000.00	\$ 15,002.00	\$ 15,002.00
37	Furnish and install Tap with gate valve, can, gravel pocket, with 1" outlet, CIP	LS	1	\$ 2,000.00	\$ 2,000.00	\$ 1,700.00	\$ 1,700.00	\$ 1,380.00	\$ 1,380.00
ELECTRICAL & MECHANICAL									
38	Otowi 2 Well Electrical Power & Lighting/Instrumentation	LS	1	\$ 594,625.63	\$ 594,625.63	\$ 1,060,000.00	\$ 1,060,000.00	\$ 1,291,490.00	\$ 1,291,490.00
39	Otowi 2 Mechanical and Plumbing	LS	1	\$ 69,681.70	\$ 69,681.70	\$ 90,000.00	\$ 90,000.00	\$ 161,862.00	\$ 161,862.00
40	Otowi 4 Demo Electrical	LS	1	\$ 6,904.12	\$ 6,904.12	\$ 20,000.00	\$ 20,000.00	\$ 26,472.00	\$ 26,472.00
41	Otowi 4 Well Electrical Gear	LS	1	\$ 285,379.88	\$ 285,379.88	\$ 200,000.00	\$ 200,000.00	\$ 243,957.00	\$ 243,957.00
SUBTOTAL BASE BID - ITEMS 1-41, EXCL. NMGR:					\$ 2,457,761.07		\$ 3,240,836.00		\$ 3,764,785.50
CONTINGENCY (10%):					\$ 245,776.11		\$ 324,083.60		\$ 376,478.55
NEW MEXICO GROSS RECEIPTS TAX (NMGR @ 7.3125%):					\$ 179,723.78		\$ 236,986.13		\$ 275,299.94
TOTAL BID (SUBTOTAL BASE BID + NMGR):					\$ 2,637,484.85		\$ 3,477,822.13		\$ 4,040,085.44
TOTAL:					\$ 2,817,208.63		\$ 3,714,808.27		\$ 4,315,385.38
ADDITIVE ALTERNATE #1									
42	Generator set, natural gas, 3 phase 4 wire, 277/480 V,900 kW, incl battery, charger, muffler, & day tank, excl conduit, wiring, & concrete	EA	1	\$699,154.00	\$ 699,154.00	\$ 668,000.00	\$ 668,000.00	\$ 789,057.00	\$ 789,057.00
				ENGINEERS ESTAMATE		RMCI BID		AUI BID	
SUBTOTAL ADD. ALT. #1 - ITEM 42, EXCL. NMGR:				\$ 699,154.00	\$ 699,154.00	\$ 668,000.00	\$ 668,000.00	\$ 789,057.00	\$ 789,057.00
NEW MEXICO GROSS RECEIPTS TAX (NMGR @ 7.3125%):				\$ 51,125.64	\$ 51,125.64	\$ 48,847.50	\$ 48,847.50	\$ 57,699.79	\$ 57,699.79
TOTAL BID (ADD. ALT #1 + NMGR):				\$ 750,279.64	\$ 750,279.64	\$ 716,847.50	\$ 716,847.50	\$ 846,756.79	\$ 846,756.79
SUBTOTAL BASE BID + ADD. ALT. #1 - ITEMS 1-41, EXCL. NMGR:				\$ 3,156,915.07	\$ 3,156,915.07	\$ 3,908,836.00	\$ 3,908,836.00	\$ 4,553,842.50	\$ 4,553,842.50
NEW MEXICO GROSS RECEIPTS TAX ITEMS 1-41 (NMGR @ 7.3125%):				\$ 179,723.78	\$ 179,723.78	\$ 236,986.13	\$ 236,986.13	\$ 275,299.94	\$ 275,299.94
TOTAL BID (BASE BID + ADD. ALT #1 + NMGR):				\$ 3,336,638.85	\$ 3,336,638.85	\$ 4,668,641.90	\$ 4,668,641.90	\$ 5,437,442.11	\$ 5,437,442.11

## Budget Revision 2022-02

BPU Meeting Date: June 16, 2021

Council Meeting Date: June 29, 2021

	Fund & Department	Org Object	Revenue (decrease)	Expenditures (decrease)	Transfers In(Out)	Fund Balance (decrease)
OPTION A						
1	Joint Utilities Fund Water Production	54285699 7118 8369	\$ 928,000	\$ 928,000		
<b>Description:</b> The purpose of this budget revision is to increase the revenue (loan proceeds) and expenditure budget for Otowi Well #2 and Otowi Well #4 MCC Replacement contract in Water Production.						
<b>Fiscal Impact:</b> The net impact on the Joint Utilities Fund is to increase revenues and expenditures by \$928,000.						
OPTION B						
1	Joint Utilities Fund Water Production	54285699 7118 8369	\$ 1,644,848	\$ 1,644,848		
<b>Description:</b> The purpose of this budget revision is to increase the revenue (loan proceeds) and expenditure budget for Otowi Well #2 and Otowi Well #4 MCC Replacement contract and related gas powered generator in Water Production.						
<b>Fiscal Impact:</b> The net impact on the Joint Utilities Fund is to increase revenues and expenditures by \$1,644,848.						

# OTOWI 2 WELL PUMP DRIVE LIFE CYCLE ANALYSIS REPORT

FOR THE

LOS ALAMOS COUNTY UTILITIES  
OTOWI 2 WELL

June 2020

FOR THE:  
LOS ALAMOS  
COUNTY UTILITIES  
1000 CENTRAL AVE. SUITE 130  
LOS ALAMOS, NM 87544

PREPARED BY:  
WILSON & COMPANY INC.  
ENGINEERS AND ARCHITECTS  
4401 MASTHEAD ST. NE  
SUITE 150  
ALBUQUERQUE, NM 87108

**WILSON  
& COMPANY**

discipline | intensity | collaboration | shared ownership | solutions

# OTOWI 2 WELL PUMP DRIVE LIFE COST ANALYSIS REPORT

FOR THE  
  
LOS ALAMOS COUNTY UTILITIES  
  
OTOWI 2 WELL

June 2020

FOR THE:  
LOS ALAMOS  
COUNTY UTILITIES  
1000 CENTRAL AVE. SUITE 130  
LOS ALAMOS, NM 87544

I, Daniel Grijalva, certify that I am a licensed Professional Engineer (NMPE #12673), and that these documents, in part, were prepared by me or under my direction.

A handwritten signature in black ink, appearing to read 'D. Grijalva', is written over a horizontal line.

Daniel Grijalva, P.E., F.P.E., P.M.P.

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APPENDIX F	Parajito 4 Well Runtime Data
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## EXECUTIVE SUMMARY

This report is intended to compare the life cycle cost for three types of well pumping applications, natural gas engine driven, and electric motor driven well pump. This evaluation is to assist the end user, Los Alamos County Utilities (County), in the decision to select the drive that provides the best long term value for the new Otowi 2 Well which is currently under schematic design.

Three options are reviewed within the report:

Option A: Installation for natural gas engine only as prime mover.

Option B: Installation of electric motor only as prime mover.

Option C: Installation of “hybrid” electric motor prime mover with natural gas standby generator

After review of the three options, the installation of a “hybrid” installation of an electrical motor as a prime mover with a natural gas standby generator is recommended. This option provides the most flexibility in operational benefits along with the ability to take advantage of the most economical energy source based on changing market conditions. This option also provides added reliability for the 24/7/365 continuous operation of the facility.

## BASIS OF SYSTEM CRITERIA COMPARISON

50	Year Life Expectancy
1.5%	Yearly Inflation Rate*
12	Hours of facility operation per day
365	Days of facility operation per year
4380	Hours of operation a year
219,000	Total of Life Hours of Operation

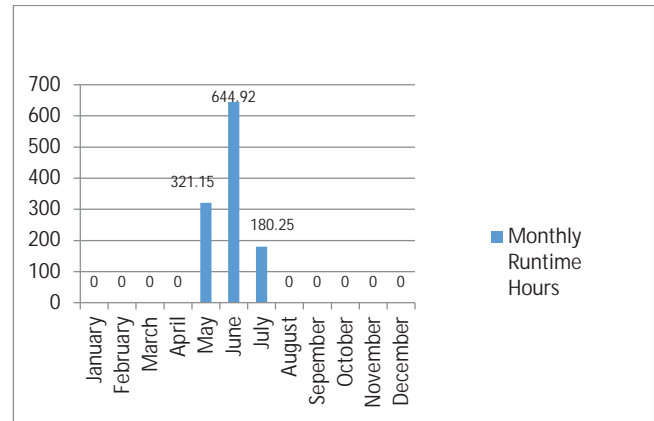
\*yearly inflation rate is based on LAC DPU (Department of Public Utilities) recommendations. Reduced inflation rates are applied to partial electrical cost of power. Please refer to Option C for additional information.

## NATURAL GAS ENGINE DRIVEN WELL PUMP (OPTION A)

Option A analysis is based on the operation of a Natural Gas Engine as the prime mover for the water pump rated equivalently to 800HP drive. This option would operate at the referenced operating conditions.

### Pajarito 4 Well Runtime Historical Data

Using 2018 as a typical operating season (based on data provided by the County, Appendix F), it appears Pajarito 4 Well typically operates during the months of May-July. During 2018, Pajarito 4 Well operated 1146.25 hours for the entire year. These hours of operation are in contrast to the 4380 hours anticipated for Otowi 2 Well site. Due to this, the historic energy cost provided by the County for Pajarito 4 Well cannot be used. Please see chart for graph of usage for a typical year (2018).



**2018 Pajarito 4 Well Runtime Hours  
Graph A.1**

The existing engine size at Pajarito 4 Well has been identified as a Caterpillar G3508J. After some research with the local Caterpillar manufacture representative (James Cumiford Jr.), the recommended engine size so support a 800 HP rated pump would corresponding to a Caterpillar G3512J engine. This engine is larger than the G3508J engine and therefore would not be comparable for fuel consumption comparison. The G3512J engine is rated at 515kW (690 bhp) at 1400 rpm (Refer to Appendix B for equipment data sheet).

### County Natural Gas Historical Cost

Finally, the cost of Natural Gas is needed for the cost analysis. In recent years the cost for natural gas has reduced compared the past years. It is unknown if this trend in will continue throughout the 50 year life cycle of Otowi 2 Well. For the purposes of this analysis, the yearly cost of natural gas was determined for the historical cost the County has paid for the years 2013-2019. This average cost is \$ 0.002848 per cu-ft. In comparison, the current market value (04/02/20) for natural gas (w/ County Transportation cost of \$0.241 per cu-ft) was approximately \$0.001794 per cu-ft. This value is lower than the average the County has paid for natural gas but due to the uncertainty of the market is would be prudent to use this average vs the current market value.

Year	Natural Gas Price	
	Per Thousand Cu/ft	Per Cu-ft
2013	\$3.65	\$0.003651
2014	\$4.40	\$0.004397
2015	\$2.55	\$0.002549
2016	\$2.27	\$0.002272
2017	\$2.70	\$0.002701
2018	\$2.28	\$0.002276
2019	\$2.09	\$0.002089
	<b>Average</b>	<b>\$0.002848</b>

**Historical \$/cuft of Natural Gas  
for the County from 2013-2019  
Table A.1**

For reference, the graph below provides a market history of the price of natural gas for the last 5 years.



Data as of April 02, 2020

Natural Gas NMX

Source: [www.Nasdaq.com/market-activity/commodities/ng%3anmx](http://www.Nasdaq.com/market-activity/commodities/ng%3anmx)

Graph A.2

### **Otowi 2 Well Natural Gas Engine Cost Analysis**

In coordination with Mr. Cumiford of Wagner Equipment, a life cycle cost analysis was prepared for Option A. This analysis is based on the use of a Caterpillar engine G3512J operating 4380 hours per year. Below are the assumptions and clarifications for the referenced analysis.

#### **Items Included in Cost Analysis:**

- 25 year cost analysis (due to software modeling constraints)
- Initial installation cost
- Cost associated with recommended maintenance
- Fuel cost based on yearly operating hours of 4380
- Interest rate of 1.5% inflation rate
- The cost of natural gas is estimated at \$0.002848 cubic foot per hour. This is based on the average rate of cost the County has paid during the years 2013-2019 (please refer to Table A.1)

#### **Items not included in Cost Analysis:**

- Facility construction cost nor facility maintenance
- Well or gear drive installation and maintenance
- Utility service connection and maintenance

- Instrumentation or Controls or piping installation and maintenance (assumed similar for all Options)

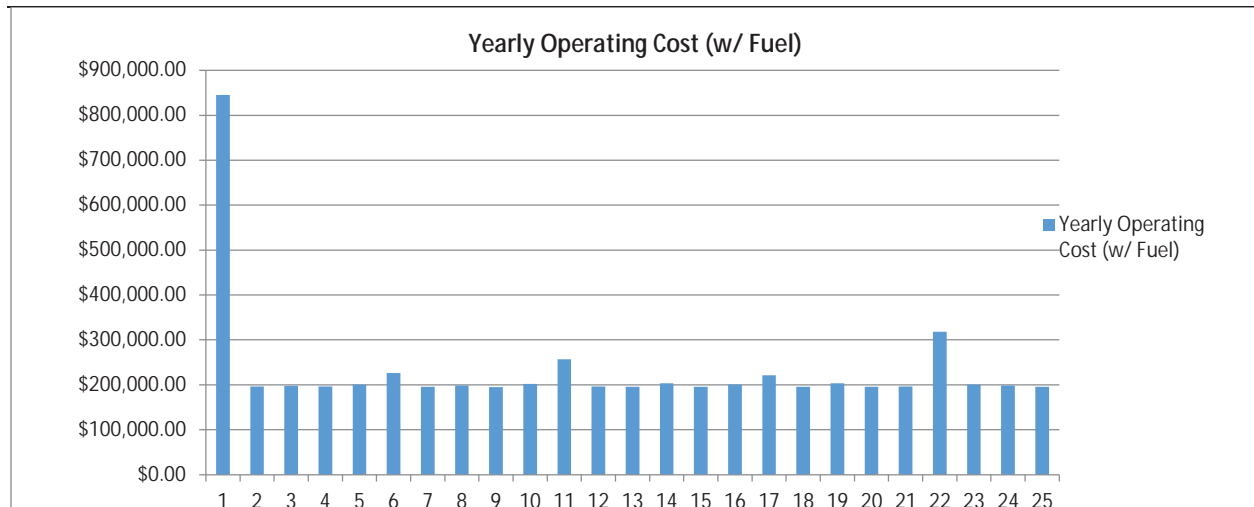
Cost Analysis Clarifications:

- At the end of 25 years the manufacture recommends a complete replacement of the engine.
- Due to manufacture software constraints, the Caterpillar engine G3512H was used as a basis of the cost analysis. The manufacture has confirmed the G3512H and the referenced G3512J are identical for the purposes of cost analysis.

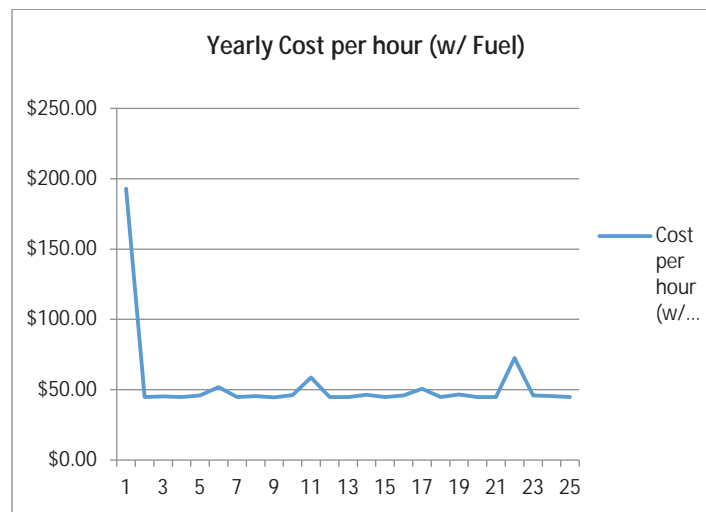
Table A.2 references the summary of the 25 year Cost Life Cycle for the Caterpillar G3512J. As mentioned in the clarification portions of this section, the Caterpillar software is limited to a maximum life expectancy of the engine to 25 years. At the end of this life expectancy, the manufacturer recommends a complete replacement of the equipment for the remaining 25 years. Table A.2 provides a summary of the software for the 25 year life expectancy. Please refer to Appendix C for the complete report:

Year	Operating Cost (w/ Fuel)	Cost per hour (w/ Fuel)	Cost per HP Hour (w/ Fuel)	Cost Per eKw Hour (w/ Fuel)
1	\$ 844,978.59	\$ 192.92	\$ 0.0966	\$ 0.1295
2	\$ 196,342.75	\$ 44.83	\$ 0.0224	\$ 0.0301
3	\$ 197,897.86	\$ 45.18	\$ 0.0226	\$ 0.0303
4	\$ 196,342.75	\$ 44.83	\$ 0.0224	\$ 0.0301
5	\$ 200,543.19	\$ 45.79	\$ 0.0229	\$ 0.0307
6	\$ 226,449.98	\$ 51.70	\$ 0.0259	\$ 0.0347
7	\$ 195,535.32	\$ 44.64	\$ 0.0224	\$ 0.0300
8	\$ 198,705.29	\$ 45.37	\$ 0.0227	\$ 0.0304
9	\$ 194,978.59	\$ 44.52	\$ 0.0223	\$ 0.0299
10	\$ 201,907.35	\$ 46.10	\$ 0.0231	\$ 0.0309
11	\$ 256,814.35	\$ 58.63	\$ 0.0294	\$ 0.0394
12	\$ 196,063.32	\$ 44.76	\$ 0.0224	\$ 0.0300
13	\$ 195,814.75	\$ 44.71	\$ 0.0224	\$ 0.0300
14	\$ 203,433.74	\$ 46.45	\$ 0.0233	\$ 0.0312
15	\$ 195,814.75	\$ 44.71	\$ 0.0224	\$ 0.0300
16	\$ 200,476.04	\$ 45.77	\$ 0.0229	\$ 0.0307
17	\$ 221,509.26	\$ 50.57	\$ 0.0253	\$ 0.0339
18	\$ 195,506.59	\$ 44.64	\$ 0.0223	\$ 0.0300
19	\$ 203,741.89	\$ 46.52	\$ 0.0233	\$ 0.0312
20	\$ 195,506.59	\$ 44.64	\$ 0.0223	\$ 0.0300
21	\$ 196,371.48	\$ 44.83	\$ 0.0224	\$ 0.0301
22	\$ 318,068.92	\$ 72.62	\$ 0.0364	\$ 0.0487
23	\$ 200,543.19	\$ 45.79	\$ 0.0229	\$ 0.0307
24	\$ 198,705.29	\$ 45.37	\$ 0.0227	\$ 0.0304
25	\$ 195,506.59	\$ 44.64	\$ 0.0223	\$ 0.0300
<b>Total</b>	<b>\$ 5,827,558.42</b>	<b>\$ 53.22</b>	<b>\$ 0.0266</b>	<b>\$ 0.0357</b>

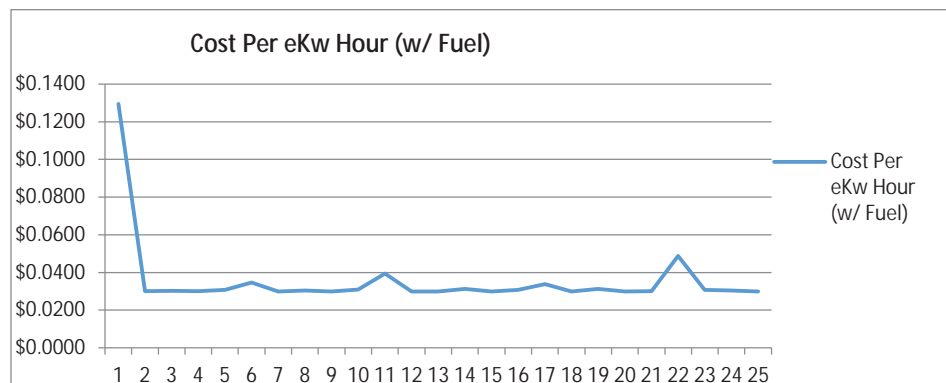
Option A-25 year Life Cycle Analysis for Caterpillar G3512J Engine @ 4380 Hours per year  
Table A.2



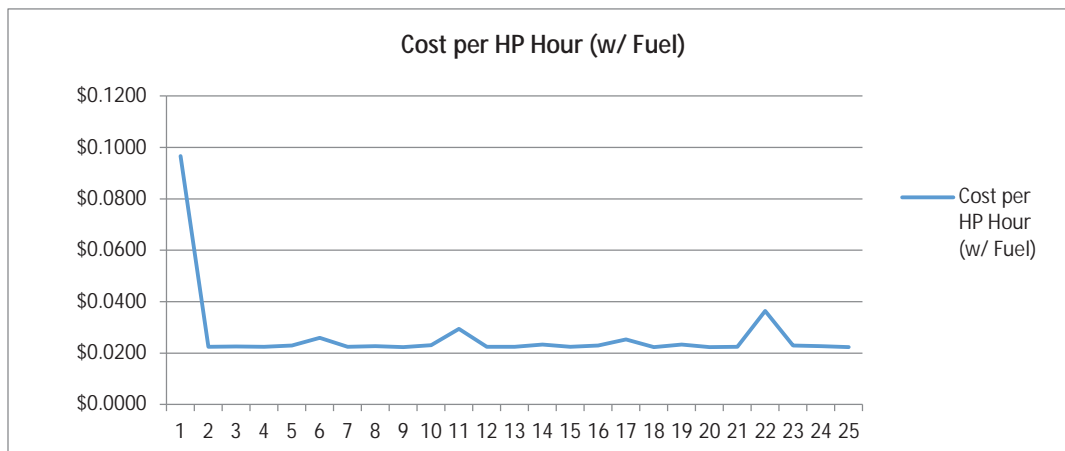
**Option A-Yearly Operating Cost (w/ Fuel)-years 1-25 @ 4380 Hours per year  
Graph A.3**



**Option A-Yearly Cost per hour (w/ Fuel)-years 1-25 @ 4380 Hours per year  
Graph A.4**



**Option A-Cost per eKw Hour (w/ Fuel)-years 1-25 @ 4380 Hours per year  
Graph A.5**



Option A-Cost per HP Hour (w/ Fuel)-years 1-25 @ 4380 Hours per year  
Graph A.6

As discussed earlier, the Caterpillar software allows for a maximum of 25 years life expectancy. Extrapolating the cost for year 25-50 is calculated using the following future value calculation based on the following formula:

$$FV = PV \times (1 + i)^N$$

PV = Present value (amount of money today)  
FV = Future Value  
i = Interest paid by the investment  
N = Number of periods the investment will be held

Where :

PV= \$ 5,827,558.42

i= 1.5 %

N= 25

$$\text{Future Value of Money (years 26-50)} = \$ 5,827,558.42 \times (1 + .015)^{(25)} \\ = \$ 8,455,468.82$$

$$\text{Total Life Cycle Cost (Option A)} = \text{Future Money (years 1-25)} + \text{Future Money (years 26-50)} \\ = \$ 5,827,558.42 + \$ 8,455,468.82 \\ = \$ 14,283,027.24$$

Noteworthy items from analysis:

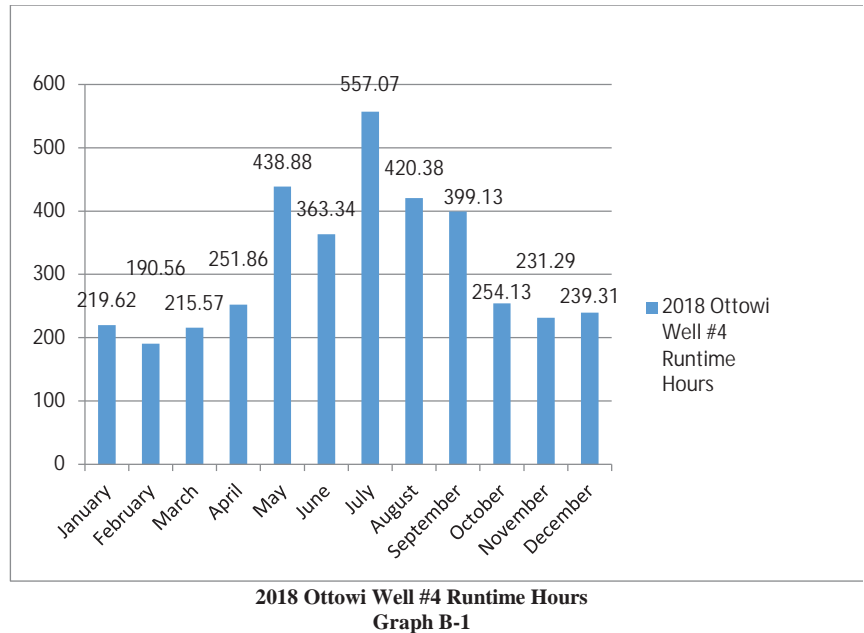
- Engine downtime for maintenance is required as referenced in manufacture operational report (Appendix C). This might affect operational availability of the well.
- Engine failure is also a concern with how it will affect operational availability of the well.

## ELECTRICAL MOTOR DRIVEN WELL PUMP (OPTION B)

Option B analysis is based on the operation of a electrical motor as the prime mover for the water pump rated at 800HP. This option would operate at the referenced operating conditions.

### Otowi 4 Well Runtime Historical Data

Using 2018 as a typical operating season (based on data provided by the County, Appendix G), it appears Otowi 4 Well typically operates during the months of January - December. During 2018, Otowi 4 Well operated 3781 hours for the entire year. In comparison to the anticipated hours of operation for Otowi 2 Well (4380 hours), Otowi 4 Well would run 599 fewer hours. Due to this, the historic energy cost provided by the County for Otowi 4 Well cannot be used. Please see chart for graph of usage for a typical year (2018).



The existing motor size at Otowi 4 Well is a U.S. Motor TEFC 750HP, 4160V, 3-phase rated. The motor sized used as part of this analysis is a TECO-Westinghouse 800HP, 480V, 3-phase rated Hollow Shaft Vertical Motor. The equipment specification sheet for this motor is provided in Appendix B.

### County Electrical Kwhr Cost

Finally, the Electrical cost is needed for the cost analysis. Unlike Natural Gas, the cost of Electric Kwhr has increased in recent years. It is unknown if this trend in will continue throughout the 50 year life cycle of Otowi 2 Well. No historical electrical Kwhr cost was provided by the County. For the purposes of this analysis, the cost of Kwhr will be **\$0.03213 per KWhr** with a demand rate of **\$10.93 per KW**. This value was referenced in the County's energy memo provided (Appendix H). Based on this same memo, the calculation for monthly electrical cost is calculated as follows:

Monthly Cost (\$) = Demand Charge + Energy Cost + Distribution Adder + Customer Service Charge

Demand Charge (\$)=	Demand Rate (\$ / KW) x	KW Peak Used that month
Energy Cost (\$)=	Electric Rate (\$/KWhr) x	KWhr Used that month
Distribution Adder (\$)*=	\$0.01600 x	KWhr total for month
Customer Service Charge (\$)**=	\$215.75	

\*demand rate of \$0.016 is set by the Board of Public Utilities

\*\* Customer Service Charge is a flat monthly fee

**Otowi 2 Well Electric Motor Cost Analysis**

Please refer to Appendix D for the 0-49 year Life Cost Analysis data.

Below are the assumptions and clarifications for the referenced analysis.

Items Included in Cost Analysis:

- Initial installation cost of motor, electrical equipment
- Maintenance and operating yearly cost of \$5000.00 per year (Present Value)
- Electrical cost based on yearly operating hours of 4380
- Yearly Interest rate for inflation is calculated as:
  - Demand Charge = 0.5%
  - Energy Cost = 1.5%
  - Distribution Adder = 0.5%
  - Customer Service Charge = 0.5%
- The cost of electricity (as referenced above).

Items not included in Cost Analysis:

- Facility construction cost nor facility maintenance
- Well and maintenance
- Utility service connection and maintenance
- Instrumentation or Controls or piping installation and maintenance (assumed similar for all Options)
- VFD installation (motor is expected to be operated at full capacity, similar to the Natural Gas Engine operating scenario in Option A)
- Standby Generator

Cost Analysis Clarifications:

- At the end of 25 years it is recommending motor and electrical equipment be replaced.

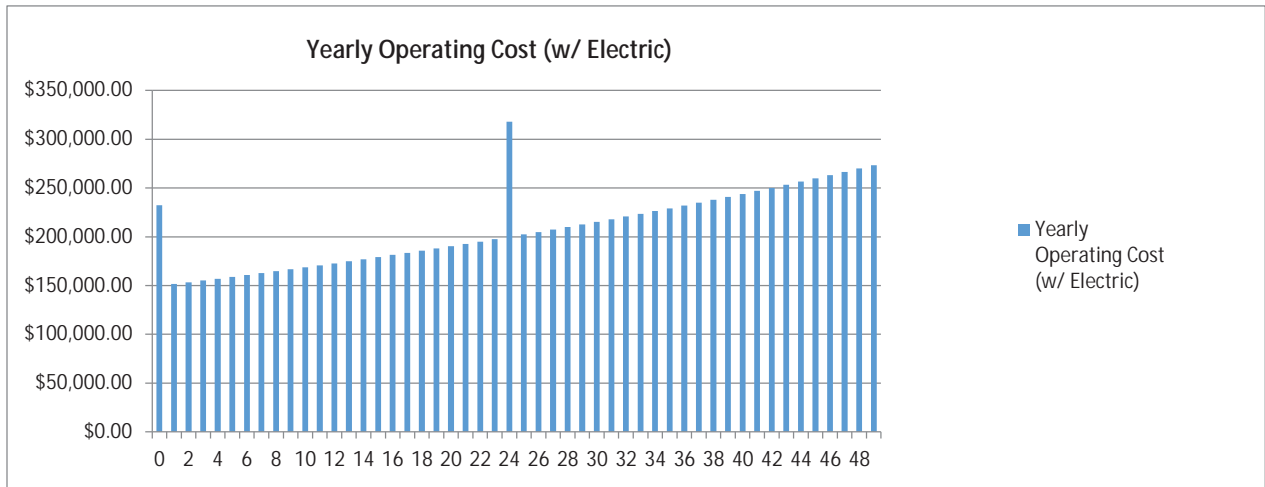
Table B-2 references the cost per year including future value cost at the specified year using the following formula:

$$FV = PV \times (1 + i)^N$$

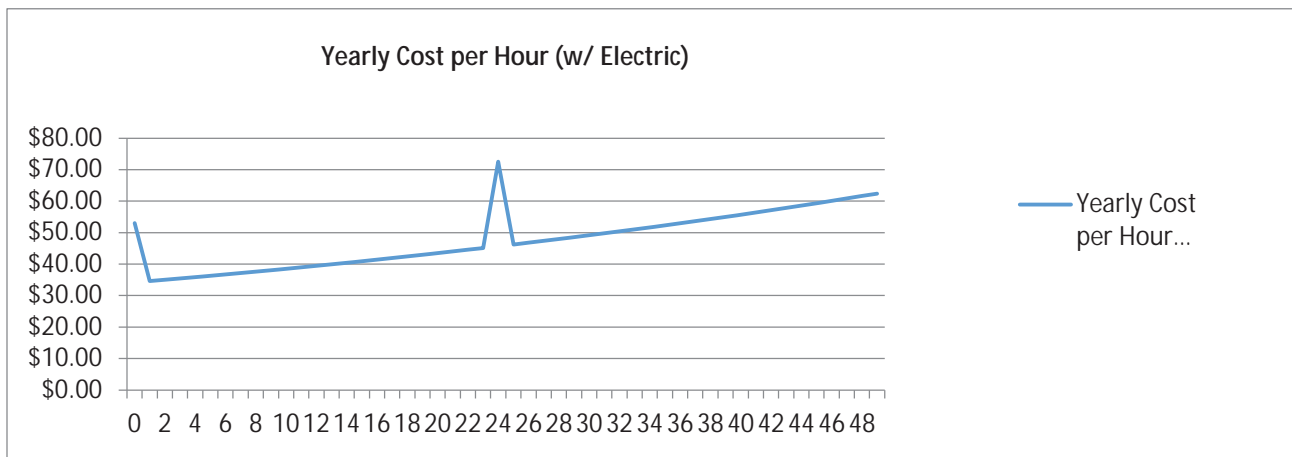
PV = Present value (amount of money today)  
FV = Future Value  
i = Interest paid by the investment  
N = Number of periods the investment will be held

Year (N)	Future Value	Cost Per Hour	Cost Per HP Hour	Cost Per eKW Hour
	$FV = PV \times (1 + i)^N$			
	1.50%			
		4380	800	663.11
0	\$ 232,253.36	\$ 53.03	\$ 0.0663	\$ 0.0800
1	\$ 151,532.80	\$ 34.60	\$ 0.0432	\$ 0.0522
2	\$ 153,336.59	\$ 35.01	\$ 0.0438	\$ 0.0528
3	\$ 155,165.10	\$ 35.43	\$ 0.0443	\$ 0.0534
4	\$ 157,018.67	\$ 35.85	\$ 0.0448	\$ 0.0541
5	\$ 158,897.68	\$ 36.28	\$ 0.0453	\$ 0.0547
6	\$ 160,802.49	\$ 36.71	\$ 0.0459	\$ 0.0554
7	\$ 162,733.48	\$ 37.15	\$ 0.0464	\$ 0.0560
8	\$ 164,691.03	\$ 37.60	\$ 0.0470	\$ 0.0567
9	\$ 166,675.52	\$ 38.05	\$ 0.0476	\$ 0.0574
10	\$ 168,687.36	\$ 38.51	\$ 0.0481	\$ 0.0581
11	\$ 170,726.93	\$ 38.98	\$ 0.0487	\$ 0.0588
12	\$ 172,794.64	\$ 39.45	\$ 0.0493	\$ 0.0595
13	\$ 174,890.90	\$ 39.93	\$ 0.0499	\$ 0.0602
14	\$ 177,016.12	\$ 40.41	\$ 0.0505	\$ 0.0609
15	\$ 179,170.73	\$ 40.91	\$ 0.0511	\$ 0.0617
16	\$ 181,355.16	\$ 41.41	\$ 0.0518	\$ 0.0624
17	\$ 183,569.84	\$ 41.91	\$ 0.0524	\$ 0.0632
18	\$ 185,815.21	\$ 42.42	\$ 0.0530	\$ 0.0640
19	\$ 188,091.72	\$ 42.94	\$ 0.0537	\$ 0.0648
20	\$ 190,399.83	\$ 43.47	\$ 0.0543	\$ 0.0656
21	\$ 192,739.99	\$ 44.00	\$ 0.0550	\$ 0.0664
22	\$ 195,112.67	\$ 44.55	\$ 0.0557	\$ 0.0672
23	\$ 197,518.35	\$ 45.10	\$ 0.0564	\$ 0.0680
24	\$ 317,891.50	\$ 72.58	\$ 0.0907	\$ 0.1095
25	\$ 202,430.65	\$ 46.22	\$ 0.0578	\$ 0.0697
26	\$ 204,938.24	\$ 46.79	\$ 0.0585	\$ 0.0706
27	\$ 207,480.81	\$ 47.37	\$ 0.0592	\$ 0.0714
28	\$ 210,058.86	\$ 47.96	\$ 0.0599	\$ 0.0723
29	\$ 212,672.91	\$ 48.56	\$ 0.0607	\$ 0.0732
30	\$ 215,323.48	\$ 49.16	\$ 0.0615	\$ 0.0741
31	\$ 218,011.12	\$ 49.77	\$ 0.0622	\$ 0.0751
32	\$ 220,736.36	\$ 50.40	\$ 0.0630	\$ 0.0760
33	\$ 223,499.75	\$ 51.03	\$ 0.0638	\$ 0.0770
34	\$ 226,301.85	\$ 51.67	\$ 0.0646	\$ 0.0779
35	\$ 229,143.24	\$ 52.32	\$ 0.0654	\$ 0.0789
36	\$ 232,024.48	\$ 52.97	\$ 0.0662	\$ 0.0799
37	\$ 234,946.16	\$ 53.64	\$ 0.0671	\$ 0.0809
38	\$ 237,908.87	\$ 54.32	\$ 0.0679	\$ 0.0819
39	\$ 240,913.21	\$ 55.00	\$ 0.0688	\$ 0.0829
40	\$ 243,959.80	\$ 55.70	\$ 0.0696	\$ 0.0840
41	\$ 247,049.25	\$ 56.40	\$ 0.0705	\$ 0.0851
42	\$ 250,182.19	\$ 57.12	\$ 0.0714	\$ 0.0861
43	\$ 253,359.27	\$ 57.84	\$ 0.0723	\$ 0.0872
44	\$ 256,581.12	\$ 58.58	\$ 0.0732	\$ 0.0883
45	\$ 259,848.40	\$ 59.33	\$ 0.0742	\$ 0.0895
46	\$ 263,161.79	\$ 60.08	\$ 0.0751	\$ 0.0906
47	\$ 266,521.96	\$ 60.85	\$ 0.0761	\$ 0.0918
48	\$ 269,929.59	\$ 61.63	\$ 0.0770	\$ 0.0929
49	\$ 273,385.39	\$ 62.42	\$ 0.0780	\$ 0.0941
<b>Total</b>	<b>\$ 10,439,256.39</b>	<b>\$47.67</b>	<b>\$ 0.0596</b>	<b>\$ 0.0719</b>

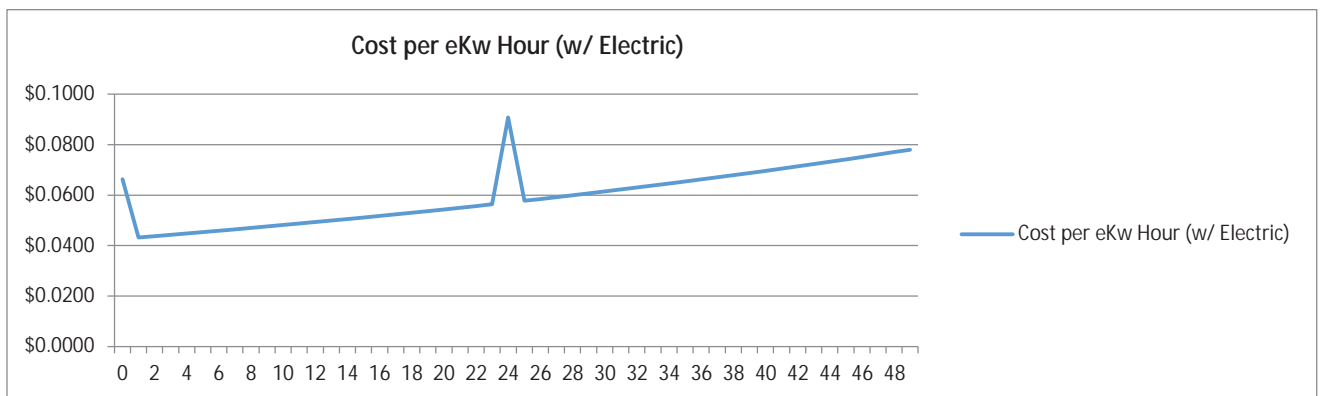
Option B-50 year Life Cycle Analysis for Electric Motor @ 4380 Hours per year  
Table B.2



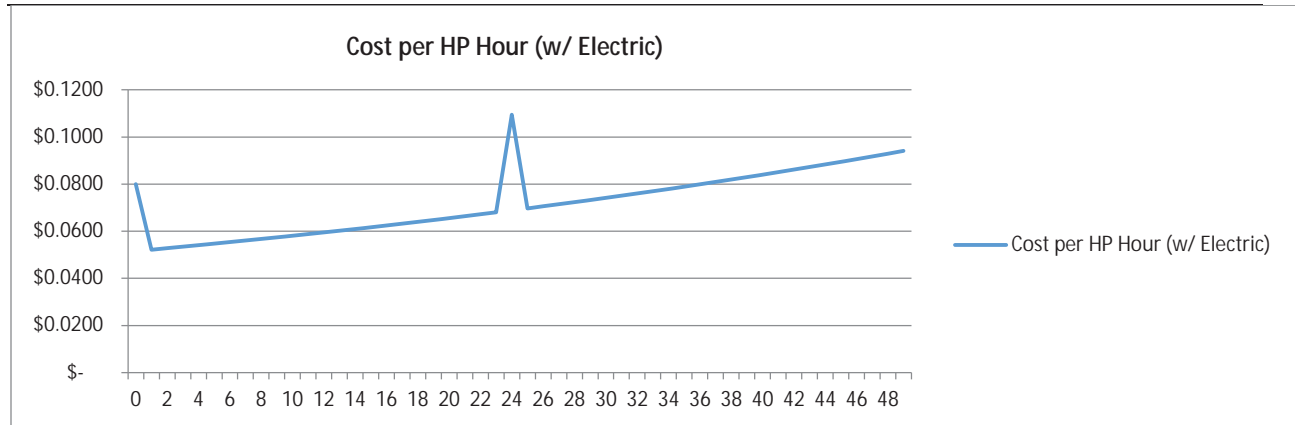
**Option B-Yearly Operating Cost (w/ Electric)-years 0-49 @ 4380 Hours per year  
Graph B.3**



**Option B-Yearly Cost per hour (w/ Electric)-years 0-49 @ 4380 Hours per year  
Graph B.4**



**Option B-Cost per kW Hour (w/ Electric)-years 0-49 @ 4380 Hours per year  
Graph B.5**



Option B-Cost per HP Hour (w/ Electric)-years 0-49 @ 4380 Hours per year  
Graph B.6

**Total Life Cycle Cost (Option B) = \$ 10,439,256.39**

Noteworthy items from analysis:

- Motor downtime is expected only at ½ life for the motor and electrical equipment. With proper maintenance, this could be extended.
- Motor failure is also a concern with how it will affect operational availability of the well.

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## ELECTRICAL MOTOR DRIVEN WELL PUMP W/ STANDBY NATURAL GAS GENERATOR (OPTION C)

Option C analysis is based on the operation of an electrical motor as the prime mover for the water pump rated at 800HP. In addition, a properly sized natural gas standby generator will be installed as a secondary source of electrical power to the motor. The primary source of power will be the electrical utility similar to Option B. The addition of the standby generator will serve multiple purposes:

- Based on the energy market cost at any given time, DPU could “choose” the most economical utility source. During high summer demand DPU could utilize the natural gas standby generator to provide the needed power for the electrical motor and avoid peak electric demand charges. This would take advantage of lower natural gas market pricing. During the winter months, the opposite would apply. The electrical motor would derive its power source from the electrical utility during off peak demand operations. The transfer of electrical sources would be at the sole discretion of DPU. A manual electrical transfer switch would be installed within the electrical system to provide this capability. This ability would afford DPU to operate the well pump at the most economical level possible.
- Due to the installation of two separate sources from two separate utilities, the well would by default be capable of providing full “backup” source of power for the motor itself. If the motor were operating under the electrical utility source, and if that source were to have an outage, the standby generator would be capable of continued operation of the motor. The transfer of sources would be through the manual transfer switch. This would again involve the conscious decision of DPU to switch power source. The opposite scenario would be applied if the motor was under normal operation of the natural gas standby generator and there was a natural gas outage. The manual transfer switch would be consciously transferred to the electrical utility source and the motor would continue normal operation. This redundancy would provide DPU customers a 24/7/365 operational facility.
- Since the prime mover would be an electric motor, it would be capable of being controlled by a Variable Frequency Drive (highly recommended but not something originally considered) which would better benefit the operational capability of the entire water system hydraulically. Either source of power (Electrical Utility or the Natural Gas Standby Generator) would interface seamlessly to the VFD for continued operation of the well. As a safe guard to the possible outage of the VFD, a bypass to the VFD would be installed to allow operation of the motor (without speed control). The installation of a bypass in the VFD would also allow for routine maintenance of the VFD itself without jeopardizing the operation of the motor. All equipment would be properly size to achieve this operation.

For the purposes of this report, it is assumed the motor will operate half of the year through the electrical utility and the other half of the year through the natural gas standby generator. The hours of operation would therefore be evaluated at 2180 of operation per year for either source. While this assumption may

not be exactly the scenario DPU may operate the motor, it will suffice for purposes of comparison between all three options.

### **Electrical Motor use through the Natural Gas Standby Generator Cost Analysis**

In coordination with Mr. Cummingford of Wagner Equipment, a life cycle cost analysis was prepared for Option C standby generator. This analysis is based on the use of the Caterpillar Standby Generator G3512 operating at 2180 hours (half of the year) per year. Below are the assumptions and clarifications for the referenced analysis:

#### **Items Included in Cost Analysis:**

- 25 year cost analysis (due to software modeling constraints)
- Initial installation cost
- Cost associated with recommended maintenance
- Fuel cost based on yearly operating hours of 2180
- Interest rate of 1.5% inflation rate
- The cost of natural gas is estimated at \$0.002848 cubic foot per hour. This is based on the average rate of cost the County has paid during the years 2013-2019 (please refer to Table A.1)

#### **Items not included in Cost Analysis:**

- Facility construction cost nor facility maintenance
- Well or gear drive installation and maintenance
- Utility service connection and maintenance
- Instrumentation or Controls or piping installation and maintenance (assumed similar for all Options)

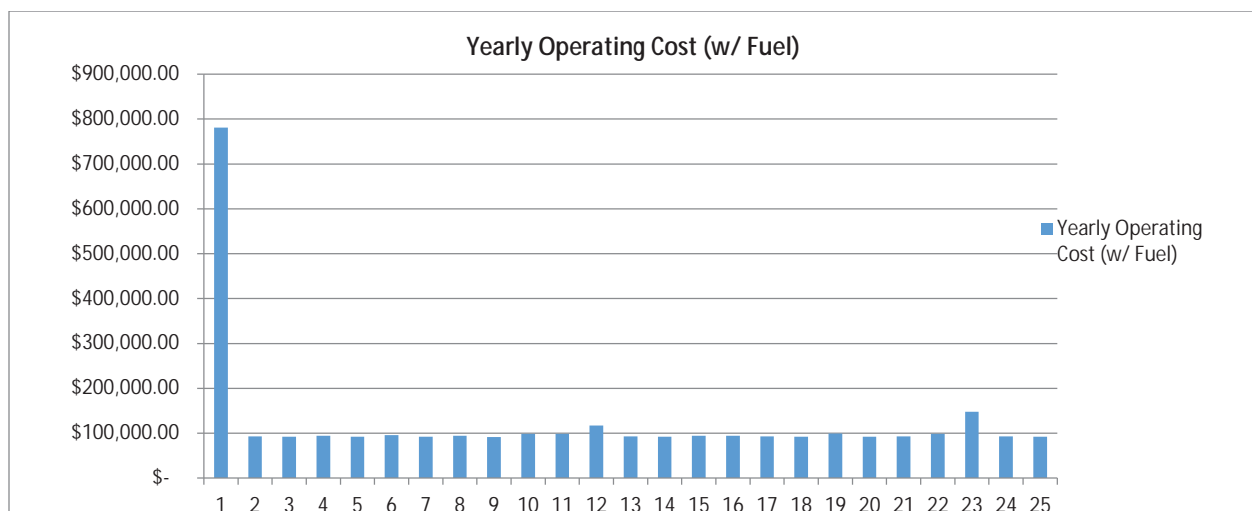
#### **Cost Analysis Clarifications:**

- At the end of 25 years the manufacture recommends a complete replacement of the engine.

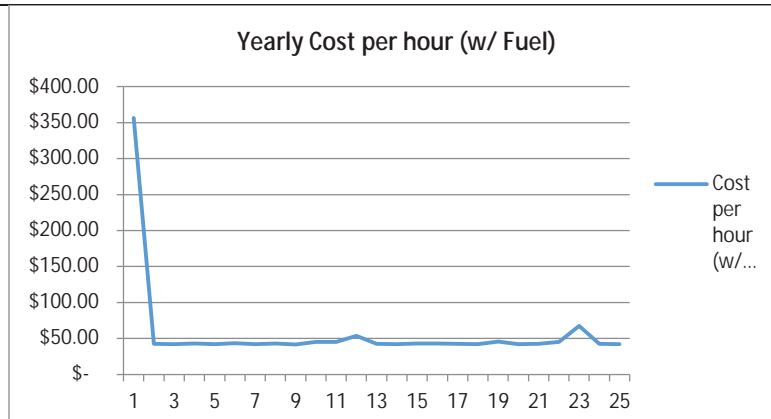
Table C.2 references the summary of the 25 year Cost Life Cycle for the Caterpillar Standby Generator G3512. As mentioned in the clarification portions of this section, the Caterpillar software is limited to a maximum life expectancy of the engine to 25 years. At the end of this life expectancy, the manufacturer recommends a complete replacement of the equipment for the remaining 25 years. Table C.1 provides a summary of the software for the 25 year life expectancy. Please refer to Appendix E for the complete report:

Year	Operating Cost (w/ Fuel)	Cost per hour (w/ Fuel)	Cost per HP Hour (w/ Fuel)	Cost Per eKw Hour (w/ Fuel)
1	\$ 780,621.94	\$ 356.45	\$ 0.1785	\$ 0.2392
2	\$ 93,216.94	\$ 42.56	\$ 0.0213	\$ 0.0286
3	\$ 91,995.94	\$ 42.01	\$ 0.0210	\$ 0.0282
4	\$ 94,053.10	\$ 42.95	\$ 0.0215	\$ 0.0288
5	\$ 92,024.67	\$ 42.02	\$ 0.0210	\$ 0.0282
6	\$ 95,579.49	\$ 43.64	\$ 0.0219	\$ 0.0293
7	\$ 91,995.94	\$ 42.01	\$ 0.0210	\$ 0.0282
8	\$ 94,053.10	\$ 42.95	\$ 0.0215	\$ 0.0288
9	\$ 91,467.94	\$ 41.77	\$ 0.0209	\$ 0.0280
10	\$ 98,781.55	\$ 45.11	\$ 0.0226	\$ 0.0303
11	\$ 98,680.31	\$ 45.06	\$ 0.0226	\$ 0.0302
12	\$ 117,475.96	\$ 53.64	\$ 0.0269	\$ 0.0360
13	\$ 92,688.94	\$ 42.32	\$ 0.0212	\$ 0.0284
14	\$ 92,552.67	\$ 42.26	\$ 0.0212	\$ 0.0284
15	\$ 94,053.10	\$ 42.95	\$ 0.0215	\$ 0.0288
16	\$ 94,358.49	\$ 43.09	\$ 0.0216	\$ 0.0289
17	\$ 92,688.94	\$ 42.32	\$ 0.0212	\$ 0.0284
18	\$ 91,995.94	\$ 42.01	\$ 0.0210	\$ 0.0282
19	\$ 99,617.70	\$ 45.49	\$ 0.0228	\$ 0.0305
20	\$ 91,995.94	\$ 42.01	\$ 0.0210	\$ 0.0282
21	\$ 92,688.94	\$ 42.32	\$ 0.0212	\$ 0.0284
22	\$ 98,680.31	\$ 45.06	\$ 0.0226	\$ 0.0302
23	\$ 147,704.06	\$ 67.44	\$ 0.0338	\$ 0.0453
24	\$ 93,216.94	\$ 42.56	\$ 0.0213	\$ 0.0286
25	\$ 91,995.94	\$ 42.01	\$ 0.0210	\$ 0.0282
<b>Total</b>	<b>\$ 3,114,184.82</b>	<b>\$ 56.88</b>	<b>\$ 0.0285</b>	<b>\$ 0.0382</b>

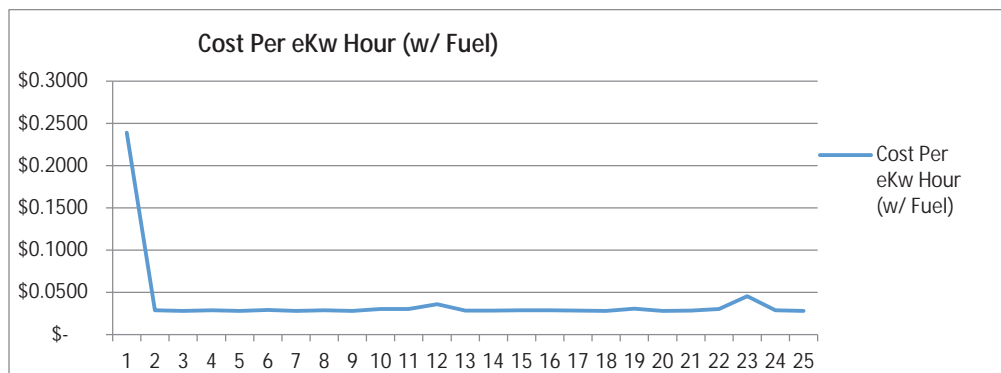
Option C-25 year Life Cycle Analysis for Caterpillar Standby Generator G3512 @ 2180 Hours per year  
Table C.1



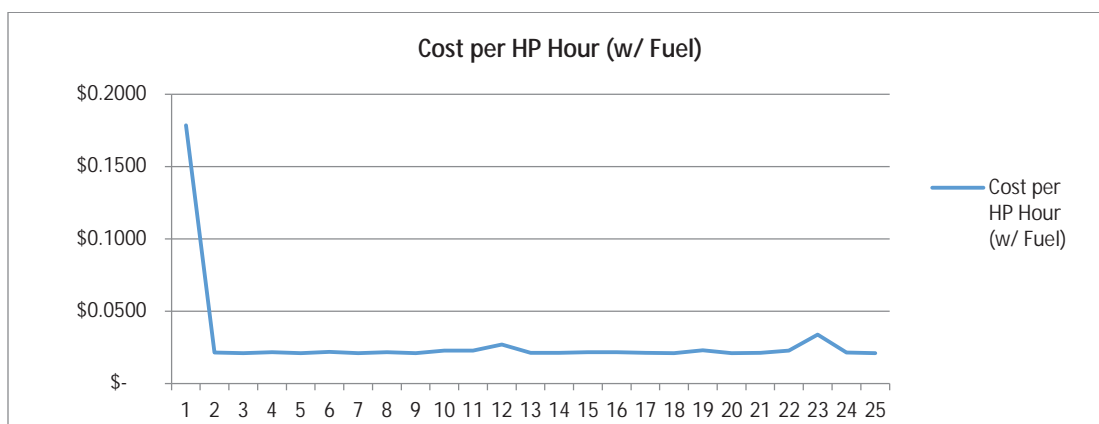
Option C-Yearly Operating Cost (w/ Fuel)-years 1-25 @ 2180 Hours per year  
Graph C.1



**Option C-Yearly Cost per hour (w/ Fuel)-years 1-25 @ 2180 Hours per year  
Graph C.2**



**Option C-Cost per eKw Hour (w/ Fuel)-years 1-25 @ 2180 Hours per year  
Graph C.3**



**Option C-Cost per HP Hour (w/ Fuel)-years 1-25 @ 2180 Hours per year  
Graph C.4**

As discussed earlier, the Caterpillar software allows for a maximum of 25 years life expectancy. Extrapolating the cost for year 25-50 is calculated using the following future value calculation based on the following formula:

$$FV = PV \times (1 + i)^N$$

PV = Present value (amount of money today)  
FV = Future Value  
i = Interest paid by the investment  
N = Number of periods the investment will be held

Where :

PV= \$ 3,114,184.82

i= 1.5 %

N= 25

Future Value of Money (years 26-50) = \$ 3,114,184.82 x (1 + .015) ^ (25)  
= \$ 4,518,512.00

Life Cycle Cost of Natural Gas Engine Portion Only (Option C)  
= Future Money (years 1-25) + Future Money (years 26-50)  
= \$ 3,114,184.82 + \$ 4,518,512.00  
=**\$ 7,632,696.82**

**Electrical Motor use through the Electrical Utility Cost Analysis**

Please refer to Appendix E for the 0-49 year Life Cost Analysis data.

Below are the assumptions and clarifications for the referenced analysis.

Items Included in Cost Analysis:

- Initial installation cost of motor, electrical equipment
- Maintenance and operating yearly cost of \$5000.00 per year (Present Value)
- Electrical cost based on yearly operating hours of 2180
- Yearly Interest rate for inflation is calculated as:
  - Demand Charge = 0.5%
  - Energy Cost = 1.5%
  - Distribution Adder = 0.5%
  - Customer Service Charge = 0.5%
- The cost of electricity (as referenced above).

Items not included in Cost Analysis:

- Facility construction cost nor facility maintenance
- Well and maintenance
- Utility service connection and maintenance
- Instrumentation or Controls or piping installation and maintenance (assumed similar for all Options)
- VFD installation (motor is expected to be operated at full capacity, similar to the Natural Gas Engine operating scenario in Option A)

Cost Analysis Clarifications:

- Due to the reduced hours of operation (2180 per year) the replacement of the motor is not included in the life cycle cost based on operational hours, continued maintenance and historical DPU replacement of other electrical motors in service currently.

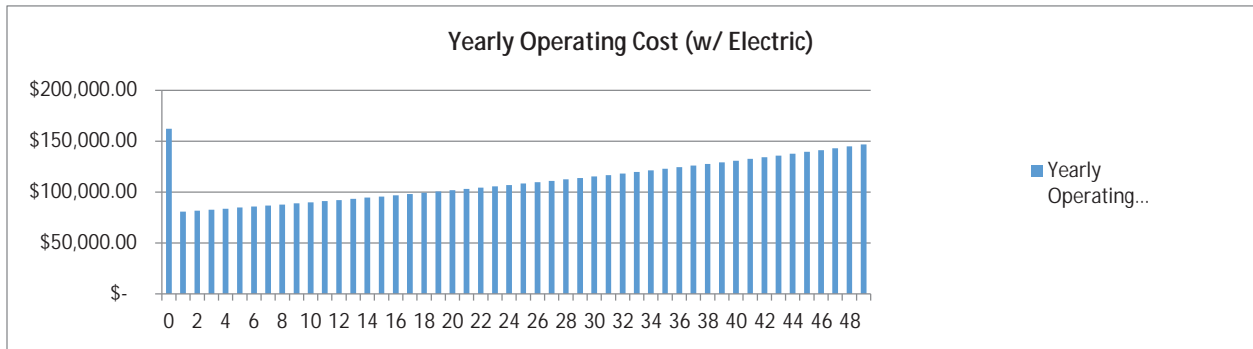
Table C-2 references the cost per year including future value cost at the specified year using the following formula:

$$FV = PV \times (1 + i)^N$$

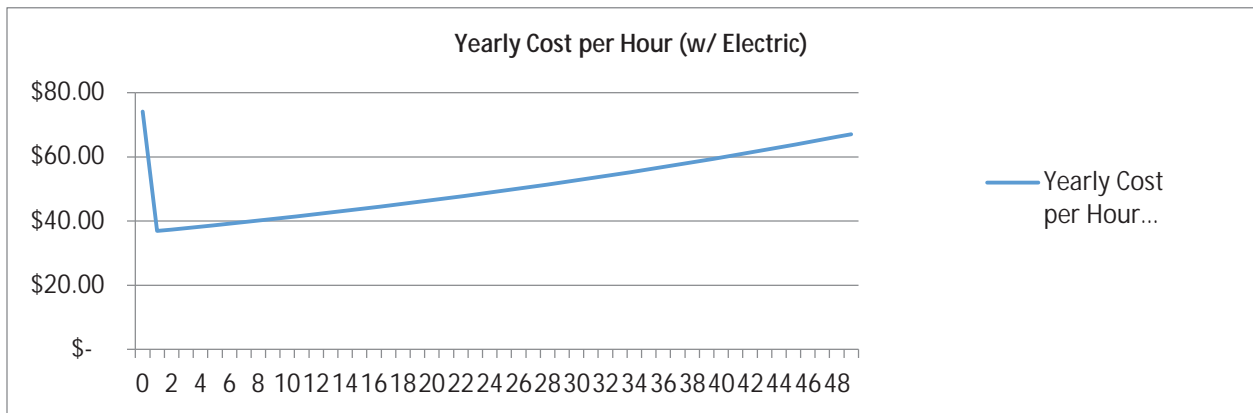
PV = Present value (amount of money today)  
FV = Future Value  
i = Interest paid by the investment  
N = Number of periods the investment will be held

Year (N)	Future Value	Cost Per Hour	Cost Per HP Hour	Cost Per eKW Hour
	FV= PV x (1 +i)^N			
	1.50%			
0	\$ 162,358.45	\$ 74.14	\$ 0.0927	\$ 0.1118
1	\$ 80,821.82	\$ 36.90	\$ 0.0461	\$ 0.0557
2	\$ 81,798.46	\$ 37.35	\$ 0.0467	\$ 0.0563
3	\$ 82,788.58	\$ 37.80	\$ 0.0473	\$ 0.0570
4	\$ 83,792.36	\$ 38.26	\$ 0.0478	\$ 0.0577
5	\$ 84,810.01	\$ 38.73	\$ 0.0484	\$ 0.0584
6	\$ 85,841.72	\$ 39.20	\$ 0.0490	\$ 0.0591
7	\$ 86,887.72	\$ 39.67	\$ 0.0496	\$ 0.0598
8	\$ 87,948.19	\$ 40.16	\$ 0.0502	\$ 0.0606
9	\$ 89,023.35	\$ 40.65	\$ 0.0508	\$ 0.0613
10	\$ 90,113.43	\$ 41.15	\$ 0.0514	\$ 0.0621
11	\$ 91,218.62	\$ 41.65	\$ 0.0521	\$ 0.0628
12	\$ 92,339.17	\$ 42.16	\$ 0.0527	\$ 0.0636
13	\$ 93,475.28	\$ 42.68	\$ 0.0534	\$ 0.0644
14	\$ 94,627.19	\$ 43.21	\$ 0.0540	\$ 0.0652
15	\$ 95,795.12	\$ 43.74	\$ 0.0547	\$ 0.0660
16	\$ 96,979.32	\$ 44.28	\$ 0.0554	\$ 0.0668
17	\$ 98,180.02	\$ 44.83	\$ 0.0560	\$ 0.0676
18	\$ 99,397.46	\$ 45.39	\$ 0.0567	\$ 0.0684
19	\$ 100,631.88	\$ 45.95	\$ 0.0574	\$ 0.0693
20	\$ 101,883.54	\$ 46.52	\$ 0.0582	\$ 0.0702
21	\$ 103,152.68	\$ 47.10	\$ 0.0589	\$ 0.0710
22	\$ 104,439.56	\$ 47.69	\$ 0.0596	\$ 0.0719
23	\$ 105,744.45	\$ 48.29	\$ 0.0604	\$ 0.0728
24	\$ 107,067.60	\$ 48.89	\$ 0.0611	\$ 0.0737
25	\$ 108,409.28	\$ 49.50	\$ 0.0619	\$ 0.0747
26	\$ 109,769.77	\$ 50.12	\$ 0.0627	\$ 0.0756
27	\$ 111,149.33	\$ 50.75	\$ 0.0634	\$ 0.0765
28	\$ 112,548.26	\$ 51.39	\$ 0.0642	\$ 0.0775
29	\$ 113,966.82	\$ 52.04	\$ 0.0650	\$ 0.0785
30	\$ 115,405.32	\$ 52.70	\$ 0.0659	\$ 0.0795
31	\$ 116,864.04	\$ 53.36	\$ 0.0667	\$ 0.0805
32	\$ 118,343.27	\$ 54.04	\$ 0.0675	\$ 0.0815
33	\$ 119,843.33	\$ 54.72	\$ 0.0684	\$ 0.0825
34	\$ 121,364.51	\$ 55.42	\$ 0.0693	\$ 0.0836
35	\$ 122,907.13	\$ 56.12	\$ 0.0702	\$ 0.0846
36	\$ 124,471.50	\$ 56.84	\$ 0.0710	\$ 0.0857
37	\$ 126,057.94	\$ 57.56	\$ 0.0720	\$ 0.0868
38	\$ 127,666.77	\$ 58.30	\$ 0.0729	\$ 0.0879
39	\$ 129,298.32	\$ 59.04	\$ 0.0738	\$ 0.0890
40	\$ 130,952.93	\$ 59.80	\$ 0.0747	\$ 0.0902
41	\$ 132,630.93	\$ 60.56	\$ 0.0757	\$ 0.0913
42	\$ 134,332.68	\$ 61.34	\$ 0.0767	\$ 0.0925
43	\$ 136,058.51	\$ 62.13	\$ 0.0777	\$ 0.0937
44	\$ 137,808.78	\$ 62.93	\$ 0.0787	\$ 0.0949
45	\$ 139,583.85	\$ 63.74	\$ 0.0797	\$ 0.0961
46	\$ 141,384.09	\$ 64.56	\$ 0.0807	\$ 0.0974
47	\$ 143,209.86	\$ 65.39	\$ 0.0817	\$ 0.0986
48	\$ 145,061.55	\$ 66.24	\$ 0.0828	\$ 0.0999
49	\$ 146,939.53	\$ 67.10	\$ 0.0839	\$ 0.1012
<b>Total</b>	<b>\$ 5,567,144.25</b>	<b>\$ 50.84</b>	<b>\$ 0.0636</b>	<b>\$ 0.0767</b>

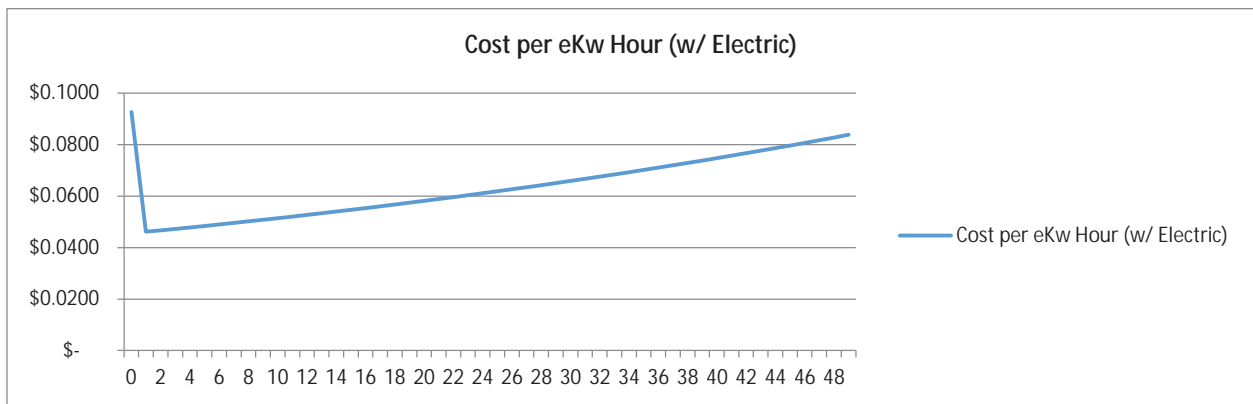
Option C-50 year Life Cycle Analysis for Electric Motor @ 2180 Hours per year  
Table C.2



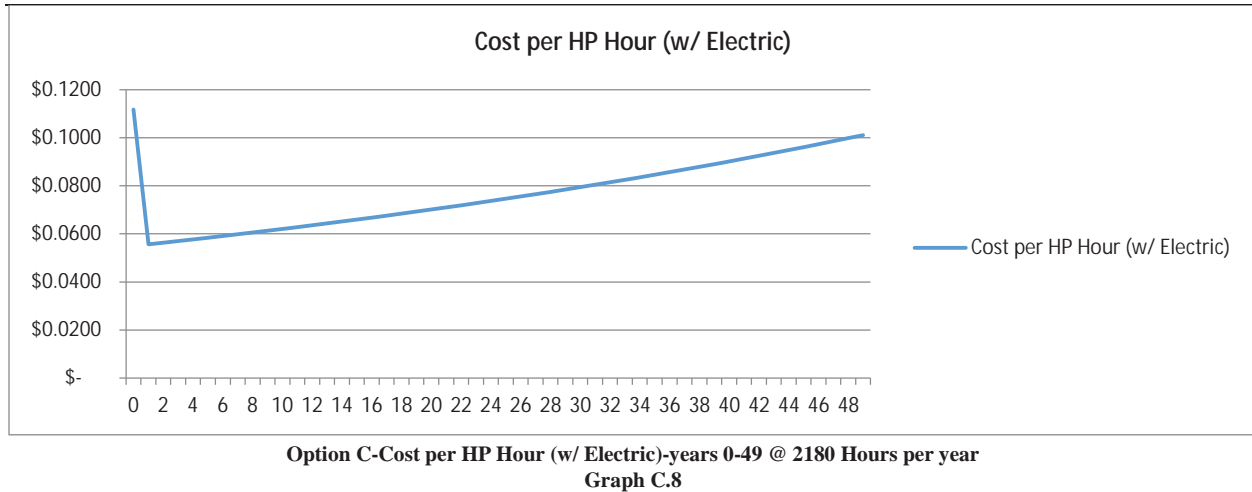
**Option C-Yearly Operating Cost (w/ Electric)-years 0-49 @ 2180 Hours per year  
Graph C.5**



**Option C-Yearly Cost per hour (w/ Electric)-years 0-49 @ 2180 Hours per year  
Graph C.6**



**Option C-Cost per eKw Hour (w/ Electric)-years 0-49 @ 2180 Hours per year  
Graph C.7**



Life Cycle Cost of Electrical Utility Portion Only (Option C) = \$ 5,567,144.25

**Total 50 year Life Cycle Cost (Option C)**

Life Cycle Cost of Natural Gas Engine Portion Only (Option C) = \$ 7,632,696.82

Life Cycle Cost of Electrical Utility Portion Only (Option C) = \$ 5,567,144.25

**Total = \$ 13,199,841.07**

Noteworthy items from analysis:

- Engine downtime for maintenance is required as referenced in manufacture operational report (Appendix E).
- Motor failure is also a concern with how it will affect operational availability of the well.
- Savings are realized based on seasonal use of either utility source. Based on market conditions, this may vary in favor of one utility to the other. DPU should closely monitor market conditions and modify the utility source accordingly. This may result in additional savings.

## RECOMMENDATION

The original intention of this analysis was to determine which of two types of prime movers would be used for the new Otowi 2 Well design. Summary of the 50 year life cycle cost are:

Natural Gas Engine as prime mover (Option A)                   = **\$ 14,283,027.24**

Electric Motor as prime Mover (Option B)                       = **\$ 10,439,256.39**

Hybrid Electric Motor w/ Standby Generator (Option C) = **\$ 13,199,841.07**

While the current market conditions do favor the use of natural gas as the preferred energy source based on cubic-foot cost, the complete engine replacement at 25 years does effect this option. The use of electric , while based on the overall cost being the lowest of the options, does have limitations and could be impacted by raising electric rates. Interestingly, Option C, while lower in cost than Option A but higher in cost than Option B does provide the maximum flexibility for future changes in market conditions. It is important that all assumptions in all options are clearly understood and weighed proportionally.

The direct operational use of the future Otowi 2 Well will account for the majority of the real cost of the facility. Based on daily demand from the hydraulic system, the cost presented in this report can only be used as a general guide of anticipated costs based on the criteria referenced within this report.

Finally, it is my recommendation that the final design for Otowi 2 Well is not solely natural gas or electric but rather a combination as presented in the Option C. This would provide the County maximum flexibility to operate Otowi 2 Well and take maximum advantage of changing market costs for energy. This option also provides the redundancy for the continued operation of the well and higher reliability of the DPU water system to their customers.

LOS ALAMOS COUNTY  
OTOWI 2 WELL PUMP DRIVE  
LIFE CYCLE ANALYSIS

APPENDIX A

CATERPILLAR G3512J  
DATA SHEET

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GAS COMPRESSION APPLICATION

ENGINE SPEED (rpm):	1400	RATING STRATEGY:	STANDARD
COMPRESSION RATIO:	8	FUEL SYSTEM:	CAT WIDE RANGE
AFTERCOOLER TYPE:	SCAC		WITH AIR FUEL RATIO CONTROL
AFTERCOOLER - STAGE 2 INLET (°F):	130	<b>SITE CONDITIONS:</b>	
AFTERCOOLER - STAGE 1 INLET (°F):	201	FUEL:	Nat Gas
JACKET WATER OUTLET (°F):	203	FUEL PRESSURE RANGE (psig): (See note 1)	7.0-40.0
ASPIRATION:	TA	FUEL METHANE NUMBER:	84.7
COOLING SYSTEM:	JW+OC+1AC, 2AC	FUEL LHV (Btu/scf):	905
CONTROL SYSTEM:	ADEM3	ALTITUDE(ft):	7200
EXHAUST MANIFOLD:	DRY	INLET AIR TEMPERATURE(°F):	86
COMBUSTION:	LOW EMISSION	STANDARD RATED POWER:	1035 bhp@1400rpm
NOx EMISSION LEVEL (g/bhp-hr NOx):	0.5		
SET POINT TIMING:	30		

			MAXIMUM RATING	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE			
RATING	NOTES	LOAD	100%	100%	75%	50%	
ENGINE POWER (WITHOUT FAN)	(2)	bhp	1035	950	712	518	
INLET AIR TEMPERATURE		°F	55	86	86	86	

ENGINE DATA							
FUEL CONSUMPTION (LHV)	(3)	Btu/bhp-hr	7378	7495	7904	8424	
FUEL CONSUMPTION (HHV)	(3)	Btu/bhp-hr	8184	8314	8768	9344	
AIR FLOW (@inlet air temp, 14.7 psia) (WET)	(4)(5)	ft3/min	2215	2173	1683	1269	
AIR FLOW (WET)	(4)(5)	lb/hr	10240	9477	7340	5534	
FUEL FLOW (60°F, 14.7 psia)		scfm	141	131	104	80	
INLET MANIFOLD PRESSURE	(6)	in Hg(abs)	87.4	82.7	67.9	51.8	
EXHAUST TEMPERATURE - ENGINE OUTLET	(7)	°F	818	818	834	887	
EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia) (WET)	(8)(5)	ft3/min	5937	5495	4316	3393	
EXHAUST GAS MASS FLOW (WET)	(8)(5)	lb/hr	10624	9835	7623	5754	

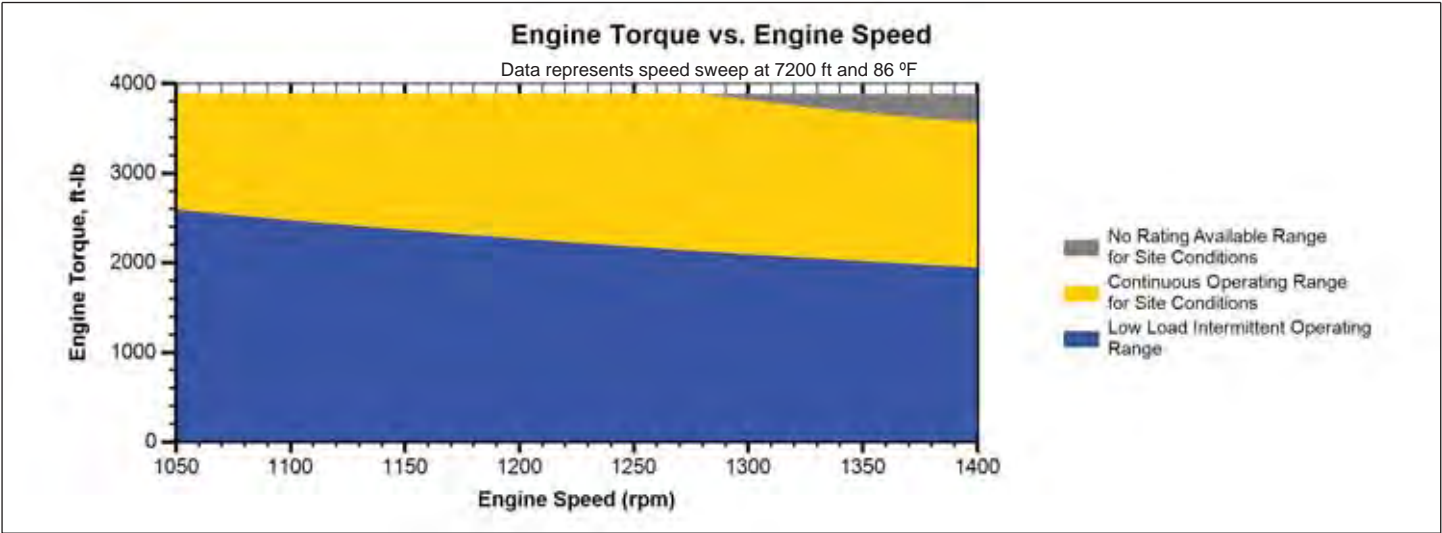
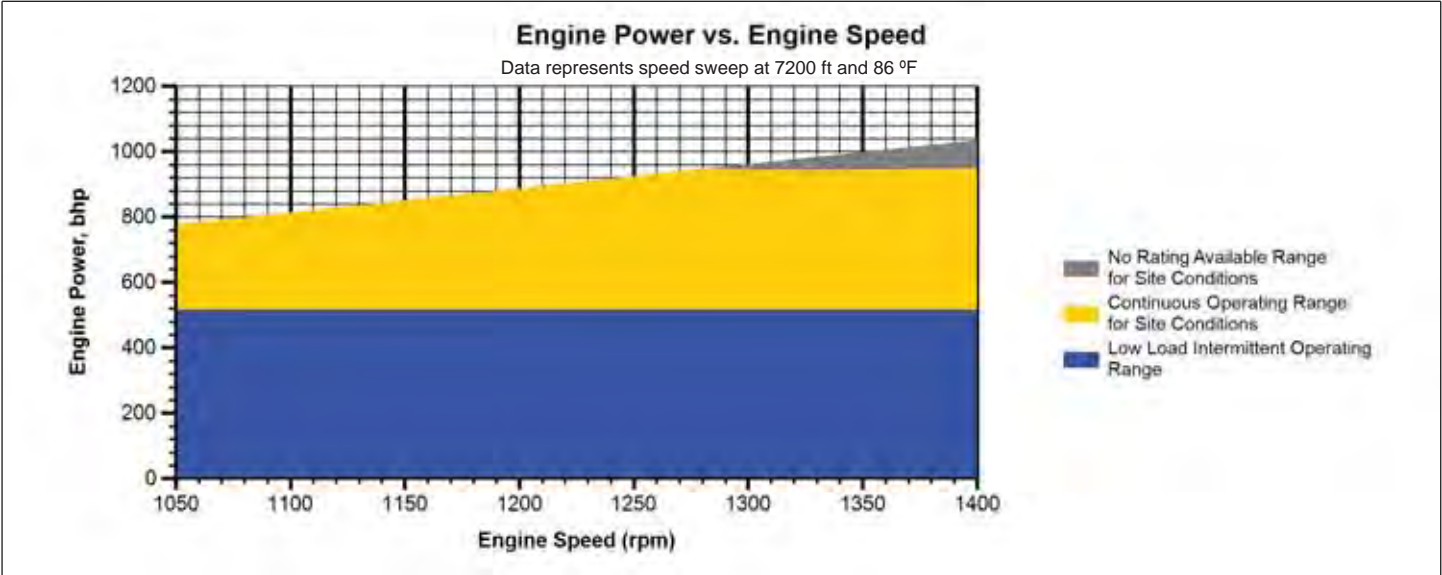
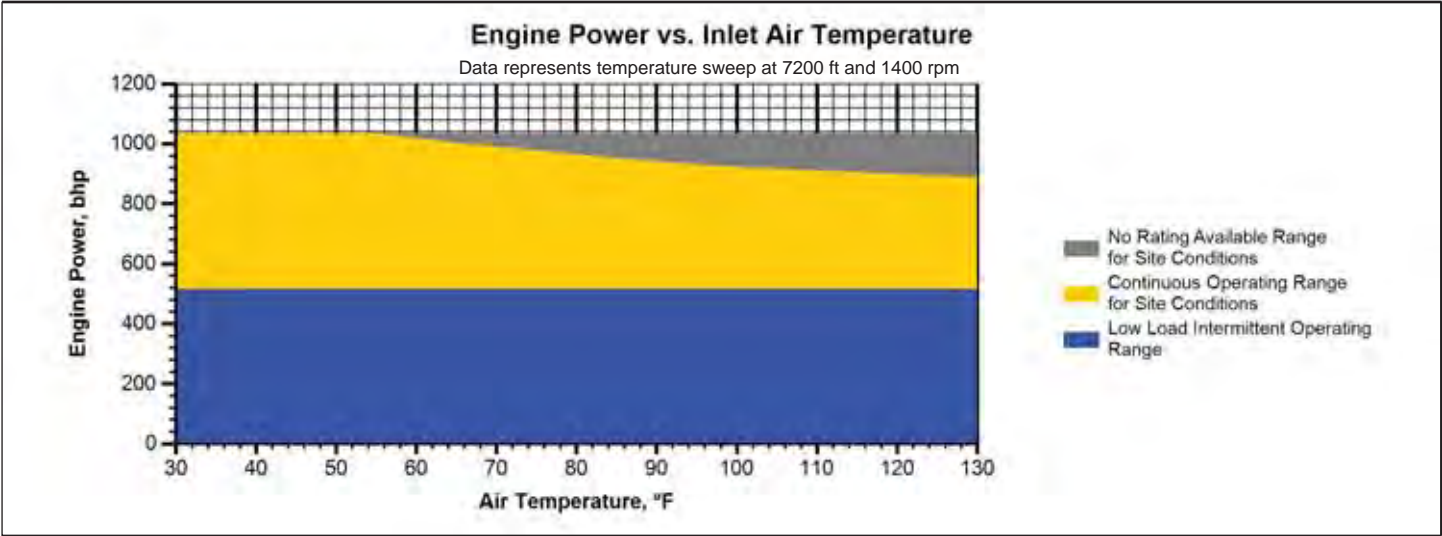
EMISSIONS DATA - ENGINE OUT							
NOx (as NO2)	(9)(10)	g/bhp-hr	0.50	0.50	0.50	0.50	
CO	(9)(10)	g/bhp-hr	1.91	1.91	1.92	1.90	
THC (mol. wt. of 15.84)	(9)(10)	g/bhp-hr	4.36	4.39	4.46	4.48	
NMHC (mol. wt. of 15.84)	(9)(10)	g/bhp-hr	0.65	0.66	0.67	0.67	
NMNEHC (VOCs) (mol. wt. of 15.84)	(9)(10)(11)	g/bhp-hr	0.44	0.44	0.45	0.45	
HCHO (Formaldehyde)	(9)(10)	g/bhp-hr	0.51	0.52	0.55	0.61	
CO2	(9)(10)	g/bhp-hr	463	471	500	537	
EXHAUST OXYGEN	(9)(12)	% DRY	8.9	8.8	8.5	8.1	

HEAT REJECTION							
HEAT REJ. TO JACKET WATER (JW)	(13)	Btu/min	27104	25898	22261	18491	
HEAT REJ. TO ATMOSPHERE	(13)	Btu/min	4668	4726	4053	3145	
HEAT REJ. TO LUBE OIL (OC)	(13)	Btu/min	3963	3848	3490	3135	
HEAT REJ. TO A/C - STAGE 1 (1AC)	(13)(14)	Btu/min	8347	8347	4671	2152	
HEAT REJ. TO A/C - STAGE 2 (2AC)	(13)(14)	Btu/min	4516	4516	2955	2017	

COOLING SYSTEM SIZING CRITERIA			
TOTAL JACKET WATER CIRCUIT (JW+OC+1AC)	(14)(15)	Btu/min	43334
TOTAL AFTERCOOLER CIRCUIT (2AC)	(14)(15)	Btu/min	4742
A cooling system safety factor of 0% has been added to the cooling system sizing criteria.			

**CONDITIONS AND DEFINITIONS**  
Engine rating obtained and presented in accordance with ISO 3046/1, adjusted for fuel, site altitude and site inlet air temperature. 100% rating at maximum inlet air temperature is the maximum engine capability for the specified fuel at site altitude and maximum site inlet air temperature. Maximum rating is the maximum capability at the specified aftercooler inlet temperature for the specified fuel at site altitude and reduced inlet air temperature. Lowest load point is the lowest continuous duty operating load allowed. No overload permitted at rating shown.

For notes information consult page three.



**Note:**  
At site conditions of 7200 ft and 86°F inlet air temp., constant torque can be maintained down to 1050 rpm. The minimum speed for loading at these conditions is 1050 rpm.

**NOTES:**

1. Fuel pressure range specified is to the engine fuel pressure regulator. Additional fuel train components should be considered in pressure and flow calculations.
2. Engine rating is with two engine driven water pumps. Tolerance is  $\pm 3\%$  of full load.
3. Engine rating obtained and presented in accordance with ISO 3046/1, adjusted for fuel, site altitude and site ambient temperature.
4. Air flow value is on a 'wet' basis. Flow is a nominal value with a tolerance of  $\pm 5\%$ .
5. Inlet and Exhaust Restrictions must not exceed A&I limits based on full load flow rates from the standard technical data sheet.
6. Inlet manifold pressure is a nominal value with a tolerance of  $\pm 5\%$ .
7. Exhaust temperature is a nominal value with a tolerance of  $(+ )63^{\circ}\text{F}$ ,  $(- )54^{\circ}\text{F}$ .
8. Exhaust flow value is on a "wet" basis. Flow is a nominal value with a tolerance of  $\pm 6\%$ .
9. Emissions data is at engine exhaust flange prior to any after treatment.
10. Values listed are higher than nominal levels to allow for instrumentation, measurement, and engine-to-engine variations. They indicate the maximum values expected under steady state conditions. Fuel methane number cannot vary more than  $\pm 3$ . THC, NMHC, and NMNEHC do not include aldehydes. An oxidation catalyst may be required to meet Federal, State or local CO or HC requirements.
11. VOCs - Volatile organic compounds as defined in US EPA 40 CFR 60, subpart JJJJ
12. Exhaust Oxygen level is the result of adjusting the engine to operate at the specified NOx level. Tolerance is  $\pm 0.5$ .
13. Heat rejection values are nominal. Tolerances, based on treated water, are  $\pm 10\%$  for jacket water circuit,  $\pm 50\%$  for radiation,  $\pm 20\%$  for lube oil circuit, and  $\pm 5\%$  for aftercooler circuit.
14. Aftercooler heat rejection includes an aftercooler heat rejection factor for the site elevation and inlet air temperature specified. Aftercooler heat rejection values at part load are for reference only. Do not use part load data for heat exchanger sizing.
15. Cooling system sizing criteria are maximum circuit heat rejection for the site, with applied tolerances.

## GAS COMPRESSION APPLICATION

Constituent	Abbrev	Mole %	Norm
Water Vapor	H2O	0.0000	0.0000
Methane	CH4	92.2700	92.2700
Ethane	C2H6	2.5000	2.5000
Propane	C3H8	0.5000	0.5000
Isobutane	iso-C4H10	0.0000	0.0000
Norbutane	nor-C4H10	0.2000	0.2000
Isopentane	iso-C5H12	0.0000	0.0000
Norpentane	nor-C5H12	0.1000	0.1000
Hexane	C6H14	0.0500	0.0500
Heptane	C7H16	0.0000	0.0000
Nitrogen	N2	3.4800	3.4800
Carbon Dioxide	CO2	0.9000	0.9000
Hydrogen Sulfide	H2S	0.0000	0.0000
Carbon Monoxide	CO	0.0000	0.0000
Hydrogen	H2	0.0000	0.0000
Oxygen	O2	0.0000	0.0000
Helium	HE	0.0000	0.0000
Neopentane	neo-C5H12	0.0000	0.0000
Octane	C8H18	0.0000	0.0000
Nonane	C9H20	0.0000	0.0000
Ethylene	C2H4	0.0000	0.0000
Propylene	C3H6	0.0000	0.0000
TOTAL (Volume %)		100.0000	100.0000

Fuel Makeup: Nat Gas  
Unit of Measure: English

**Calculated Fuel Properties**

Caterpillar Methane Number: 84.7

Lower Heating Value (Btu/scf): 905  
Higher Heating Value (Btu/scf): 1004  
WOBBE Index (Btu/scf): 1168

THC: Free Inert Ratio: 21.83  
Total % Inerts (% N2, CO2, He): 4.38%  
RPC (%) (To 905 Btu/scf Fuel): 100%

Compressibility Factor: 0.998  
Stoich A/F Ratio (Vol/Vol): 9.45  
Stoich A/F Ratio (Mass/Mass): 15.75  
Specific Gravity (Relative to Air): 0.600

Fuel Specific Heat Ratio (K): 1.313

**CONDITIONS AND DEFINITIONS**

Caterpillar Methane Number represents the knock resistance of a gaseous fuel. It should be used with the Caterpillar Fuel Usage Guide for the engine and rating to determine the rating for the fuel specified. A Fuel Usage Guide for each rating is included on page 2 of its standard technical data sheet.

RPC always applies to naturally aspirated (NA) engines, and turbocharged (TA or LE) engines only when they are derated for altitude and ambient site conditions.

Project specific technical data sheets generated by the Caterpillar Gas Engine Rating Pro program take the Caterpillar Methane Number and RPC into account when generating a site rating.

Fuel properties for Btu/scf calculations are at 60F and 14.696 psia.

Caterpillar shall have no liability in law or equity, for damages, consequently or otherwise, arising from use of program and related material or any part thereof.

**FUEL LIQUIDS**

Field gases, well head gases, and associated gases typically contain liquid water and heavy hydrocarbons entrained in the gas. To prevent detonation and severe damage to the engine, hydrocarbon liquids must not be allowed to enter the engine fuel system. To remove liquids, a liquid separator and coalescing filter are recommended, with an automatic drain and collection tank to prevent contamination of the ground in accordance with local codes and standards.

To avoid water condensation in the engine or fuel lines, limit the relative humidity of water in the fuel to 80% at the minimum fuel operating temperature.



LOS ALAMOS COUNTY  
OTOWI 2 WELL PUMP DRIVE  
LIFE CYCLE ANALYSIS

APPENDIX B

800 HP MOTOR  
DATA SHEET

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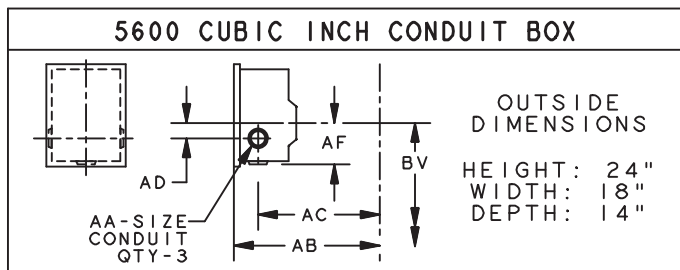
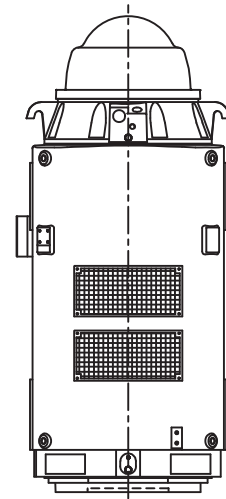
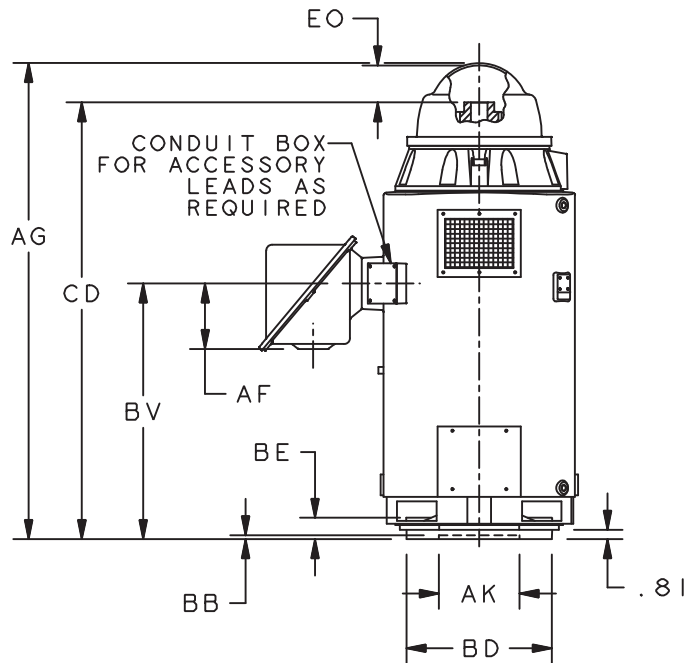
# VERTICAL MOTORS

WEATHER PROTECTED TYPE I  
FRAME: 5000PH, P, PA  
TYPE: RU

09-2657

EFFECTIVE: 03-JUL-06  
SUPERSEDES: NEW

SHEET 1 OF 1

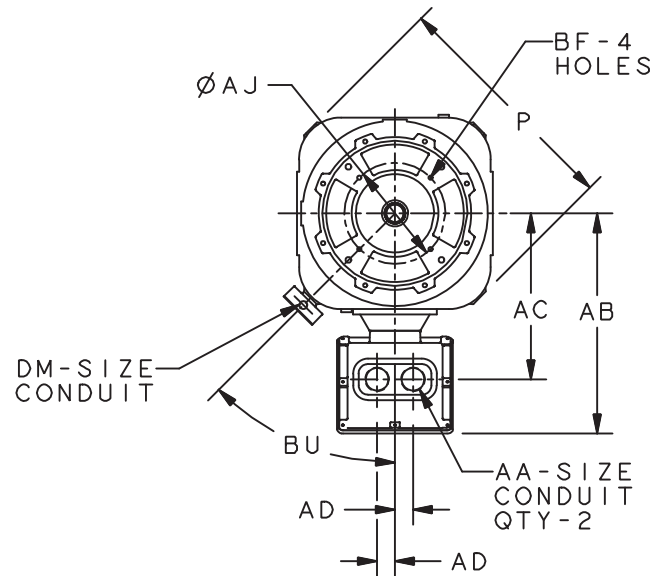


TOLERANCES	
FACE RUNOUT	.007 F.I.R.
PERMISSIBLE ECCENTRICITY OF MOUNTING RABBET	.007 F.I.R.
MAXIMUM SHAFT END PLAY	.010

FRAME	P	AG	BV	CD	EO
5008	40.00	63.88	27.00	57.06	6.42
5012		78.88	42.00	72.30	

	FRAME	AJ	AK +.005	BB MIN	BD MAX	BE	BF
	5000PH	14.750	13.500	.25	20.00	2.19	.69
	5000P <sup>3</sup>	14.750	13.500		24.50		.69
		22.000			30.50		.94
	5000PA	26.000	22.000				.81

VOLTS	C/BOX VOLUME (CU. IN.)	AB	AC	AD	AF	BU
0-4800	3400	36.50	27.88	3.00	10.94	45°
4801-6900	5600	36.13	30.13	4.00	10.81	



AA	DM
2 NPT	1/2 NPT
2-1/2 NPT	3/4 NPT
3 NPT	1 NPT
3-1/2 NPT	1-1/4 NPT
4 NPT	1-1/2 NPT

- 1: DIMENSIONS MAY VARY .25" DUE TO CASTING AND/OR FABRICATION VARIATIONS.
- 2: DIMENSIONS AND TOLERANCES ARE SHOWN IN INCHES.
- 3: 5000P HAS TWO BOLT CIRCLES.

LOS ALAMOS COUNTY  
OTOWI 2 WELL PUMP DRIVE  
LIFE CYCLE ANALYSIS

APPENDIX C

25 YEAR CATERPILLAR G3512J  
COST DATA (OPTION A)

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## Executive Summary

For the project LAC Ottowi #2 Well Pump Station, under normal operating conditions using the assumption set forth below, we would expect the 25 year total lifecycle cost for this project to be \$5,827,558.42 with fuel and \$1,710,076.28 without fuel. This lifecycle cost assumes a fuel cost initially of \$0.002848 per cubic foot.

The following key assumptions were also utilized in generating this total lifecycle cost:

- G3512INPL engine at a rating of 1035BHP 1400 RPM
- Engine is operating with an Average Load of 80% each year
- General inflation rate: 1.5% per year

## Prepared By:

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## Prepared On Behalf Of:

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Email: james.alarid@lacnm.us  
Phone: (505) 663-3420  
Address: 1000 Central Ave Ste 300 Los Alamos, NM  
Country: United States



Input Parameters

General

Market:

Municipal Water

Fuel Type:

Gas

Model

G3512INPL

Performance No.:

1035 BHP 1400 rpm

Rating:

Engine Price:

\$500,000.00

Fuel Parameters

Fuel Cost:

\$0.002848/ft<sup>3</sup>

Lower Heat Value:

956.542 Btu/ft<sup>3</sup>

BSFC:

7903.9995 Btu/bhp-hr

Fuel Flow Rate:

13203.1519 ft<sup>3</sup>/hr

Fluid Parameters

Oil Cost:

\$20.00/gal

BSOC:

0.00028 lbs/bhp-hr

Sump Size:

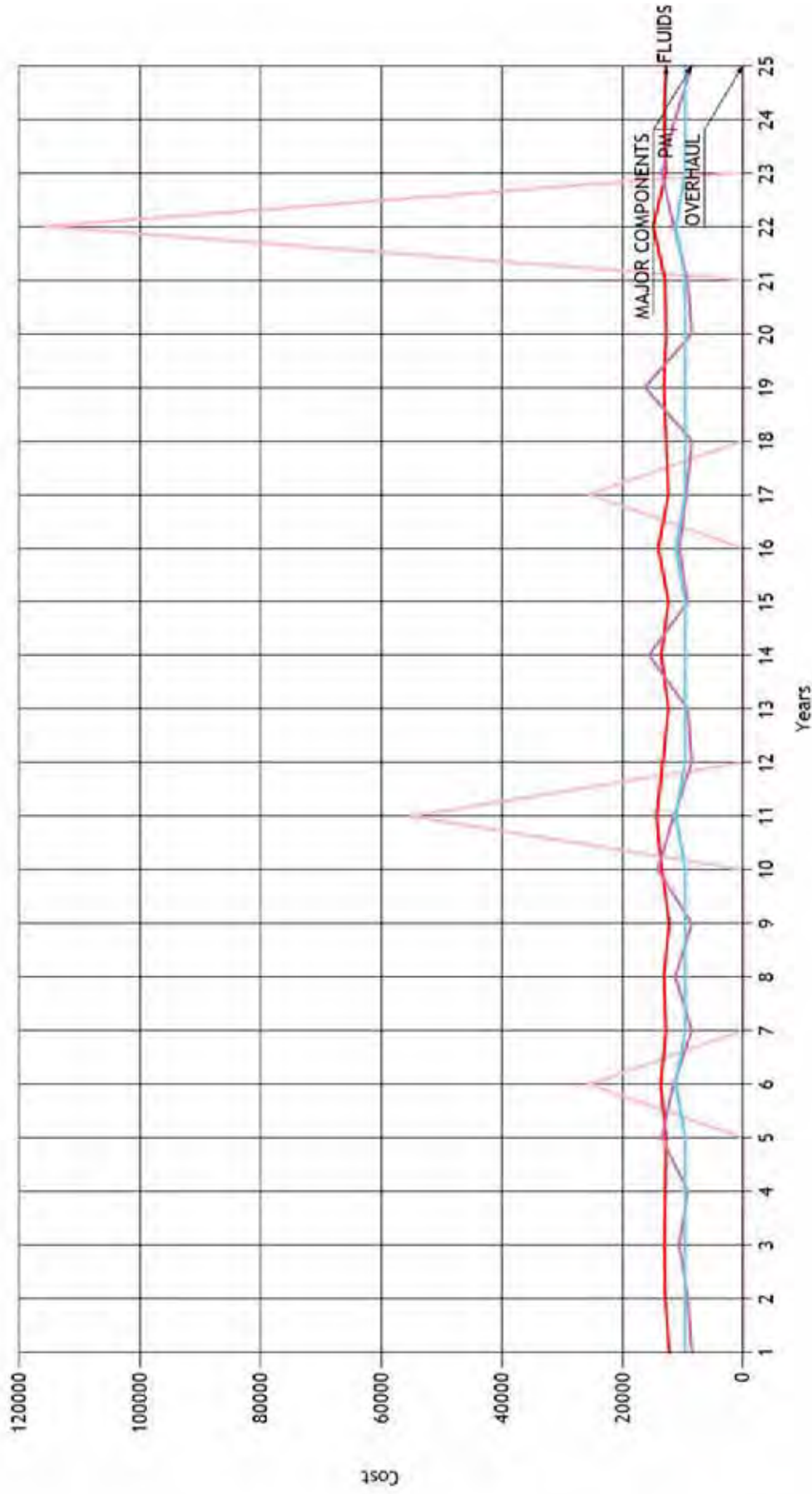
76.874 gal

Oil Consumption Rate:

0.075 gal/hr



Annual Cost without Fuel, Engine Cost, or Additional Purchase Items



\* Ancillary Costs were not included in this estimate.

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## Owning and Operating Summary By Year

Availability	1	2	3	4	5	6	7
Calendar Hours in Interval	8760	8760	8760	8760	8760	8760	8760
Maintenance Hours	79	86	83	86	98	165	79
Available Time Based On Calendar Hours	8681	8674	8677	8674	8662	8595	8681
Requested Operating Hours	4380	4380	4380	4380	4380	4380	4380
Actual Operating Hours	4380	4380	4380	4380	4380	4380	4380
Un-Utilized Time	4301	4294	4297	4294	4282	4215	4301
Calendar Availability / Utilization	99.10 %	99.02 %	99.05 %	99.02 %	98.88 %	98.12 %	99.10 %
Operational Availability	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Operational Utilization	50.46 %	50.50 %	50.48 %	50.50 %	50.57 %	50.96 %	50.46 %
<b>Ownership</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Engine Price	\$500,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Additional Purchase Item	\$150,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Maintenance</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Overhauls	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25,480.01	\$0.00
PM	\$12,212.39	\$12,888.89	\$13,016.62	\$12,888.89	\$12,769.12	\$13,649.09	\$12,769.12
Major Components	\$8,460.17	\$9,147.82	\$10,575.21	\$9,147.82	\$13,468.04	\$11,477.36	\$8,460.17
Fluids	\$9,606.75	\$9,606.75	\$9,606.75	\$9,606.75	\$9,606.75	\$11,144.23	\$9,606.75
Fuel	\$164,699.29	\$164,699.29	\$164,699.29	\$164,699.29	\$164,699.29	\$164,699.29	\$164,699.29
Ancillary Cost	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Summary (without Fuel)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Operating Costs	\$680,279.31	\$31,643.46	\$33,198.58	\$31,643.46	\$35,843.91	\$61,750.69	\$30,836.04
Cost Per Hour	\$155.31	\$7.22	\$7.58	\$7.22	\$8.18	\$14.10	\$7.04
Cost Per Hp Hour	\$0.0778	\$0.0036	\$0.0038	\$0.0036	\$0.0041	\$0.0071	\$0.0035
Cost Per eKw Hour	\$0.1042	\$0.0048	\$0.0051	\$0.0048	\$0.0055	\$0.0095	\$0.0047
<b>Summary (with Fuel)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Operating Costs (w/Fuel)	\$844,978.59	\$196,342.75	\$197,897.86	\$196,342.75	\$200,543.19	\$226,449.98	\$195,535.32
Cost Per Hour (w/Fuel)	\$192.92	\$44.83	\$45.18	\$44.83	\$45.79	\$51.70	\$44.64
Cost Per Hp Hour (w/Fuel)	\$0.0966	\$0.0224	\$0.0226	\$0.0224	\$0.0229	\$0.0259	\$0.0224
Cost Per eKw Hour (w/Fuel)	\$0.1295	\$0.0301	\$0.0303	\$0.0301	\$0.0307	\$0.0347	\$0.0300



## Owning and Operating Summary By Year

Availability	8	9	10	11	12	13	14
Calendar Hours in Interval	8760	8760	8760	8760	8760	8760	8760
Maintenance Hours	90	79	105	199	82	83	105
Available Time Based On Calendar Hours	8670	8681	8655	8561	8678	8677	8655
Requested Operating Hours	4380	4380	4380	4380	4380	4380	4380
Actual Operating Hours	4380	4380	4380	4380	4380	4380	4380
Un-Utilized Time	4290	4301	4275	4181	4298	4297	4275
Calendar Availability / Utilization	98.97 %	99.10 %	98.80 %	97.73 %	99.06 %	99.05 %	98.80 %
Operational Availability	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Operational Utilization	50.52 %	50.46 %	50.61 %	51.16 %	50.47 %	50.48 %	50.61 %
Ownership	8	9	10	11	12	13	14
Engine Price	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Additional Purchase Item	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Maintenance	8	9	10	11	12	13	14
Overhauls	\$0.00	\$0.00	\$0.00	\$55,151.38	\$0.00	\$0.00	\$0.00
PM	\$13,136.39	\$12,212.39	\$13,445.62	\$14,342.09	\$13,297.12	\$12,360.89	\$13,544.62
Major Components	\$11,262.86	\$8,460.17	\$14,155.70	\$11,477.36	\$8,460.17	\$9,147.82	\$15,583.08
Fluids	\$9,606.75	\$9,606.75	\$9,606.75	\$11,144.23	\$9,606.75	\$9,606.75	\$9,606.75
Fuel	\$164,699.29	\$164,699.29	\$164,699.29	\$164,699.29	\$164,699.29	\$164,699.29	\$164,699.29
Ancillary Cost	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Summary (without Fuel)	8	9	10	11	12	13	14
Operating Costs	\$34,006.00	\$30,279.31	\$37,208.06	\$92,115.06	\$31,364.04	\$31,115.46	\$38,734.45
Cost Per Hour	\$7.76	\$6.91	\$8.49	\$21.03	\$7.16	\$7.10	\$8.84
Cost Per Hp Hour	\$0.0039	\$0.0035	\$0.0043	\$0.0105	\$0.0036	\$0.0036	\$0.0044
Cost Per eKw Hour	\$0.0052	\$0.0046	\$0.0057	\$0.0141	\$0.0048	\$0.0048	\$0.0059
Summary (with Fuel)	8	9	10	11	12	13	14
Operating Costs (w/Fuel)	\$198,705.29	\$194,978.59	\$201,907.35	\$256,814.35	\$196,063.32	\$195,814.75	\$203,433.74
Cost Per Hour (w/Fuel)	\$45.37	\$44.52	\$46.10	\$58.63	\$44.76	\$44.71	\$46.45
Cost Per Hp Hour (w/Fuel)	\$0.0227	\$0.0223	\$0.0231	\$0.0294	\$0.0224	\$0.0224	\$0.0233
Cost Per eKw Hour (w/Fuel)	\$0.0304	\$0.0299	\$0.0309	\$0.0394	\$0.0300	\$0.0300	\$0.0312



## Owning and Operating Summary By Year

Availability	15	16	17	18	19	20	21
Calendar Hours in Interval	8760	8760	8760	8760	8760	8760	8760
Maintenance Hours	83	88	156	82	106	82	83
Available Time Based On Calendar Hours	8677	8672	8604	8678	8654	8678	8677
Requested Operating Hours	4380	4380	4380	4380	4380	4380	4380
Actual Operating Hours	4380	4380	4380	4380	4380	4380	4380
Un-Utilized Time	4297	4292	4224	4298	4274	4298	4297
Calendar Availability / Utilization	99.05 %	99.00 %	98.22 %	99.06 %	98.79 %	99.06 %	99.05 %
Operational Availability	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Operational Utilization	50.48 %	50.51 %	50.91 %	50.47 %	50.61 %	50.47 %	50.48 %
Ownership	15	16	17	18	19	20	21
Engine Price	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Additional Purchase Item	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Maintenance	15	16	17	18	19	20	21
Overhauls	\$0.00	\$0.00	\$25,480.01	\$0.00	\$0.00	\$0.00	\$0.00
PM	\$12,360.89	\$14,057.32	\$12,360.89	\$12,740.39	\$13,165.12	\$12,740.39	\$12,917.62
Major Components	\$9,147.82	\$10,575.21	\$9,362.32	\$8,460.17	\$16,270.74	\$8,460.17	\$9,147.82
Fluids	\$9,606.75	\$11,144.23	\$9,606.75	\$9,606.75	\$9,606.75	\$9,606.75	\$9,606.75
Fuel	\$164,699.29	\$164,699.29	\$164,699.29	\$164,699.29	\$164,699.29	\$164,699.29	\$164,699.29
Ancillary Cost	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Summary (without Fuel)	15	16	17	18	19	20	21
Operating Costs	\$31,115.46	\$35,776.75	\$56,809.97	\$30,807.31	\$39,042.61	\$30,807.31	\$31,672.19
Cost Per Hour	\$7.10	\$8.17	\$12.97	\$7.03	\$8.91	\$7.03	\$7.23
Cost Per Hp Hour	\$0.0036	\$0.0041	\$0.0065	\$0.0035	\$0.0045	\$0.0035	\$0.0036
Cost Per eKw Hour	\$0.0048	\$0.0055	\$0.0087	\$0.0047	\$0.0060	\$0.0047	\$0.0049
Summary (with Fuel)	15	16	17	18	19	20	21
Operating Costs (w/Fuel)	\$195,814.75	\$200,476.04	\$221,509.26	\$195,506.59	\$203,741.89	\$195,506.59	\$196,371.48
Cost Per Hour (w/Fuel)	\$44.71	\$45.77	\$50.57	\$44.64	\$46.52	\$44.64	\$44.83
Cost Per Hp Hour (w/Fuel)	\$0.0224	\$0.0229	\$0.0253	\$0.0223	\$0.0233	\$0.0223	\$0.0224
Cost Per eKw Hour (w/Fuel)	\$0.0300	\$0.0307	\$0.0339	\$0.0300	\$0.0312	\$0.0300	\$0.0301

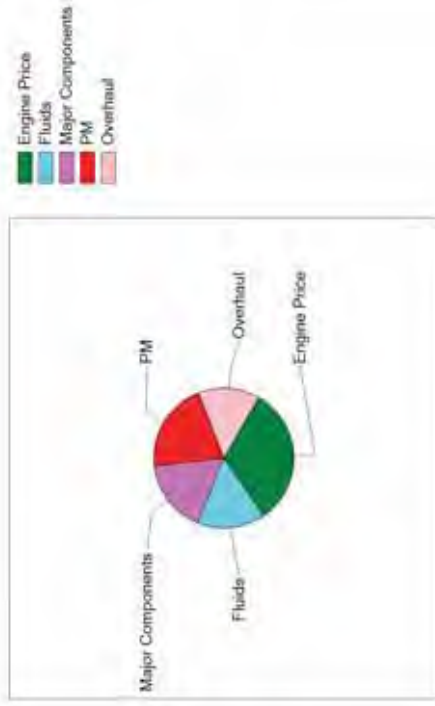
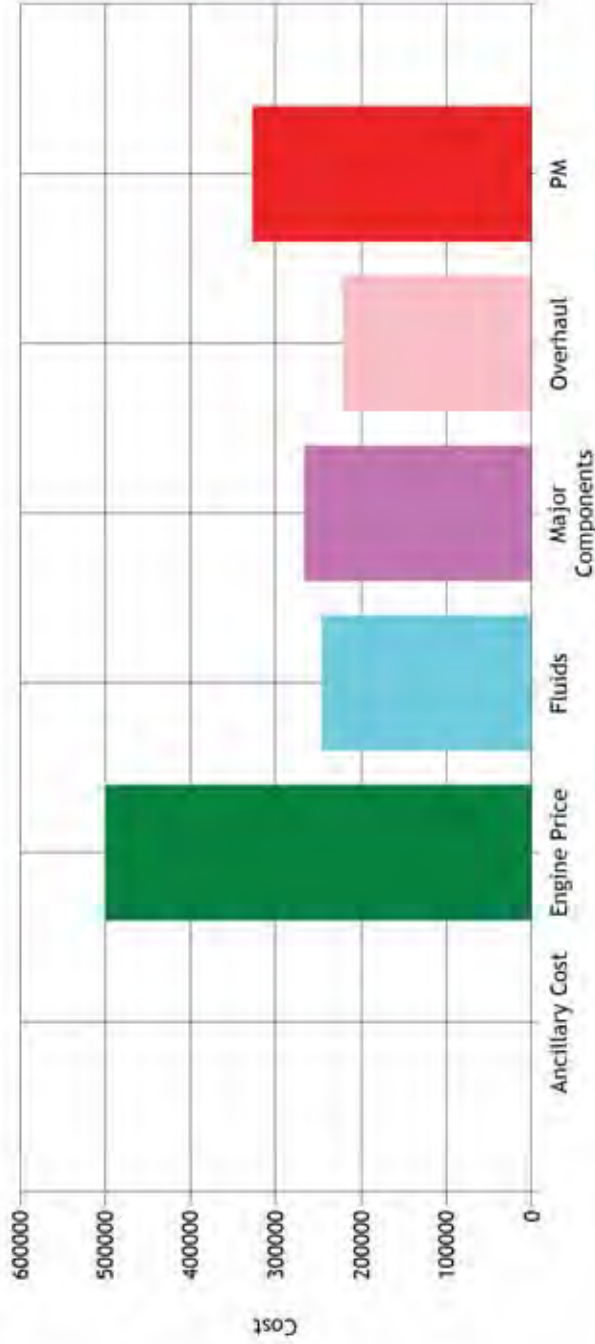


### Owning and Operating Summary By Year

Availability	22	23	24	25	Total
Calendar Hours in Interval	8760	8760	8760	8760	219000
Maintenance Hours	271	98	90	82	2640
Available Time Based On Calendar Hours	8489	8662	8670	8678	216360
Requested Operating Hours	4380	4380	4380	4380	109500
Actual Operating Hours	4380	4380	4380	4380	109500
Un-Utilized Time	4109	4282	4290	4298	106860
Calendar Availability / Utilization	96.91 %	98.88 %	98.97 %	99.06 %	98.79 %
Operational Availability	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Operational Utilization	51.60 %	50.57 %	50.52 %	50.47 %	50.61 %
Ownership	22	23	24	25	Total
Engine Price	\$0.00	\$0.00	\$0.00	\$0.00	\$500,000.00
Additional Purchase Item	\$0.00	\$0.00	\$0.00	\$0.00	\$150,000.00
Maintenance	22	23	24	25	Total
Overhauls	\$115,877.96	\$0.00	\$0.00	\$0.00	\$221,989.37
PM	\$14,870.09	\$12,769.12	\$13,136.39	\$12,740.39	\$326,391.85
Major Components	\$11,477.36	\$13,468.04	\$11,262.86	\$8,460.17	\$265,376.45
Fluids	\$11,144.23	\$9,606.75	\$9,606.75	\$9,606.75	\$246,318.61
Fuel	\$164,699.29	\$164,699.29	\$164,699.29	\$164,699.29	\$4,117,482.14
Ancillary Cost	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Summary (without Fuel)	22	23	24	25	Total
Operating Costs	\$153,369.63	\$35,843.91	\$34,006.00	\$30,807.31	\$1,710,076.28
Cost Per Hour	\$35.02	\$8.18	\$7.76	\$7.03	\$15.62
Cost Per Hp Hour	\$0.0175	\$0.0041	\$0.0039	\$0.0035	\$0.0078
Cost Per eKw Hour	\$0.0235	\$0.0055	\$0.0052	\$0.0047	\$0.0105
Summary (with Fuel)	22	23	24	25	Total
Operating Costs (w/Fuel)	\$318,068.92	\$200,543.19	\$198,705.29	\$195,506.59	\$5,827,558.42
Cost Per Hour (w/Fuel)	\$72.62	\$45.79	\$45.37	\$44.64	\$53.22
Cost Per Hp Hour (w/Fuel)	\$0.0364	\$0.0229	\$0.0227	\$0.0223	\$0.0266
Cost Per eKw Hour (w/Fuel)	\$0.0487	\$0.0307	\$0.0304	\$0.0300	\$0.0357

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## Lifecycle Overview without Fuel

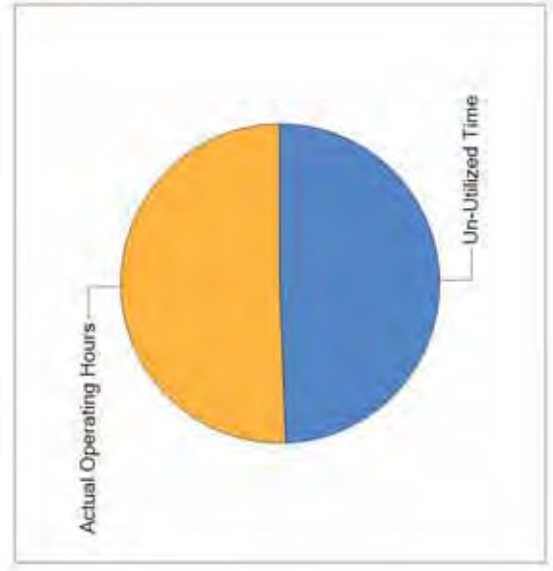
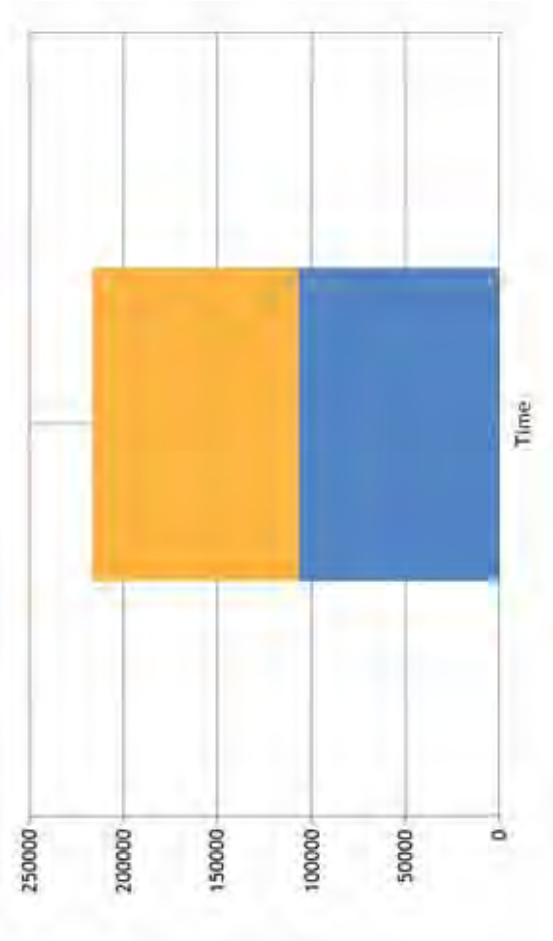


Cost	Without Fuel	% Without Fuel
Ownership Costs		
Engine Price	\$500,000.00	29.24 %
Ancillary/Additional Purchase Items	\$150,000.00	8.77 %
Operating Costs		
Fluids	\$246,318.61	14.40 %
PM	\$326,391.85	19.09 %
Components	\$265,376.45	15.52 %
Overhauls	\$221,989.37	12.98 %
<b>Total</b>	<b>\$1,710,076.28</b>	

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## Product Utilization



## Availability Summary

Calendar Hours in Interval	219,000.00
Maintenance Hours	2,640.00
Available Time Based On Calendar Hours	216,360.00
Requested Operating Hours	109,500.00
Actual Operating Hours	109,500.00
Un-Utilized Time	106,860.00
Calendar Availability / Utilization	98.79 %
Operational Availability	100.00 %
Operational Utilization	50.61 %

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LOS ALAMOS COUNTY  
OTOWI 2 WELL PUMP DRIVE  
LIFE CYCLE ANALYSIS

APPENDIX D

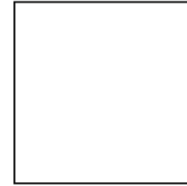
ELECTRICAL 50 YEAR  
COST DATA (OPTION B)

**WILSON  
& COMPANY**

discipline | intensity | collaboration | shared ownership | solutions

**MOTION INDUSTRIES**

3321 MATTHEW AVE NE  
ALBUQUERQUE, NM 87107-1924  
PHONE : 5058842606  
FAX : 5058830846

**Date:** 03/31/20

**Note:** Due to recent volatility of raw materials, price and delivery are subject to change based on availability at time of order.

**To:** MASTERCARD/VISA  
3321 MATTHEW AVE NE  
ALBUQUERQUE, NM 87107  
**PO:** WILSON & COMPANY

**QUOTE NUMBER:** NM18 - 219045  
**CUSTOMER RFQ:** WILSON & COMPANY  
**FOB:** FOB ORG,FRT PP&ADD  
**QUOTE SENT BY:** NEVIN  
**PAYMENT TERMS:** . CRDTCD  
**DELIVERY:** STOCK UNLESS NOTED  
**SHIPPING:** OUR TRUCK

Description	Manufacturer	Quantity	Unit	Unit Price	Amount
-------------	--------------	----------	------	------------	--------

PLUS FREIGHT IN STOCK FROM TX

**LINE ITEM:** 001

**DELIVERY DATE:** 03/31/20

800HP 1800RPM 480V HOLLOW SHAFT

1 EA \$47,315.058 \$47,315.06

VERTICLE MNT VFD RATED

**ITEM NO:** 99999999 TECO-WEST.HOUSE

Subtotal: \$47,315.05  
SALES TAX: \$3,726.06  
Total: \$51,041.11

*All Prices in USD*

LOS ALAMOS COUNTY OTOWI 2 WELL PUMP DRIVE LIFE CYCLE ANALYSIS  
APPENDIX D  
ELECTRICAL 50 YEAR COST DATA (OPTION B)

Year (00)	Motor	Yearly Installation Cost		Yearly Maintenance & Operation Cost			Yearly Demand Charge-Demand KW - Demand Charge			Yearly Energy Cost-Kw-hr per year - Kw-hr Basis			Yearly Distribution Ader-Kw-hr per year - Distribution Rate			Yearly Customer Service Charge-\$215.75		Future Value Total
		Electrical Equipment	Present Total Initial Cost	Future Value FV=PV*(1+r)^N 1.50%	Present Value	Future Value FV=PV*(1+r)^N 1.50%	Present Demand Charge per Kw	Demand KW 663.11	Future Value FV=PV*(1+r)^N 1.50%	KW 663.11	Operational Hours per year 4300	Present Value Kw-hr Basis \$0.0021	Future Value FV=PV*(1+r)^N 1.50%	KW 663.11	Hours per year 4300	Wk-hr per Year 2004.022	Present Value FV=PV*(1+r)^N 0.90%	
0	\$ 65,000.00	\$ 20,000.00	\$ 85,000.00	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
1	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
2	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
3	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
4	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
5	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
6	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
7	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
8	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
9	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
10	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
11	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
12	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
13	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
14	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
15	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
16	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
17	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
18	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
19	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
20	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
21	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
22	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
23	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
24	\$ 65,000.00	\$ 20,000.00	\$ 85,000.00	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
25	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
26	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
27	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
28	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
29	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
30	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
31	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
32	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
33	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
34	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
35	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
36	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
37	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
38	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
39	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
40	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
41	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
42	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
43	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
44	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
45	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
46	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
47	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
48	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
49	\$ -	\$ -	\$ -	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	663.11	\$ 7,247.79	\$ 7,247.79	663.11	4300	\$ 93.3107	\$ 93.3107	663.11	4300	2004.022	\$ 46,470.75	\$ 46,470.75
																	\$ 10,439,256.34	\$ 12,221.19

LOS ALAMOS COUNTY  
OTOWI 2 WELL PUMP DRIVE  
LIFE CYCLE ANALYSIS

APPENDIX E

HYBRID 50 YEAR  
COST DATA (OPTION C)  
(G3512 NPL Genset & Electric Utility)

**WILSON  
& COMPANY**

discipline | intensity | collaboration | shared ownership | solutions



### Executive Summary

For the project LAC Ottowi #2 Gas Genset, under normal operating conditions using the assumption set forth below, we would expect the 25 year total lifecycle cost for this project to be \$3,114,184.82 with fuel and \$1,184,115.07 without fuel. This lifecycle cost assumes a fuel cost initially of \$0.002848 per cubic foot.

The following key assumptions were also utilized in generating this total lifecycle cost:

G3512 NPL\_GSE engine at a rating of 1000 eKw, 1800 rpm

Engine is operating with an Average Load of 75% each year

### Prepared By:

James Cumiford at Wagner Power Systems  
Email: cumiford\_james@wagnerequipment.com  
Phone: 505-343-2774  
Mobile Phone: 505-401-1560  
Address: 4000 Osuna Road NE Albuquerque New Mexico 87109  
Country: United States



Input Parameters

General

Market:

Electric Power

Fuel Type:

Gas

Model

G3512 NPL\_GSE

Performance No.:

1000 eKw, 1800 rpm

Rating:

Engine Price:

\$509,187.00

Fuel Parameters

Fuel Cost:

\$0.002848/ft3

Lower Heat Value:

956.542 Btu/ft3

BSFC:

7903.9995 Btu/bhp-hr

Fuel Flow Rate:

12377.9549 ft3/hr

Fluid Parameters

Oil Cost:

\$20.00/gal

BSOC:

0.00028 lbs/bhp-hr

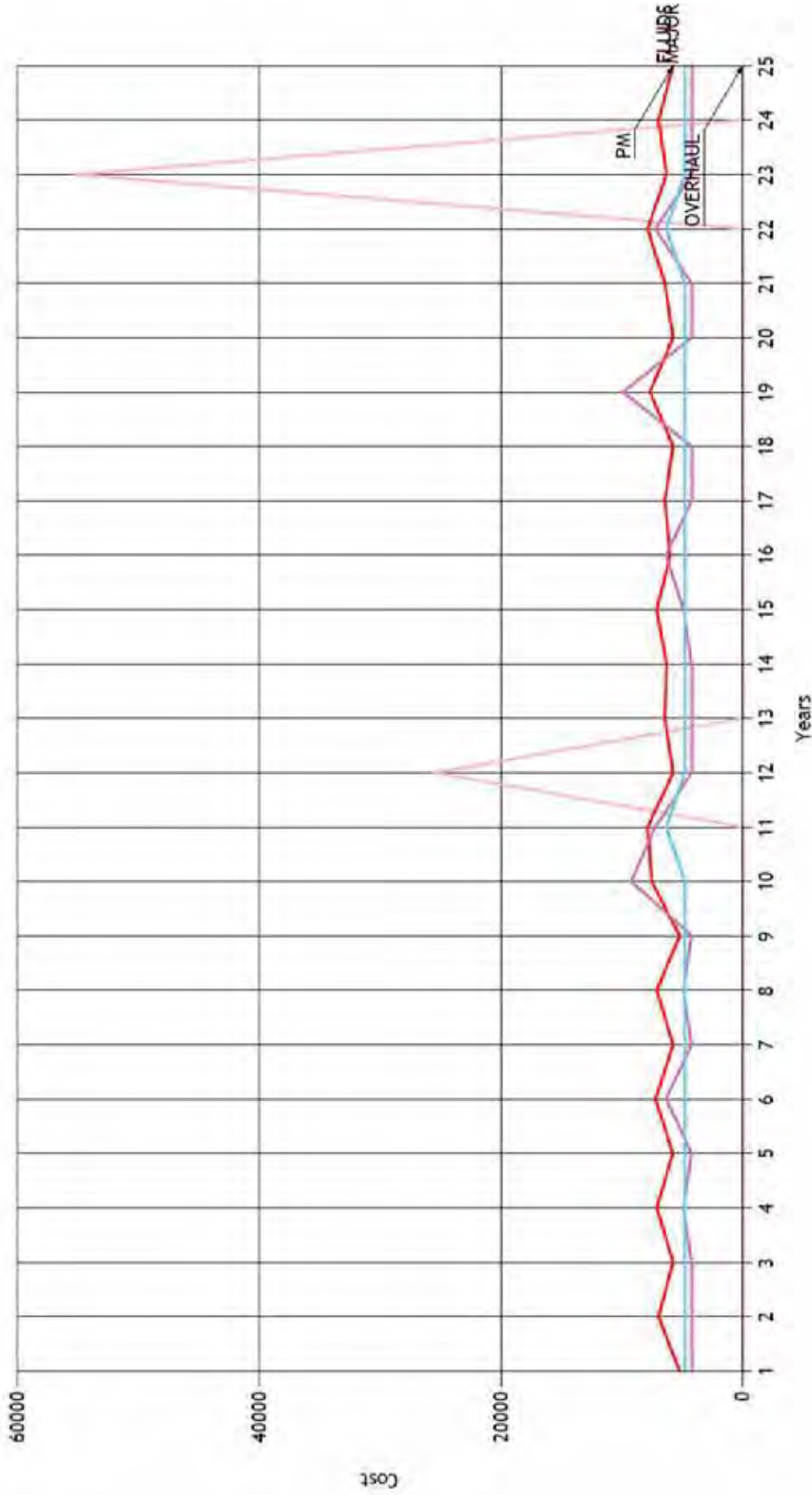
Sump Size:

76.874 gal

Oil Consumption Rate:

0.075 gal/hr

## Annual Cost without Fuel, Engine Cost, or Additional Purchase Items



\* Ancillary Costs were not included in this estimate.



## Owning and Operating Summary By Year

Availability	1	2	3	4	5	6	7
Calendar Hours in Interval	8760	8760	8760	8760	8760	8760	8760
Maintenance Hours	34	45	37	49	34	49	37
Available Time Based On Calendar Hours	8726	8715	8723	8711	8726	8711	8723
Requested Operating Hours	2190	2190	2190	2190	2190	2190	2190
Actual Operating Hours	2190	2190	2190	2190	2190	2190	2190
Un-Utilized Time	6536	6525	6533	6521	6536	6521	6533
Calendar Availability / Utilization	99.61 %	99.49 %	99.58 %	99.44 %	99.61 %	99.44 %	99.58 %
Operational Availability	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Operational Utilization	25.10 %	25.13 %	25.11 %	25.14 %	25.10 %	25.14 %	25.11 %
Ownership	1	2	3	4	5	6	7
Engine Price	\$509,187.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Additional Purchase Item	\$179,967.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Maintenance	1	2	3	4	5	6	7
Overhauls	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
PM	\$5,231.70	\$6,980.70	\$5,759.70	\$7,129.20	\$5,788.43	\$7,228.20	\$5,759.70
Major Components	\$4,230.08	\$4,230.08	\$4,230.08	\$4,917.74	\$4,230.08	\$6,345.13	\$4,230.08
Fluids	\$4,803.37	\$4,803.37	\$4,803.37	\$4,803.37	\$4,803.37	\$4,803.37	\$4,803.37
Fuel	\$77,202.79	\$77,202.79	\$77,202.79	\$77,202.79	\$77,202.79	\$77,202.79	\$77,202.79
Ancillary Cost	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Summary (without Fuel)	1	2	3	4	5	6	7
Operating Costs	\$703,419.15	\$16,014.15	\$14,793.15	\$16,850.31	\$14,821.88	\$18,376.70	\$14,793.15
Cost Per Hour	\$321.20	\$7.31	\$6.75	\$7.69	\$6.77	\$8.39	\$6.75
Cost Per Hp Hour	\$0.1608	\$0.0037	\$0.0034	\$0.0039	\$0.0034	\$0.0042	\$0.0034
Cost Per eKw Hour	\$0.2156	\$0.0049	\$0.0045	\$0.0052	\$0.0045	\$0.0056	\$0.0045
Summary (with Fuel)	1	2	3	4	5	6	7
Operating Costs (w/Fuel)	\$780,621.94	\$93,216.94	\$91,995.94	\$94,053.10	\$92,024.67	\$95,579.49	\$91,995.94
Cost Per Hour (w/Fuel)	\$356.45	\$42.56	\$42.01	\$42.95	\$42.02	\$43.64	\$42.01
Cost Per Hp Hour (w/Fuel)	\$0.1785	\$0.0213	\$0.0210	\$0.0215	\$0.0210	\$0.0219	\$0.0210
Cost Per eKw Hour (w/Fuel)	\$0.2392	\$0.0286	\$0.0282	\$0.0288	\$0.0282	\$0.0293	\$0.0282



### Owning and Operating Summary By Year

Availability	8	9	10	11	12	13	14
Calendar Hours in Interval	8760	8760	8760	8760	8760	8760	8760
Maintenance Hours	49	34	64	56	109	42	37
Available Time Based On Calendar Hours	8711	8726	8696	8704	8651	8718	8723
Requested Operating Hours	2190	2190	2190	2190	2190	2190	2190
Actual Operating Hours	2190	2190	2190	2190	2190	2190	2190
Un-Utilized Time	6521	6536	6506	6514	6461	6528	6533
Calendar Availability / Utilization	99.44 %	99.61 %	99.27 %	99.36 %	98.76 %	99.52 %	99.58 %
Operational Availability	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Operational Utilization	25.14 %	25.10 %	25.18 %	25.16 %	25.31 %	25.12 %	25.11 %
<b>Ownership</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>
Engine Price	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Additional Purchase Item	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Maintenance</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>
Overhauls	\$0.00	\$0.00	\$0.00	\$0.00	\$25,480.01	\$0.00	\$0.00
PM	\$7,129.20	\$5,231.70	\$7,537.43	\$7,889.39	\$5,759.70	\$6,452.70	\$6,316.43
Major Components	\$4,917.74	\$4,230.08	\$9,237.96	\$7,247.28	\$4,230.08	\$4,230.08	\$4,230.08
Fluids	\$4,803.37	\$4,803.37	\$4,803.37	\$6,340.85	\$4,803.37	\$4,803.37	\$4,803.37
Fuel	\$77,202.79	\$77,202.79	\$77,202.79	\$77,202.79	\$77,202.79	\$77,202.79	\$77,202.79
Ancillary Cost	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Summary (without Fuel)</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>
Operating Costs	\$16,850.31	\$14,265.15	\$21,578.76	\$21,477.52	\$40,273.17	\$15,486.15	\$15,349.88
Cost Per Hour	\$7.69	\$6.51	\$9.85	\$9.81	\$18.39	\$7.07	\$7.01
Cost Per Hp Hour	\$0.0039	\$0.0033	\$0.0049	\$0.0049	\$0.0092	\$0.0035	\$0.0035
Cost Per eKw Hour	\$0.0052	\$0.0044	\$0.0066	\$0.0066	\$0.0123	\$0.0047	\$0.0047
<b>Summary (with Fuel)</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>
Operating Costs (w/Fuel)	\$94,053.10	\$91,467.94	\$98,781.55	\$98,680.31	\$117,475.96	\$92,688.94	\$92,552.67
Cost Per Hour (w/Fuel)	\$42.95	\$41.77	\$45.11	\$45.06	\$53.64	\$42.32	\$42.26
Cost Per Hp Hour (w/Fuel)	\$0.0215	\$0.0209	\$0.0226	\$0.0226	\$0.0269	\$0.0212	\$0.0212
Cost Per eKw Hour (w/Fuel)	\$0.0288	\$0.0280	\$0.0303	\$0.0302	\$0.0360	\$0.0284	\$0.0284



Owning and Operating Summary By Year

Availability	15	16	17	18	19	20	21
Calendar Hours in Interval	8760	8760	8760	8760	8760	8760	8760
Maintenance Hours	49	41	42	37	68	37	42
Available Time Based On Calendar Hours	8711	8719	8718	8723	8692	8723	8718
Requested Operating Hours	2190	2190	2190	2190	2190	2190	2190
Actual Operating Hours	2190	2190	2190	2190	2190	2190	2190
Un-Utilized Time	6521	6529	6528	6533	6502	6533	6528
Calendar Availability / Utilization	99.44 %	99.53 %	99.52 %	99.58 %	99.22 %	99.58 %	99.52 %
Operational Availability	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Operational Utilization	25.14 %	25.12 %	25.12 %	25.11 %	25.20 %	25.11 %	25.12 %
Ownership	15	16	17	18	19	20	21
Engine Price	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Additional Purchase Item	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Maintenance	15	16	17	18	19	20	21
Overhauls	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
PM	\$7,129.20	\$6,007.20	\$6,452.70	\$5,759.70	\$7,685.93	\$5,759.70	\$6,452.70
Major Components	\$4,917.74	\$6,345.13	\$4,230.08	\$4,230.08	\$9,925.61	\$4,230.08	\$4,230.08
Fluids	\$4,803.37	\$4,803.37	\$4,803.37	\$4,803.37	\$4,803.37	\$4,803.37	\$4,803.37
Fuel	\$77,202.79	\$77,202.79	\$77,202.79	\$77,202.79	\$77,202.79	\$77,202.79	\$77,202.79
Ancillary Cost	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Summary (without Fuel)	15	16	17	18	19	20	21
Operating Costs	\$16,850.31	\$17,155.70	\$15,486.15	\$14,793.15	\$22,414.91	\$14,793.15	\$15,486.15
Cost Per Hour	\$7.69	\$7.83	\$7.07	\$6.75	\$10.24	\$6.75	\$7.07
Cost Per Hp Hour	\$0.0039	\$0.0039	\$0.0035	\$0.0034	\$0.0051	\$0.0034	\$0.0035
Cost Per eKw Hour	\$0.0052	\$0.0053	\$0.0047	\$0.0045	\$0.0069	\$0.0045	\$0.0047
Summary (with Fuel)	15	16	17	18	19	20	21
Operating Costs (w/Fuel)	\$94,053.10	\$94,358.49	\$92,688.94	\$91,995.94	\$99,617.70	\$91,995.94	\$92,688.94
Cost Per Hour (w/Fuel)	\$42.95	\$43.09	\$42.32	\$42.01	\$45.49	\$42.01	\$42.32
Cost Per Hp Hour (w/Fuel)	\$0.0215	\$0.0216	\$0.0212	\$0.0210	\$0.0228	\$0.0210	\$0.0212
Cost Per eKw Hour (w/Fuel)	\$0.0288	\$0.0289	\$0.0284	\$0.0282	\$0.0305	\$0.0282	\$0.0284

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Prices are adjusted for 1.5% general annual inflation



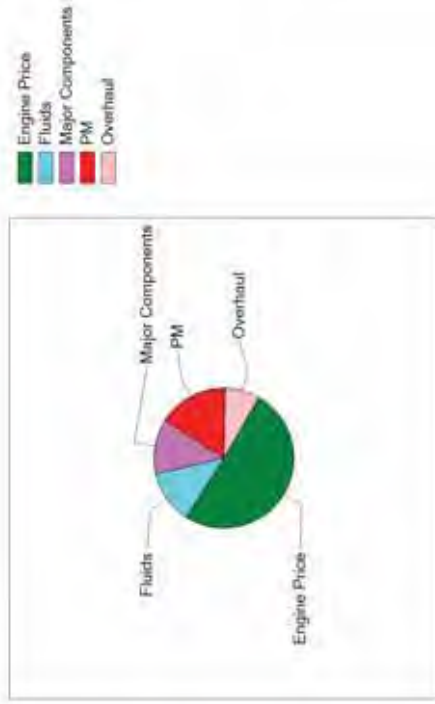
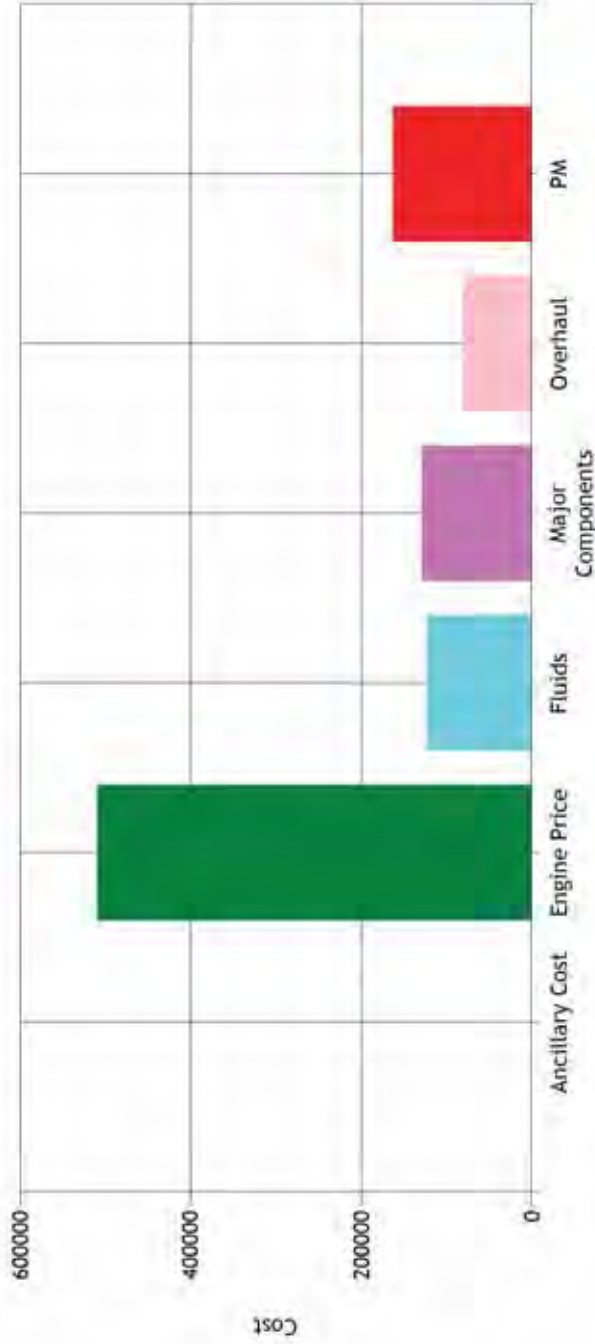
Owning and Operating Summary By Year

Availability	22	23	24	25	Total
Calendar Hours in Interval	8760	8760	8760	8760	219000
Maintenance Hours	56	138	45	37	1268
Available Time Based On Calendar Hours	8704	8622	8715	8723	217732
Requested Operating Hours	2190	2190	2190	2190	54750
Actual Operating Hours	2190	2190	2190	2190	54750
Un-Utilized Time	6514	6432	6525	6533	162982
Calendar Availability / Utilization	99.36 %	98.42 %	99.49 %	99.58 %	99.42 %
Operational Availability	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Operational Utilization	25.16 %	25.40 %	25.13 %	25.11 %	25.15 %
Ownership	22	23	24	25	Total
Engine Price	\$0.00	\$0.00	\$0.00	\$0.00	\$509,187.00
Additional Purchase Item	\$0.00	\$0.00	\$0.00	\$0.00	\$179,967.00
Maintenance	22	23	24	25	Total
Overhauls	\$0.00	\$55,151.38	\$0.00	\$0.00	\$80,631.40
PM	\$7,889.39	\$6,316.43	\$6,980.70	\$5,759.70	\$162,387.43
Major Components	\$7,247.28	\$4,230.08	\$4,230.08	\$4,230.08	\$128,782.94
Fluids	\$6,340.85	\$4,803.37	\$4,803.37	\$4,803.37	\$123,159.30
Fuel	\$77,202.79	\$77,202.79	\$77,202.79	\$77,202.79	\$1,930,069.75
Ancillary Cost	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Summary (without Fuel)	22	23	24	25	Total
Operating Costs	\$21,477.52	\$70,501.27	\$16,014.15	\$14,793.15	\$1,184,115.07
Cost Per Hour	\$9.81	\$32.19	\$7.31	\$6.75	\$21.63
Cost Per Hp Hour	\$0.0049	\$0.0161	\$0.0037	\$0.0034	\$0.0108
Cost Per eKw Hour	\$0.0066	\$0.0216	\$0.0049	\$0.0045	\$0.0145
Summary (with Fuel)	22	23	24	25	Total
Operating Costs (w/Fuel)	\$98,680.31	\$147,704.06	\$93,216.94	\$91,995.94	\$3,114,184.82
Cost Per Hour (w/Fuel)	\$45.06	\$67.44	\$42.56	\$42.01	\$56.88
Cost Per Hp Hour (w/Fuel)	\$0.0226	\$0.0338	\$0.0213	\$0.0210	\$0.0285
Cost Per eKw Hour (w/Fuel)	\$0.0302	\$0.0453	\$0.0286	\$0.0282	\$0.0382

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## Lifecycle Overview without Fuel



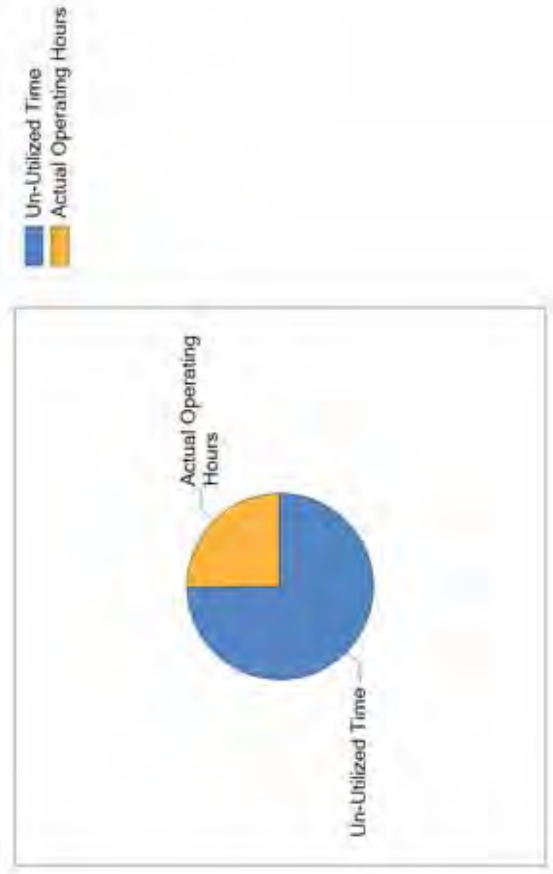
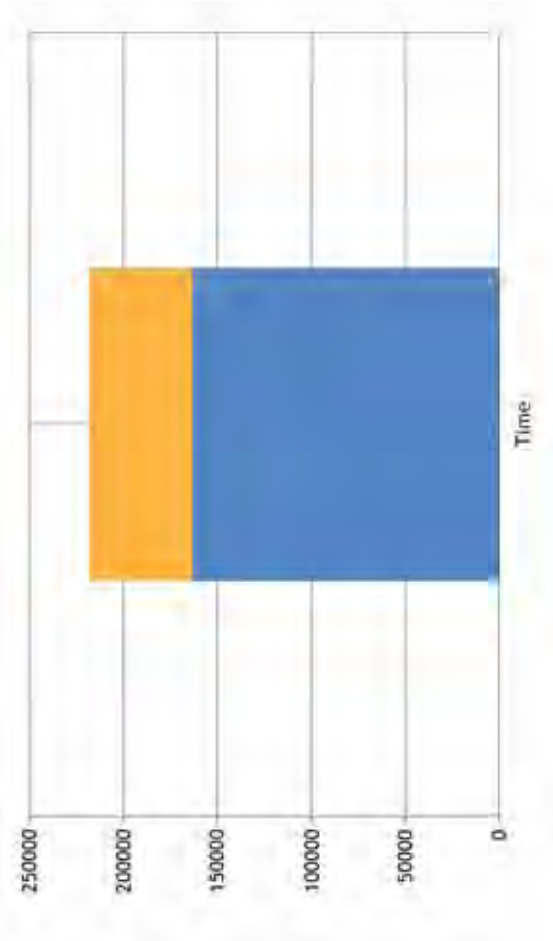
Cost	Without Fuel	% Without Fuel
Ownership Costs		
Engine Price	\$509,187.00	43.00 %
Ancillary/Additional Purchase Items	\$179,967.00	15.20 %
Operating Costs		
Fluids	\$123,159.30	10.40 %
PM	\$162,387.43	13.71 %
Components	\$128,782.94	10.88 %
Overhauls	\$80,631.40	6.81 %
<b>Total</b>	<b>\$1,184,115.07</b>	

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## Product Utilization



### Availability Summary

Calendar Hours in Interval	219,000.00
Maintenance Hours	1,268.00
Available Time Based On Calendar Hours	217,732.00
Requested Operating Hours	54,750.00
Actual Operating Hours	54,750.00
Un-Utilized Time	162,982.00
Calendar Availability / Utilization	99.42 %
Operational Availability	100.00 %
Operational Utilization	25.15 %

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LOS ALAMOS COUNTY TOWNSHIP 2 WELL PUMP DRIVE LIFE CYCLE ANALYSIS  
APPENDIX C  
HYBRID 50 YEAR ELECTRICAL COST DATA (OPTION C)

Year (0)	Motor	Electrical Equipment	Yearly Installation Cost		Yearly Demand Charge-Demand (KW * Demand Charge)		Yearly Energy Costs-Kwhr per year * Cost Rate		Yearly Distribution Action-Kwhr per year * Distribution Rate		Yearly Customer Service Charge- \$215.75		Present Value Total	Future Value Total
			Present Value	Future Value FV=PV*(1+r)^N 1.50%	Demand (KW)	Present Demand Charge per KW	Future Value FV=PV*(1+r)^N 1.50%	Hours per year	KW	Operational Hours per year	Present Value Kwhr Rate	Future Value FV=PV*(1+r)^N 1.50%		
0	\$ 65,000.00	\$ 20,000.00	\$ 85,000.00	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ -
1	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 162,358.45
2	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 324,716.90
3	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 487,075.35
4	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 649,433.80
5	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 811,792.25
6	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 974,150.70
7	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 1,136,509.15
8	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 1,298,867.60
9	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 1,461,226.05
10	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 1,623,584.50
11	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 1,785,942.95
12	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 1,948,301.40
13	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 2,110,659.85
14	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 2,273,018.30
15	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 2,435,376.75
16	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 2,597,735.20
17	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 2,760,093.65
18	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 2,922,452.10
19	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 3,084,810.55
20	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 3,247,169.00
21	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 3,409,527.45
22	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 3,571,885.90
23	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 3,734,244.35
24	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 3,896,602.80
25	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 4,058,961.25
26	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 4,221,319.70
27	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 4,383,678.15
28	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 4,546,036.60
29	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 4,708,395.05
30	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 4,870,753.50
31	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 5,033,111.95
32	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 5,195,470.40
33	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 5,357,828.85
34	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 5,520,187.30
35	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 5,682,545.75
36	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 5,844,904.20
37	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 6,007,262.65
38	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 6,169,621.10
39	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 6,331,979.55
40	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 6,494,338.00
41	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 6,656,696.45
42	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 6,819,054.90
43	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 6,981,413.35
44	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 7,143,771.80
45	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 7,306,130.25
46	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 7,468,488.70
47	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 7,630,847.15
48	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 7,793,205.60
49	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 7,955,564.05
50	\$ -	\$ -	\$ -	\$ -	663.11	\$ 2,747.79	\$ 2,747.79	663.11	663.11	2,190	\$ 215.75	\$ 215.75	\$ 162,358.45	\$ 8,117,922.50



LOS ALAMOS COUNTY  
OTOWI 2 WELL PUMP DRIVE  
LIFE CYCLE ANALYSIS

APPENDIX F

PARAJITO 4 WELL  
RUNTIME DATA

**WILSON  
& COMPANY**

discipline | intensity | collaboration | shared ownership | solutions

LALVS2\$	ANT	pW4-RUN-TIME							
	ANT	-	analog	totalization	program				
		1 points	found			20-Feb-15	0:00:00		0
						21-Feb-15	0:00:00		0
Acronym	:					22-Feb-15	0:00:00		0
	Reporting	on		1 points		23-Feb-15	0:00:00		0
Enter	Start	Date	[30-JAN-2020]:	1-Jan-15		24-Feb-15	0:00:00		0
Enter	Start	Time	[	0:00:00]	:	25-Feb-15	0:00:00		0
Enter	Stop	Date	[	1-JAN-2015]:	31-Dec-19	26-Feb-15	0:00:00		0
Enter	Stop	Time	[23:59:59]	:		27-Feb-15	0:00:00		0
Report	increment	(xx[M/H/D]):	1d			28-Feb-15	0:00:00		0
Searching	history	files				1-Mar-15	0:00:00		0
						2-Mar-15	0:00:00		0
						3-Mar-15	0:00:00		0
						4-Mar-15	0:00:00		0
	PW4-RUN-TIME					5-Mar-15	0:00:00		0
	Interval	start				6-Mar-15	0:00:00		0
	HOURS	HOURS				7-Mar-15	0:00:00		0
						8-Mar-15	0:00:00		0
1-Jan-15	0:00:00		0			9-Mar-15	0:00:00		0
2-Jan-15	0:00:00		0			10-Mar-15	0:00:00		0
3-Jan-15	0:00:00		0			11-Mar-15	0:00:00		0
4-Jan-15	0:00:00		0			12-Mar-15	0:00:00		0
5-Jan-15	0:00:00		0			13-Mar-15	0:00:00		0
6-Jan-15	0:00:00		0			14-Mar-15	0:00:00		0
7-Jan-15	0:00:00		0			15-Mar-15	0:00:00		0
8-Jan-15	0:00:00		0			16-Mar-15	0:00:00		0
9-Jan-15	0:00:00		0			17-Mar-15	0:00:00		0
10-Jan-15	0:00:00		0			18-Mar-15	0:00:00		0
11-Jan-15	0:00:00		0			19-Mar-15	0:00:00		0
12-Jan-15	0:00:00		0			20-Mar-15	0:00:00		0
13-Jan-15	0:00:00		0			21-Mar-15	0:00:00		0
14-Jan-15	0:00:00		0			22-Mar-15	0:00:00		0
15-Jan-15	0:00:00		0			23-Mar-15	0:00:00		0
16-Jan-15	0:00:00		0			24-Mar-15	0:00:00		0
17-Jan-15	0:00:00		0			25-Mar-15	0:00:00		0
18-Jan-15	0:00:00		0			26-Mar-15	0:00:00		0
19-Jan-15	0:00:00		0			27-Mar-15	0:00:00		0
20-Jan-15	0:00:00		0			28-Mar-15	0:00:00		0
21-Jan-15	0:00:00		0			29-Mar-15	0:00:00		0
22-Jan-15	0:00:00		0			30-Mar-15	0:00:00		0
23-Jan-15	0:00:00		0			31-Mar-15	0:00:00		0
24-Jan-15	0:00:00		0			1-Apr-15	0:00:00		0
25-Jan-15	0:00:00		0			2-Apr-15	0:00:00		0
26-Jan-15	0:00:00		0			3-Apr-15	0:00:00		0
27-Jan-15	0:00:00		0			4-Apr-15	0:00:00		0
28-Jan-15	0:00:00		0			5-Apr-15	0:00:00		0
29-Jan-15	0:00:00		0			6-Apr-15	0:00:00		0
30-Jan-15	0:00:00		0			7-Apr-15	0:00:00		0
31-Jan-15	0:00:00		0			8-Apr-15	0:00:00		0
1-Feb-15	0:00:00		0			9-Apr-15	0:00:00		0
2-Feb-15	0:00:00		0			10-Apr-15	0:00:00		0
3-Feb-15	0:00:00		0			11-Apr-15	0:00:00		0
4-Feb-15	0:00:00		0			12-Apr-15	0:00:00		0
5-Feb-15	0:00:00		0			13-Apr-15	0:00:00		0
6-Feb-15	0:00:00		0			14-Apr-15	0:00:00		0
7-Feb-15	0:00:00		0			15-Apr-15	0:00:00		0
8-Feb-15	0:00:00		0			16-Apr-15	0:00:00		0
9-Feb-15	0:00:00		0			17-Apr-15	0:00:00		0.75
10-Feb-15	0:00:00		0			18-Apr-15	0:00:00		1.42
11-Feb-15	0:00:00		0			19-Apr-15	0:00:00		0
12-Feb-15	0:00:00		0			20-Apr-15	0:00:00		0
13-Feb-15	0:00:00		0			21-Apr-15	0:00:00		0
14-Feb-15	0:00:00		0			22-Apr-15	0:00:00		14.45
15-Feb-15	0:00:00		0			23-Apr-15	0:00:00		23.98
16-Feb-15	0:00:00		0			24-Apr-15	0:00:00		23.98
17-Feb-15	0:00:00		0			25-Apr-15	0:00:00		23.98
18-Feb-15	0:00:00		0			26-Apr-15	0:00:00		23.98
19-Feb-15	0:00:00		0			27-Apr-15	0:00:00		23.98
						28-Apr-15	0:00:00		23.98

29-Apr-15	0:00:00	23.98	6-Jul-15	0:00:00	23.98
30-Apr-15	0:00:00	23.98	7-Jul-15	0:00:00	23.98
1-May-15	0:00:00	23.98	8-Jul-15	0:00:00	23.98
2-May-15	0:00:00	23.98	9-Jul-15	0:00:00	23.98
3-May-15	0:00:00	23.98	10-Jul-15	0:00:00	23.98
4-May-15	0:00:00	23.98	11-Jul-15	0:00:00	12.36
5-May-15	0:00:00	0	12-Jul-15	0:00:00	23.98
6-May-15	0:00:00	23.98	13-Jul-15	0:00:00	23.98
7-May-15	0:00:00	23.98	14-Jul-15	0:00:00	21.06
8-May-15	0:00:00	23.98	15-Jul-15	0:00:00	23.98
9-May-15	0:00:00	23.98	16-Jul-15	0:00:00	23.98
10-May-15	0:00:00	23.98	17-Jul-15	0:00:00	23.98
11-May-15	0:00:00	23.98	18-Jul-15	0:00:00	23.98
12-May-15	0:00:00	22.83	19-Jul-15	0:00:00	23.98
13-May-15	0:00:00	23.98	20-Jul-15	0:00:00	23.98
14-May-15	0:00:00	23.98	21-Jul-15	0:00:00	23.98
15-May-15	0:00:00	23.98	22-Jul-15	0:00:00	23.98
16-May-15	0:00:00	23.98	23-Jul-15	0:00:00	23.98
17-May-15	0:00:00	23.98	24-Jul-15	0:00:00	23.98
18-May-15	0:00:00	23.98	25-Jul-15	0:00:00	23.98
19-May-15	0:00:00	23.98	26-Jul-15	0:00:00	23.98
20-May-15	0:00:00	23.98	27-Jul-15	0:00:00	12.36
21-May-15	0:00:00	23.98	28-Jul-15	0:00:00	23.98
22-May-15	0:00:00	23.98	29-Jul-15	0:00:00	23.98
23-May-15	0:00:00	23.98	30-Jul-15	0:00:00	23.98
24-May-15	0:00:00	23.98	31-Jul-15	0:00:00	23.98
25-May-15	0:00:00	23.98	1-Aug-15	0:00:00	23.98
26-May-15	0:00:00	23.98	2-Aug-15	0:00:00	23.98
27-May-15	0:00:00	23.98	3-Aug-15	0:00:00	23.98
28-May-15	0:00:00	23.98	4-Aug-15	0:00:00	23.98
29-May-15	0:00:00	23.98	5-Aug-15	0:00:00	23.98
30-May-15	0:00:00	23.98	6-Aug-15	0:00:00	23.98
31-May-15	0:00:00	23.98	7-Aug-15	0:00:00	23.98
1-Jun-15	0:00:00	23.98	8-Aug-15	0:00:00	23.98
2-Jun-15	0:00:00	20.66	9-Aug-15	0:00:00	23.98
3-Jun-15	0:00:00	23.98	10-Aug-15	0:00:00	23.98
4-Jun-15	0:00:00	23.98	11-Aug-15	0:00:00	8.45
5-Jun-15	0:00:00	23.98	12-Aug-15	0:00:00	0
6-Jun-15	0:00:00	23.98	13-Aug-15	0:00:00	0.06
7-Jun-15	0:00:00	23.98	14-Aug-15	0:00:00	0
8-Jun-15	0:00:00	23.98	15-Aug-15	0:00:00	0
9-Jun-15	0:00:00	23.98	16-Aug-15	0:00:00	0
10-Jun-15	0:00:00	23.98	17-Aug-15	0:00:00	0
11-Jun-15	0:00:00	23.98	18-Aug-15	0:00:00	0
12-Jun-15	0:00:00	23.98	19-Aug-15	0:00:00	0
13-Jun-15	0:00:00	0	20-Aug-15	0:00:00	0
14-Jun-15	0:00:00	23.98	21-Aug-15	0:00:00	10.39
15-Jun-15	0:00:00	23.98	22-Aug-15	0:00:00	23.98
16-Jun-15	0:00:00	9.77	23-Aug-15	0:00:00	23.98
17-Jun-15	0:00:00	14.92	24-Aug-15	0:00:00	23.98
18-Jun-15	0:00:00	23.97	25-Aug-15	0:00:00	23.98
19-Jun-15	0:00:00	23.78	26-Aug-15	0:00:00	23.98
20-Jun-15	0:00:00	23.83	27-Aug-15	0:00:00	23.98
21-Jun-15	0:00:00	23.98	28-Aug-15	0:00:00	23.98
22-Jun-15	0:00:00	23.98	29-Aug-15	0:00:00	23.98
23-Jun-15	0:00:00	23.98	30-Aug-15	0:00:00	23.98
24-Jun-15	0:00:00	23.98	31-Aug-15	0:00:00	23.98
25-Jun-15	0:00:00	23.98	1-Sep-15	0:00:00	23.98
26-Jun-15	0:00:00	23.98	2-Sep-15	0:00:00	23.98
27-Jun-15	0:00:00	23.98	3-Sep-15	0:00:00	23.98
28-Jun-15	0:00:00	23.98	4-Sep-15	0:00:00	23.98
29-Jun-15	0:00:00	23.98	5-Sep-15	0:00:00	23.98
30-Jun-15	0:00:00	23.98	6-Sep-15	0:00:00	23.98
1-Jul-15	0:00:00	23.98	7-Sep-15	0:00:00	23.98
2-Jul-15	0:00:00	23.98	8-Sep-15	0:00:00	23.98
3-Jul-15	0:00:00	23.98	9-Sep-15	0:00:00	23.98
4-Jul-15	0:00:00	23.98	10-Sep-15	0:00:00	23.98
5-Jul-15	0:00:00	23.98	11-Sep-15	0:00:00	23.98

12-Sep-15	0:00:00	23.98	19-Nov-15	0:00:00	0
13-Sep-15	0:00:00	23.98	20-Nov-15	0:00:00	0
14-Sep-15	0:00:00	23.98	21-Nov-15	0:00:00	0
15-Sep-15	0:00:00	23.98	22-Nov-15	0:00:00	0
16-Sep-15	0:00:00	23.98	23-Nov-15	0:00:00	0
17-Sep-15	0:00:00	23.98	24-Nov-15	0:00:00	0
18-Sep-15	0:00:00	23.98	25-Nov-15	0:00:00	0
19-Sep-15	0:00:00	23.98	26-Nov-15	0:00:00	0
20-Sep-15	0:00:00	23.98	27-Nov-15	0:00:00	0
21-Sep-15	0:00:00	0	28-Nov-15	0:00:00	0
22-Sep-15	0:00:00	23.98	29-Nov-15	0:00:00	0
23-Sep-15	0:00:00	23.98	30-Nov-15	0:00:00	0
24-Sep-15	0:00:00	23.98	1-Dec-15	0:00:00	0
25-Sep-15	0:00:00	0	2-Dec-15	0:00:00	0
26-Sep-15	0:00:00	23.98	3-Dec-15	0:00:00	0
27-Sep-15	0:00:00	23.98	4-Dec-15	0:00:00	0
28-Sep-15	0:00:00	23.98	5-Dec-15	0:00:00	0
29-Sep-15	0:00:00	23.98	6-Dec-15	0:00:00	0
30-Sep-15	0:00:00	22.05	7-Dec-15	0:00:00	0
1-Oct-15	0:00:00	23.98	8-Dec-15	0:00:00	0
2-Oct-15	0:00:00	23.98	9-Dec-15	0:00:00	0
3-Oct-15	0:00:00	23.19	10-Dec-15	0:00:00	0
4-Oct-15	0:00:00	23.98	11-Dec-15	0:00:00	0
5-Oct-15	0:00:00	23.98	12-Dec-15	0:00:00	0
6-Oct-15	0:00:00	23.98	13-Dec-15	0:00:00	0
7-Oct-15	0:00:00	23.98	14-Dec-15	0:00:00	0
8-Oct-15	0:00:00	23.98	15-Dec-15	0:00:00	0
9-Oct-15	0:00:00	23.98	16-Dec-15	0:00:00	0
10-Oct-15	0:00:00	13.3	17-Dec-15	0:00:00	0
11-Oct-15	0:00:00	0	18-Dec-15	0:00:00	0
12-Oct-15	0:00:00	0	19-Dec-15	0:00:00	0
13-Oct-15	0:00:00	0	20-Dec-15	0:00:00	0
14-Oct-15	0:00:00	0	21-Dec-15	0:00:00	0
15-Oct-15	0:00:00	0	22-Dec-15	0:00:00	0
16-Oct-15	0:00:00	0	23-Dec-15	0:00:00	0
17-Oct-15	0:00:00	0	24-Dec-15	0:00:00	0
18-Oct-15	0:00:00	0	25-Dec-15	0:00:00	0
19-Oct-15	0:00:00	0	26-Dec-15	0:00:00	0
20-Oct-15	0:00:00	0	27-Dec-15	0:00:00	0
21-Oct-15	0:00:00	0	28-Dec-15	0:00:00	0
22-Oct-15	0:00:00	0	29-Dec-15	0:00:00	0
23-Oct-15	0:00:00	0	30-Dec-15	0:00:00	0
24-Oct-15	0:00:00	0	31-Dec-15	0:00:00	0
25-Oct-15	0:00:00	0	1-Jan-16	0:00:00	0
26-Oct-15	0:00:00	0	2-Jan-16	0:00:00	0
27-Oct-15	0:00:00	0	3-Jan-16	0:00:00	0
28-Oct-15	0:00:00	0	4-Jan-16	0:00:00	0
29-Oct-15	0:00:00	0	5-Jan-16	0:00:00	0
30-Oct-15	0:00:00	0	6-Jan-16	0:00:00	0
31-Oct-15	0:00:00	0	7-Jan-16	0:00:00	0
1-Nov-15	0:00:00	0	8-Jan-16	0:00:00	0
2-Nov-15	0:00:00	0	9-Jan-16	0:00:00	0
3-Nov-15	0:00:00	0	10-Jan-16	0:00:00	0
4-Nov-15	0:00:00	0	11-Jan-16	0:00:00	0
5-Nov-15	0:00:00	0	12-Jan-16	0:00:00	0
6-Nov-15	0:00:00	0	13-Jan-16	0:00:00	0
7-Nov-15	0:00:00	0	14-Jan-16	0:00:00	0
8-Nov-15	0:00:00	0	15-Jan-16	0:00:00	0
9-Nov-15	0:00:00	0	16-Jan-16	0:00:00	0
10-Nov-15	0:00:00	0	17-Jan-16	0:00:00	0
11-Nov-15	0:00:00	0	18-Jan-16	0:00:00	0
12-Nov-15	0:00:00	0	19-Jan-16	0:00:00	0
13-Nov-15	0:00:00	0	20-Jan-16	0:00:00	0
14-Nov-15	0:00:00	0	21-Jan-16	0:00:00	0
15-Nov-15	0:00:00	0	22-Jan-16	0:00:00	0
16-Nov-15	0:00:00	0	23-Jan-16	0:00:00	0
17-Nov-15	0:00:00	0	24-Jan-16	0:00:00	0
18-Nov-15	0:00:00	0	25-Jan-16	0:00:00	0

26-Jan-16	0:00:00	0	3-Apr-16	0:00:00	0
27-Jan-16	0:00:00	0	4-Apr-16	0:00:00	0
28-Jan-16	0:00:00	0	5-Apr-16	0:00:00	0
29-Jan-16	0:00:00	0	6-Apr-16	0:00:00	0
30-Jan-16	0:00:00	0	7-Apr-16	0:00:00	0
31-Jan-16	0:00:00	0	8-Apr-16	0:00:00	0
1-Feb-16	0:00:00	0	9-Apr-16	0:00:00	0
2-Feb-16	0:00:00	0	10-Apr-16	0:00:00	0
3-Feb-16	0:00:00	0	11-Apr-16	0:00:00	0
4-Feb-16	0:00:00	0	12-Apr-16	0:00:00	0
5-Feb-16	0:00:00	0	13-Apr-16	0:00:00	0
6-Feb-16	0:00:00	0	14-Apr-16	0:00:00	0
7-Feb-16	0:00:00	0	15-Apr-16	0:00:00	0
8-Feb-16	0:00:00	0	16-Apr-16	0:00:00	0
9-Feb-16	0:00:00	0	17-Apr-16	0:00:00	0
10-Feb-16	0:00:00	0	18-Apr-16	0:00:00	0
11-Feb-16	0:00:00	0	19-Apr-16	0:00:00	0
12-Feb-16	0:00:00	0	20-Apr-16	0:00:00	0
13-Feb-16	0:00:00	0	21-Apr-16	0:00:00	0
14-Feb-16	0:00:00	0	22-Apr-16	0:00:00	0
15-Feb-16	0:00:00	0	23-Apr-16	0:00:00	0
16-Feb-16	0:00:00	0	24-Apr-16	0:00:00	0
17-Feb-16	0:00:00	0	25-Apr-16	0:00:00	0
18-Feb-16	0:00:00	0	26-Apr-16	0:00:00	0
19-Feb-16	0:00:00	0	27-Apr-16	0:00:00	0
20-Feb-16	0:00:00	0	28-Apr-16	0:00:00	0
21-Feb-16	0:00:00	0	29-Apr-16	0:00:00	0
22-Feb-16	0:00:00	0	30-Apr-16	0:00:00	0
23-Feb-16	0:00:00	0	1-May-16	0:00:00	0
24-Feb-16	0:00:00	0	2-May-16	0:00:00	0
25-Feb-16	0:00:00	0	3-May-16	0:00:00	0
26-Feb-16	0:00:00	0	4-May-16	0:00:00	0
27-Feb-16	0:00:00	0	5-May-16	0:00:00	0
28-Feb-16	0:00:00	0	6-May-16	0:00:00	0
29-Feb-16	0:00:00	0	7-May-16	0:00:00	0
1-Mar-16	0:00:00	0	8-May-16	0:00:00	0
2-Mar-16	0:00:00	0	9-May-16	0:00:00	0
3-Mar-16	0:00:00	0	10-May-16	0:00:00	0
4-Mar-16	0:00:00	0	11-May-16	0:00:00	0
5-Mar-16	0:00:00	0	12-May-16	0:00:00	0
6-Mar-16	0:00:00	0	13-May-16	0:00:00	0
7-Mar-16	0:00:00	0	14-May-16	0:00:00	0
8-Mar-16	0:00:00	0	15-May-16	0:00:00	0
9-Mar-16	0:00:00	0	16-May-16	0:00:00	0
10-Mar-16	0:00:00	0	17-May-16	0:00:00	14.22
11-Mar-16	0:00:00	0	18-May-16	0:00:00	23.98
12-Mar-16	0:00:00	0	19-May-16	0:00:00	23.98
13-Mar-16	0:00:00	0	20-May-16	0:00:00	23.98
14-Mar-16	0:00:00	0	21-May-16	0:00:00	23.98
15-Mar-16	0:00:00	0	22-May-16	0:00:00	23.98
16-Mar-16	0:00:00	0	23-May-16	0:00:00	23.98
17-Mar-16	0:00:00	0	24-May-16	0:00:00	23.98
18-Mar-16	0:00:00	0	25-May-16	0:00:00	23.98
19-Mar-16	0:00:00	0	26-May-16	0:00:00	23.98
20-Mar-16	0:00:00	0	27-May-16	0:00:00	23.98
21-Mar-16	0:00:00	0	28-May-16	0:00:00	23.98
22-Mar-16	0:00:00	0	29-May-16	0:00:00	23.98
23-Mar-16	0:00:00	0	30-May-16	0:00:00	23.98
24-Mar-16	0:00:00	0	31-May-16	0:00:00	23.98
25-Mar-16	0:00:00	0	1-Jun-16	0:00:00	0
26-Mar-16	0:00:00	0	2-Jun-16	0:00:00	23.98
27-Mar-16	0:00:00	0	3-Jun-16	0:00:00	23.98
28-Mar-16	0:00:00	0	4-Jun-16	0:00:00	23.98
29-Mar-16	0:00:00	0	5-Jun-16	0:00:00	23.98
30-Mar-16	0:00:00	0	6-Jun-16	0:00:00	23.98
31-Mar-16	0:00:00	0	7-Jun-16	0:00:00	23.98
1-Apr-16	0:00:00	0	8-Jun-16	0:00:00	23.98
2-Apr-16	0:00:00	0	9-Jun-16	0:00:00	23.98

10-Jun-16	0:00:00	23.98	17-Aug-16	0:00:00	0
11-Jun-16	0:00:00	23.98	18-Aug-16	0:00:00	0
12-Jun-16	0:00:00	23.98	19-Aug-16	0:00:00	0
13-Jun-16	0:00:00	23.98	20-Aug-16	0:00:00	0
14-Jun-16	0:00:00	23.98	21-Aug-16	0:00:00	0
15-Jun-16	0:00:00	0	22-Aug-16	0:00:00	0
16-Jun-16	0:00:00	21.14	23-Aug-16	0:00:00	0
17-Jun-16	0:00:00	23.98	24-Aug-16	0:00:00	0
18-Jun-16	0:00:00	23.98	25-Aug-16	0:00:00	0
19-Jun-16	0:00:00	23.98	26-Aug-16	0:00:00	0
20-Jun-16	0:00:00	23.98	27-Aug-16	0:00:00	0
21-Jun-16	0:00:00	23.98	28-Aug-16	0:00:00	0
22-Jun-16	0:00:00	21.39	29-Aug-16	0:00:00	0
23-Jun-16	0:00:00	14.34	30-Aug-16	0:00:00	0
24-Jun-16	0:00:00	23.98	31-Aug-16	0:00:00	0
25-Jun-16	0:00:00	21.39	1-Sep-16	0:00:00	0
26-Jun-16	0:00:00	21.39	2-Sep-16	0:00:00	0
27-Jun-16	0:00:00	21.39	3-Sep-16	0:00:00	0
28-Jun-16	0:00:00	23.98	4-Sep-16	0:00:00	0
29-Jun-16	0:00:00	23.98	5-Sep-16	0:00:00	0
30-Jun-16	0:00:00	23.98	6-Sep-16	0:00:00	0
1-Jul-16	0:00:00	21.39	7-Sep-16	0:00:00	0
2-Jul-16	0:00:00	23.98	8-Sep-16	0:00:00	0
3-Jul-16	0:00:00	23.98	9-Sep-16	0:00:00	0
4-Jul-16	0:00:00	23.98	10-Sep-16	0:00:00	0
5-Jul-16	0:00:00	23.98	11-Sep-16	0:00:00	0
6-Jul-16	0:00:00	23.98	12-Sep-16	0:00:00	0
7-Jul-16	0:00:00	23.98	13-Sep-16	0:00:00	0
8-Jul-16	0:00:00	21.39	14-Sep-16	0:00:00	0
9-Jul-16	0:00:00	23.98	15-Sep-16	0:00:00	0
10-Jul-16	0:00:00	21.39	16-Sep-16	0:00:00	0
11-Jul-16	0:00:00	23.98	17-Sep-16	0:00:00	0
12-Jul-16	0:00:00	14.69	18-Sep-16	0:00:00	0
13-Jul-16	0:00:00	4.59	19-Sep-16	0:00:00	0
14-Jul-16	0:00:00	0	20-Sep-16	0:00:00	0
15-Jul-16	0:00:00	0	21-Sep-16	0:00:00	0
16-Jul-16	0:00:00	0	22-Sep-16	0:00:00	0
17-Jul-16	0:00:00	0	23-Sep-16	0:00:00	0
18-Jul-16	0:00:00	0	24-Sep-16	0:00:00	0
19-Jul-16	0:00:00	0	25-Sep-16	0:00:00	0
20-Jul-16	0:00:00	0	26-Sep-16	0:00:00	0
21-Jul-16	0:00:00	0	27-Sep-16	0:00:00	0
22-Jul-16	0:00:00	0	28-Sep-16	0:00:00	0
23-Jul-16	0:00:00	0	29-Sep-16	0:00:00	0
24-Jul-16	0:00:00	0	30-Sep-16	0:00:00	0
25-Jul-16	0:00:00	0	1-Oct-16	0:00:00	0
26-Jul-16	0:00:00	0	2-Oct-16	0:00:00	0
27-Jul-16	0:00:00	0	3-Oct-16	0:00:00	0
28-Jul-16	0:00:00	0	4-Oct-16	0:00:00	0
29-Jul-16	0:00:00	0	5-Oct-16	0:00:00	0
30-Jul-16	0:00:00	0	6-Oct-16	0:00:00	0
31-Jul-16	0:00:00	0	7-Oct-16	0:00:00	0
1-Aug-16	0:00:00	0	8-Oct-16	0:00:00	0
2-Aug-16	0:00:00	0	9-Oct-16	0:00:00	0
3-Aug-16	0:00:00	0	10-Oct-16	0:00:00	0
4-Aug-16	0:00:00	0	11-Oct-16	0:00:00	0
5-Aug-16	0:00:00	0	12-Oct-16	0:00:00	0
6-Aug-16	0:00:00	0	13-Oct-16	0:00:00	0
7-Aug-16	0:00:00	0	14-Oct-16	0:00:00	0
8-Aug-16	0:00:00	0	15-Oct-16	0:00:00	0
9-Aug-16	0:00:00	0	16-Oct-16	0:00:00	0
10-Aug-16	0:00:00	0	17-Oct-16	0:00:00	0
11-Aug-16	0:00:00	0	18-Oct-16	0:00:00	0
12-Aug-16	0:00:00	0	19-Oct-16	0:00:00	0
13-Aug-16	0:00:00	0	20-Oct-16	0:00:00	0
14-Aug-16	0:00:00	0	21-Oct-16	0:00:00	0
15-Aug-16	0:00:00	0	22-Oct-16	0:00:00	0
16-Aug-16	0:00:00	0	23-Oct-16	0:00:00	0

24-Oct-16	0:00:00	0	31-Dec-16	0:00:00	0
25-Oct-16	0:00:00	0	1-Jan-17	0:00:00	0
26-Oct-16	0:00:00	0	2-Jan-17	0:00:00	0
27-Oct-16	0:00:00	0	3-Jan-17	0:00:00	0
28-Oct-16	0:00:00	0	4-Jan-17	0:00:00	0
29-Oct-16	0:00:00	0	5-Jan-17	0:00:00	0
30-Oct-16	0:00:00	0	6-Jan-17	0:00:00	0
31-Oct-16	0:00:00	0	7-Jan-17	0:00:00	0
1-Nov-16	0:00:00	0	8-Jan-17	0:00:00	0
2-Nov-16	0:00:00	0	9-Jan-17	0:00:00	0
3-Nov-16	0:00:00	0	10-Jan-17	0:00:00	0
4-Nov-16	0:00:00	0	11-Jan-17	0:00:00	0
5-Nov-16	0:00:00	0	12-Jan-17	0:00:00	0
6-Nov-16	0:00:00	0	13-Jan-17	0:00:00	0
7-Nov-16	0:00:00	0	14-Jan-17	0:00:00	0
8-Nov-16	0:00:00	0	15-Jan-17	0:00:00	0
9-Nov-16	0:00:00	0	16-Jan-17	0:00:00	0
10-Nov-16	0:00:00	0	17-Jan-17	0:00:00	0
11-Nov-16	0:00:00	0	18-Jan-17	0:00:00	0
12-Nov-16	0:00:00	0	19-Jan-17	0:00:00	0
13-Nov-16	0:00:00	0	20-Jan-17	0:00:00	0
14-Nov-16	0:00:00	0	21-Jan-17	0:00:00	0
15-Nov-16	0:00:00	0	22-Jan-17	0:00:00	0
16-Nov-16	0:00:00	0	23-Jan-17	0:00:00	0
17-Nov-16	0:00:00	0	24-Jan-17	0:00:00	0
18-Nov-16	0:00:00	0	25-Jan-17	0:00:00	0
19-Nov-16	0:00:00	0	26-Jan-17	0:00:00	0
20-Nov-16	0:00:00	0	27-Jan-17	0:00:00	0
21-Nov-16	0:00:00	0	28-Jan-17	0:00:00	0
22-Nov-16	0:00:00	0	29-Jan-17	0:00:00	0
23-Nov-16	0:00:00	0	30-Jan-17	0:00:00	0
24-Nov-16	0:00:00	0	31-Jan-17	0:00:00	0
25-Nov-16	0:00:00	0	1-Feb-17	0:00:00	0
26-Nov-16	0:00:00	0	2-Feb-17	0:00:00	0
27-Nov-16	0:00:00	0	3-Feb-17	0:00:00	0
28-Nov-16	0:00:00	0	4-Feb-17	0:00:00	0
29-Nov-16	0:00:00	0	5-Feb-17	0:00:00	0
30-Nov-16	0:00:00	0	6-Feb-17	0:00:00	0
1-Dec-16	0:00:00	0	7-Feb-17	0:00:00	0
2-Dec-16	0:00:00	0	8-Feb-17	0:00:00	0
3-Dec-16	0:00:00	0	9-Feb-17	0:00:00	0
4-Dec-16	0:00:00	0	10-Feb-17	0:00:00	0
5-Dec-16	0:00:00	0	11-Feb-17	0:00:00	0
6-Dec-16	0:00:00	0	12-Feb-17	0:00:00	0
7-Dec-16	0:00:00	0	13-Feb-17	0:00:00	0
8-Dec-16	0:00:00	0	14-Feb-17	0:00:00	0
9-Dec-16	0:00:00	0	15-Feb-17	0:00:00	0
10-Dec-16	0:00:00	0	16-Feb-17	0:00:00	0
11-Dec-16	0:00:00	0	17-Feb-17	0:00:00	0
12-Dec-16	0:00:00	0	18-Feb-17	0:00:00	0
13-Dec-16	0:00:00	0	19-Feb-17	0:00:00	0
14-Dec-16	0:00:00	0	20-Feb-17	0:00:00	0
15-Dec-16	0:00:00	0	21-Feb-17	0:00:00	0
16-Dec-16	0:00:00	0	22-Feb-17	0:00:00	0
17-Dec-16	0:00:00	0	23-Feb-17	0:00:00	0
18-Dec-16	0:00:00	0	24-Feb-17	0:00:00	0
19-Dec-16	0:00:00	0	25-Feb-17	0:00:00	0
20-Dec-16	0:00:00	0	26-Feb-17	0:00:00	0
21-Dec-16	0:00:00	0	27-Feb-17	0:00:00	0
22-Dec-16	0:00:00	0	28-Feb-17	0:00:00	0
23-Dec-16	0:00:00	0	1-Mar-17	0:00:00	0
24-Dec-16	0:00:00	0	2-Mar-17	0:00:00	0
25-Dec-16	0:00:00	0	3-Mar-17	0:00:00	0
26-Dec-16	0:00:00	0	4-Mar-17	0:00:00	0
27-Dec-16	0:00:00	0	5-Mar-17	0:00:00	0
28-Dec-16	0:00:00	0	6-Mar-17	0:00:00	0
29-Dec-16	0:00:00	0	7-Mar-17	0:00:00	0
30-Dec-16	0:00:00	0	8-Mar-17	0:00:00	0

9-Mar-17	0:00:00	0	16-May-17	0:00:00	0
10-Mar-17	0:00:00	0	17-May-17	0:00:00	0
11-Mar-17	0:00:00	0	18-May-17	0:00:00	0
12-Mar-17	0:00:00	0	19-May-17	0:00:00	0
13-Mar-17	0:00:00	0	20-May-17	0:00:00	0
14-Mar-17	0:00:00	0	21-May-17	0:00:00	0
15-Mar-17	0:00:00	0	22-May-17	0:00:00	0
16-Mar-17	0:00:00	0	23-May-17	0:00:00	0
17-Mar-17	0:00:00	0	24-May-17	0:00:00	0
18-Mar-17	0:00:00	0	25-May-17	0:00:00	0
19-Mar-17	0:00:00	0	26-May-17	0:00:00	0
20-Mar-17	0:00:00	0	27-May-17	0:00:00	0
21-Mar-17	0:00:00	0	28-May-17	0:00:00	0
22-Mar-17	0:00:00	0	29-May-17	0:00:00	0
23-Mar-17	0:00:00	0	30-May-17	0:00:00	0
24-Mar-17	0:00:00	0	31-May-17	0:00:00	0
25-Mar-17	0:00:00	0	1-Jun-17	0:00:00	0
26-Mar-17	0:00:00	0	2-Jun-17	0:00:00	0
27-Mar-17	0:00:00	0	3-Jun-17	0:00:00	0
28-Mar-17	0:00:00	0	4-Jun-17	0:00:00	0
29-Mar-17	0:00:00	0	5-Jun-17	0:00:00	0
30-Mar-17	0:00:00	0	6-Jun-17	0:00:00	0
31-Mar-17	0:00:00	0	7-Jun-17	0:00:00	0
1-Apr-17	0:00:00	0	8-Jun-17	0:00:00	0
2-Apr-17	0:00:00	0	9-Jun-17	0:00:00	0
3-Apr-17	0:00:00	0	10-Jun-17	0:00:00	0
4-Apr-17	0:00:00	0	11-Jun-17	0:00:00	0
5-Apr-17	0:00:00	0	12-Jun-17	0:00:00	0
6-Apr-17	0:00:00	0	13-Jun-17	0:00:00	0
7-Apr-17	0:00:00	0	14-Jun-17	0:00:00	0
8-Apr-17	0:00:00	0	15-Jun-17	0:00:00	0
9-Apr-17	0:00:00	0	16-Jun-17	0:00:00	0
10-Apr-17	0:00:00	0	17-Jun-17	0:00:00	0
11-Apr-17	0:00:00	0	18-Jun-17	0:00:00	0
12-Apr-17	0:00:00	0	19-Jun-17	0:00:00	0
13-Apr-17	0:00:00	0	20-Jun-17	0:00:00	0
14-Apr-17	0:00:00	0	21-Jun-17	0:00:00	0
15-Apr-17	0:00:00	0	22-Jun-17	0:00:00	0
16-Apr-17	0:00:00	0	23-Jun-17	0:00:00	0
17-Apr-17	0:00:00	0	24-Jun-17	0:00:00	0
18-Apr-17	0:00:00	0	25-Jun-17	0:00:00	0
19-Apr-17	0:00:00	0	26-Jun-17	0:00:00	0
20-Apr-17	0:00:00	0	27-Jun-17	0:00:00	0
21-Apr-17	0:00:00	0	28-Jun-17	0:00:00	0
22-Apr-17	0:00:00	0	29-Jun-17	0:00:00	0
23-Apr-17	0:00:00	0	30-Jun-17	0:00:00	0
24-Apr-17	0:00:00	0	1-Jul-17	0:00:00	0
25-Apr-17	0:00:00	0	2-Jul-17	0:00:00	0
26-Apr-17	0:00:00	0	3-Jul-17	0:00:00	0
27-Apr-17	0:00:00	0	4-Jul-17	0:00:00	0
28-Apr-17	0:00:00	0	5-Jul-17	0:00:00	0
29-Apr-17	0:00:00	0	6-Jul-17	0:00:00	0
30-Apr-17	0:00:00	0	7-Jul-17	0:00:00	0
1-May-17	0:00:00	0	8-Jul-17	0:00:00	0
2-May-17	0:00:00	0	9-Jul-17	0:00:00	0
3-May-17	0:00:00	0	10-Jul-17	0:00:00	0
4-May-17	0:00:00	0	11-Jul-17	0:00:00	0
5-May-17	0:00:00	0	12-Jul-17	0:00:00	0
6-May-17	0:00:00	0	13-Jul-17	0:00:00	0
7-May-17	0:00:00	0	14-Jul-17	0:00:00	0
8-May-17	0:00:00	0	15-Jul-17	0:00:00	0
9-May-17	0:00:00	0	16-Jul-17	0:00:00	0
10-May-17	0:00:00	0	17-Jul-17	0:00:00	0
11-May-17	0:00:00	0	18-Jul-17	0:00:00	0
12-May-17	0:00:00	0	19-Jul-17	0:00:00	0
13-May-17	0:00:00	0	20-Jul-17	0:00:00	0
14-May-17	0:00:00	0	21-Jul-17	0:00:00	0
15-May-17	0:00:00	0	22-Jul-17	0:00:00	0

23-Jul-17	0:00:00	0	29-Sep-17	0:00:00	23.98
24-Jul-17	0:00:00	0	30-Sep-17	0:00:00	23.98
25-Jul-17	0:00:00	0	1-Oct-17	0:00:00	0
26-Jul-17	0:00:00	0	2-Oct-17	0:00:00	23.98
27-Jul-17	0:00:00	0	3-Oct-17	0:00:00	23.98
28-Jul-17	0:00:00	0	4-Oct-17	0:00:00	23.98
29-Jul-17	0:00:00	0	5-Oct-17	0:00:00	23.98
30-Jul-17	0:00:00	0	6-Oct-17	0:00:00	23.98
31-Jul-17	0:00:00	0	7-Oct-17	0:00:00	23.98
1-Aug-17	0:00:00	0	8-Oct-17	0:00:00	23.98
2-Aug-17	0:00:00	0	9-Oct-17	0:00:00	0
3-Aug-17	0:00:00	0	10-Oct-17	0:00:00	23.98
4-Aug-17	0:00:00	0	11-Oct-17	0:00:00	23.98
5-Aug-17	0:00:00	0	12-Oct-17	0:00:00	23.98
6-Aug-17	0:00:00	0	13-Oct-17	0:00:00	20.52
7-Aug-17	0:00:00	0	14-Oct-17	0:00:00	23.98
8-Aug-17	0:00:00	0	15-Oct-17	0:00:00	23.98
9-Aug-17	0:00:00	0	16-Oct-17	0:00:00	23.98
10-Aug-17	0:00:00	2.19	17-Oct-17	0:00:00	23.98
11-Aug-17	0:00:00	5.92	18-Oct-17	0:00:00	23.98
12-Aug-17	0:00:00	0	19-Oct-17	0:00:00	23.98
13-Aug-17	0:00:00	0	20-Oct-17	0:00:00	23.98
14-Aug-17	0:00:00	0	21-Oct-17	0:00:00	23.98
15-Aug-17	0:00:00	0	22-Oct-17	0:00:00	23.98
16-Aug-17	0:00:00	4.83	23-Oct-17	0:00:00	0
17-Aug-17	0:00:00	0	24-Oct-17	0:00:00	14.44
18-Aug-17	0:00:00	14.25	25-Oct-17	0:00:00	0
19-Aug-17	0:00:00	0	26-Oct-17	0:00:00	0
20-Aug-17	0:00:00	23.98	27-Oct-17	0:00:00	0
21-Aug-17	0:00:00	23.98	28-Oct-17	0:00:00	0
22-Aug-17	0:00:00	23.98	29-Oct-17	0:00:00	0
23-Aug-17	0:00:00	0	30-Oct-17	0:00:00	0
24-Aug-17	0:00:00	23.98	31-Oct-17	0:00:00	0
25-Aug-17	0:00:00	23.98	1-Nov-17	0:00:00	0
26-Aug-17	0:00:00	23.98	2-Nov-17	0:00:00	0
27-Aug-17	0:00:00	23.98	3-Nov-17	0:00:00	0
28-Aug-17	0:00:00	23.98	4-Nov-17	0:00:00	0
29-Aug-17	0:00:00	23.98	5-Nov-17	0:00:00	0
30-Aug-17	0:00:00	23.98	6-Nov-17	0:00:00	0
31-Aug-17	0:00:00	23.98	7-Nov-17	0:00:00	0
1-Sep-17	0:00:00	21.45	8-Nov-17	0:00:00	0
2-Sep-17	0:00:00	23.98	9-Nov-17	0:00:00	0
3-Sep-17	0:00:00	23.98	10-Nov-17	0:00:00	0
4-Sep-17	0:00:00	23.98	11-Nov-17	0:00:00	0
5-Sep-17	0:00:00	23.98	12-Nov-17	0:00:00	0
6-Sep-17	0:00:00	23.98	13-Nov-17	0:00:00	0
7-Sep-17	0:00:00	23.98	14-Nov-17	0:00:00	0
8-Sep-17	0:00:00	23.98	15-Nov-17	0:00:00	0
9-Sep-17	0:00:00	23.98	16-Nov-17	0:00:00	0
10-Sep-17	0:00:00	23.98	17-Nov-17	0:00:00	0
11-Sep-17	0:00:00	23.98	18-Nov-17	0:00:00	0
12-Sep-17	0:00:00	23.98	19-Nov-17	0:00:00	0
13-Sep-17	0:00:00	23.98	20-Nov-17	0:00:00	0
14-Sep-17	0:00:00	23.98	21-Nov-17	0:00:00	0
15-Sep-17	0:00:00	23.98	22-Nov-17	0:00:00	0
16-Sep-17	0:00:00	23.98	23-Nov-17	0:00:00	0
17-Sep-17	0:00:00	12.52	24-Nov-17	0:00:00	0
18-Sep-17	0:00:00	0	25-Nov-17	0:00:00	0
19-Sep-17	0:00:00	10.67	26-Nov-17	0:00:00	0
20-Sep-17	0:00:00	23.98	27-Nov-17	0:00:00	0
21-Sep-17	0:00:00	23.98	28-Nov-17	0:00:00	0
22-Sep-17	0:00:00	23.98	29-Nov-17	0:00:00	0
23-Sep-17	0:00:00	23.98	30-Nov-17	0:00:00	0
24-Sep-17	0:00:00	23.98	1-Dec-17	0:00:00	0
25-Sep-17	0:00:00	23.98	2-Dec-17	0:00:00	0
26-Sep-17	0:00:00	23.98	3-Dec-17	0:00:00	0
27-Sep-17	0:00:00	23.98	4-Dec-17	0:00:00	0
28-Sep-17	0:00:00	23.98	5-Dec-17	0:00:00	0

6-Dec-17	0:00:00	0
7-Dec-17	0:00:00	0
8-Dec-17	0:00:00	0
9-Dec-17	0:00:00	0
10-Dec-17	0:00:00	0
11-Dec-17	0:00:00	0
12-Dec-17	0:00:00	0
13-Dec-17	0:00:00	0
14-Dec-17	0:00:00	0
15-Dec-17	0:00:00	0
16-Dec-17	0:00:00	0
17-Dec-17	0:00:00	0
18-Dec-17	0:00:00	0
19-Dec-17	0:00:00	0
20-Dec-17	0:00:00	0
21-Dec-17	0:00:00	0
22-Dec-17	0:00:00	0
23-Dec-17	0:00:00	0
24-Dec-17	0:00:00	0
25-Dec-17	0:00:00	0
26-Dec-17	0:00:00	0
27-Dec-17	0:00:00	0
28-Dec-17	0:00:00	0
29-Dec-17	0:00:00	0
30-Dec-17	0:00:00	0
31-Dec-17	0:00:00	0
1-Jan-18	0:00:00	0
2-Jan-18	0:00:00	0
3-Jan-18	0:00:00	0
4-Jan-18	0:00:00	0
5-Jan-18	0:00:00	0
6-Jan-18	0:00:00	0
7-Jan-18	0:00:00	0
8-Jan-18	0:00:00	0
9-Jan-18	0:00:00	0
10-Jan-18	0:00:00	0
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15-Jan-18	0:00:00	0
16-Jan-18	0:00:00	0
17-Jan-18	0:00:00	0
18-Jan-18	0:00:00	0
19-Jan-18	0:00:00	0
20-Jan-18	0:00:00	0
21-Jan-18	0:00:00	0
22-Jan-18	0:00:00	0
23-Jan-18	0:00:00	0
24-Jan-18	0:00:00	0
25-Jan-18	0:00:00	0
26-Jan-18	0:00:00	0
27-Jan-18	0:00:00	0
28-Jan-18	0:00:00	0
29-Jan-18	0:00:00	0
30-Jan-18	0:00:00	0
31-Jan-18	0:00:00	0
1-Feb-18	0:00:00	0
2-Feb-18	0:00:00	0
3-Feb-18	0:00:00	0
4-Feb-18	0:00:00	0
5-Feb-18	0:00:00	0
6-Feb-18	0:00:00	0
7-Feb-18	0:00:00	0
8-Feb-18	0:00:00	0
9-Feb-18	0:00:00	0
10-Feb-18	0:00:00	0
11-Feb-18	0:00:00	0

12-Feb-18	0:00:00	0
13-Feb-18	0:00:00	0
14-Feb-18	0:00:00	0
15-Feb-18	0:00:00	0
16-Feb-18	0:00:00	0
17-Feb-18	0:00:00	0
18-Feb-18	0:00:00	0
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22-Feb-18	0:00:00	0
23-Feb-18	0:00:00	0
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25-Feb-18	0:00:00	0
26-Feb-18	0:00:00	0
27-Feb-18	0:00:00	0
28-Feb-18	0:00:00	0
1-Mar-18	0:00:00	0
2-Mar-18	0:00:00	0
3-Mar-18	0:00:00	0
4-Mar-18	0:00:00	0
5-Mar-18	0:00:00	0
6-Mar-18	0:00:00	0
7-Mar-18	0:00:00	0
8-Mar-18	0:00:00	0
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16-Mar-18	0:00:00	0
17-Mar-18	0:00:00	0
18-Mar-18	0:00:00	0
19-Mar-18	0:00:00	0
20-Mar-18	0:00:00	0
21-Mar-18	0:00:00	0
22-Mar-18	0:00:00	0
23-Mar-18	0:00:00	0
24-Mar-18	0:00:00	0
25-Mar-18	0:00:00	0
26-Mar-18	0:00:00	0
27-Mar-18	0:00:00	0
28-Mar-18	0:00:00	0
29-Mar-18	0:00:00	0
30-Mar-18	0:00:00	0
31-Mar-18	0:00:00	0
1-Apr-18	0:00:00	0
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21-Jun-19	0:00:00	0	28-Aug-19	0:00:00	0
22-Jun-19	0:00:00	0	29-Aug-19	0:00:00	0
23-Jun-19	0:00:00	0	30-Aug-19	0:00:00	0
24-Jun-19	0:00:00	0	31-Aug-19	0:00:00	0
25-Jun-19	0:00:00	0	1-Sep-19	0:00:00	0
26-Jun-19	0:00:00	0	2-Sep-19	0:00:00	0
27-Jun-19	0:00:00	0	3-Sep-19	0:00:00	0
28-Jun-19	0:00:00	0	4-Sep-19	0:00:00	0
29-Jun-19	0:00:00	0	5-Sep-19	0:00:00	0
30-Jun-19	0:00:00	0	6-Sep-19	0:00:00	0
1-Jul-19	0:00:00	0	7-Sep-19	0:00:00	0
2-Jul-19	0:00:00	0	8-Sep-19	0:00:00	0

9-Sep-19	0:00:00	0	16-Nov-19	0:00:00	0
10-Sep-19	0:00:00	0	17-Nov-19	0:00:00	0
11-Sep-19	0:00:00	0	18-Nov-19	0:00:00	0
12-Sep-19	0:00:00	0	19-Nov-19	0:00:00	0
13-Sep-19	0:00:00	0	20-Nov-19	0:00:00	0
14-Sep-19	0:00:00	0	21-Nov-19	0:00:00	0
15-Sep-19	0:00:00	0	22-Nov-19	0:00:00	0
16-Sep-19	0:00:00	0	23-Nov-19	0:00:00	0
17-Sep-19	0:00:00	0	24-Nov-19	0:00:00	0
18-Sep-19	0:00:00	0	25-Nov-19	0:00:00	0
19-Sep-19	0:00:00	0	26-Nov-19	0:00:00	0
20-Sep-19	0:00:00	0	27-Nov-19	0:00:00	0
21-Sep-19	0:00:00	0	28-Nov-19	0:00:00	0
22-Sep-19	0:00:00	0	29-Nov-19	0:00:00	0
23-Sep-19	0:00:00	0	30-Nov-19	0:00:00	0
24-Sep-19	0:00:00	0	1-Dec-19	0:00:00	0
25-Sep-19	0:00:00	0	2-Dec-19	0:00:00	0
26-Sep-19	0:00:00	0	3-Dec-19	0:00:00	0
27-Sep-19	0:00:00	0	4-Dec-19	0:00:00	0
28-Sep-19	0:00:00	0	5-Dec-19	0:00:00	0
29-Sep-19	0:00:00	0	6-Dec-19	0:00:00	0
30-Sep-19	0:00:00	0	7-Dec-19	0:00:00	0
1-Oct-19	0:00:00	0	8-Dec-19	0:00:00	0
2-Oct-19	0:00:00	0	9-Dec-19	0:00:00	0
3-Oct-19	0:00:00	0	10-Dec-19	0:00:00	0
4-Oct-19	0:00:00	0	11-Dec-19	0:00:00	0
5-Oct-19	0:00:00	0	12-Dec-19	0:00:00	0
6-Oct-19	0:00:00	0	13-Dec-19	0:00:00	0
7-Oct-19	0:00:00	0	14-Dec-19	0:00:00	0
8-Oct-19	0:00:00	0	15-Dec-19	0:00:00	0
9-Oct-19	0:00:00	0	16-Dec-19	0:00:00	0
10-Oct-19	0:00:00	0	17-Dec-19	0:00:00	0
11-Oct-19	0:00:00	0	18-Dec-19	0:00:00	0
12-Oct-19	0:00:00	0	19-Dec-19	0:00:00	0
13-Oct-19	0:00:00	0	20-Dec-19	0:00:00	0
14-Oct-19	0:00:00	0	21-Dec-19	0:00:00	0
15-Oct-19	0:00:00	0	22-Dec-19	0:00:00	0
16-Oct-19	0:00:00	0	23-Dec-19	0:00:00	0
17-Oct-19	0:00:00	0	24-Dec-19	0:00:00	0
18-Oct-19	0:00:00	0	25-Dec-19	0:00:00	0
19-Oct-19	0:00:00	0	26-Dec-19	0:00:00	0
20-Oct-19	0:00:00	0	27-Dec-19	0:00:00	0
21-Oct-19	0:00:00	0	28-Dec-19	0:00:00	0
22-Oct-19	0:00:00	0	29-Dec-19	0:00:00	0
23-Oct-19	0:00:00	0	30-Dec-19	0:00:00	0
24-Oct-19	0:00:00	0	31-Dec-19	0:00:00	0
25-Oct-19	0:00:00	0			
26-Oct-19	0:00:00	0			
27-Oct-19	0:00:00	0			
28-Oct-19	0:00:00	0			
29-Oct-19	0:00:00	0			
30-Oct-19	0:00:00	0			
31-Oct-19	0:00:00	0			
1-Nov-19	0:00:00	0			
2-Nov-19	0:00:00	0			
3-Nov-19	0:00:00	0			
4-Nov-19	0:00:00	0			
5-Nov-19	0:00:00	0			
6-Nov-19	0:00:00	0			
7-Nov-19	0:00:00	0			
8-Nov-19	0:00:00	0			
9-Nov-19	0:00:00	0			
10-Nov-19	0:00:00	0			
11-Nov-19	0:00:00	0			
12-Nov-19	0:00:00	0			
13-Nov-19	0:00:00	0			
14-Nov-19	0:00:00	0			
15-Nov-19	0:00:00	0			



LOS ALAMOS COUNTY  
OTOWI 2 WELL PUMP DRIVE  
LIFE CYCLE ANALYSIS

APPENDIX G

OTTOWI 4 WELL  
RUNTIME DATA

**WILSON  
& COMPANY**

discipline | intensity | collaboration | shared ownership | solutions

Interval	start	Total	Peak	Date	time
1-Jan-18	0:00:00	7.62	7.92	1-Jan	23:59:59
2-Jan-18	0:00:00	7.92	7.92	2-Jan	0:00:00
3-Jan-18	0:00:00	7.25	7.25	3-Jan	0:00:00
4-Jan-18	0:00:00	6.44	6.7	4-Jan	23:59:59
5-Jan-18	0:00:00	6.7	6.7	5-Jan	0:00:00
6-Jan-18	0:00:00	6.61	7.77	6-Jan	23:59:59
7-Jan-18	0:00:00	7.75	7.92	7-Jan	23:59:59
8-Jan-18	0:00:00	7.91	7.91	8-Jan	0:00:00
9-Jan-18	0:00:00	7.28	7.28	9-Jan	0:00:00
10-Jan-18	0:00:00	6.67	6.67	10-Jan	0:00:00
11-Jan-18	0:00:00	6.42	6.52	11-Jan	23:59:59
12-Jan-18	0:00:00	6.52	6.92	12-Jan	23:59:59
13-Jan-18	0:00:00	6.91	7.95	13-Jan	23:59:59
14-Jan-18	0:00:00	7.94	7.94	14-Jan	0:00:00
15-Jan-18	0:00:00	7.41	7.83	15-Jan	23:59:59
16-Jan-18	0:00:00	7.83	7.83	16-Jan	0:00:00
17-Jan-18	0:00:00	6.02	6.41	17-Jan	23:59:59
18-Jan-18	0:00:00	6.39	6.67	18-Jan	23:59:59
19-Jan-18	0:00:00	6.66	6.77	19-Jan	23:59:59
20-Jan-18	0:00:00	6.75	7.67	20-Jan	23:59:59
21-Jan-18	0:00:00	7.66	7.69	21-Jan	23:59:59
22-Jan-18	0:00:00	7.67	7.8	22-Jan	23:59:59
23-Jan-18	0:00:00	7.78	7.78	23-Jan	0:00:00
24-Jan-18	0:00:00	7.09	7.09	24-Jan	0:00:00
25-Jan-18	0:00:00	6.58	6.73	25-Jan	23:59:59
26-Jan-18	0:00:00	6.73	6.8	26-Jan	23:59:59
27-Jan-18	0:00:00	6.78	7.73	27-Jan	23:59:59
28-Jan-18	0:00:00	7.72	7.72	28-Jan	0:00:00
29-Jan-18	0:00:00	7.47	7.47	29-Jan	0:00:00
30-Jan-18	0:00:00	6.53	6.61	30-Jan	23:59:59
31-Jan-18	0:00:00	6.61	6.83	31-Jan	23:59:59
1-Feb-18	0:00:00	6.81	7.03	1-Feb	23:59:59
2-Feb-18	0:00:00	7.02	7.02	2-Feb	0:00:00
3-Feb-18	0:00:00	6.41	7.98	3-Feb	23:59:59
4-Feb-18	0:00:00	6.61	7.78	4-Feb	23:59:59
5-Feb-18	0:00:00	7.77	7.77	5-Feb	0:00:00
6-Feb-18	0:00:00	7.16	7.16	6-Feb	0:00:00
7-Feb-18	0:00:00	4.83	4.83	7-Feb	0:00:00
8-Feb-18	0:00:00	3.52	7.44	8-Feb	23:59:59
9-Feb-18	0:00:00	7.42	7.42	9-Feb	0:00:00
10-Feb-18	0:00:00	6.48	8.02	10-Feb	23:59:59
11-Feb-18	0:00:00	8	8	11-Feb	0:00:00
12-Feb-18	0:00:00	6.39	6.83	12-Feb	23:59:59
13-Feb-18	0:00:00	6.83	6.83	13-Feb	0:00:00
14-Feb-18	0:00:00	6.61	6.75	14-Feb	23:59:59
15-Feb-18	0:00:00	6.73	6.83	15-Feb	23:59:59
16-Feb-18	0:00:00	6.81	6.84	16-Feb	23:59:59
17-Feb-18	0:00:00	6.83	7.69	17-Feb	23:59:59
18-Feb-18	0:00:00	7.67	7.67	18-Feb	0:00:00
19-Feb-18	0:00:00	7.66	7.83	19-Feb	23:59:59
20-Feb-18	0:00:00	7.81	7.81	20-Feb	0:00:00
21-Feb-18	0:00:00	6.69	6.69	21-Feb	0:00:00
22-Feb-18	0:00:00	5.73	6.56	22-Feb	23:59:59
23-Feb-18	0:00:00	6.56	7.03	23-Feb	23:59:59
24-Feb-18	0:00:00	7.02	7.95	24-Feb	23:59:59
25-Feb-18	0:00:00	7.94	7.94	25-Feb	0:00:00
26-Feb-18	0:00:00	7.28	7.36	26-Feb	23:59:59
27-Feb-18	0:00:00	7.36	7.36	27-Feb	0:00:00
28-Feb-18	0:00:00	6.61	6.61	28-Feb	0:00:00
1-Mar-18	0:00:00	6.48	6.59	1-Mar	23:59:59
2-Mar-18	0:00:00	6.59	7.06	2-Mar	23:59:59
3-Mar-18	0:00:00	7.05	7.78	3-Mar	23:59:59
4-Mar-18	0:00:00	7.77	7.77	4-Mar	0:00:00
5-Mar-18	0:00:00	7.72	7.72	5-Mar	0:00:00
6-Mar-18	0:00:00	6.52	6.52	6-Mar	0:00:00
7-Mar-18	0:00:00	6.47	6.47	7-Mar	0:00:00
8-Mar-18	0:00:00	6.47	6.47	8-Mar	0:00:00
9-Mar-18	0:00:00	3.91	7.31	9-Mar	23:59:59
10-Mar-18	0:00:00	7.3	8.05	10-Mar	23:59:59
11-Mar-18	0:00:00	8.03	8.03	11-Mar	0:00:00
12-Mar-18	0:00:00	7.69	7.69	12-Mar	0:00:00
13-Mar-18	0:00:00	6.59	6.59	13-Mar	0:00:00
14-Mar-18	0:00:00	6.53	6.53	14-Mar	0:00:00
15-Mar-18	0:00:00	6.33	6.59	15-Mar	23:59:59
16-Mar-18	0:00:00	6.59	6.78	16-Mar	23:59:59
17-Mar-18	0:00:00	6.77	8.2	17-Mar	23:59:59
18-Mar-18	0:00:00	8.19	8.19	18-Mar	0:00:00
19-Mar-18	0:00:00	7.78	7.78	19-Mar	0:00:00
20-Mar-18	0:00:00	7.78	7.78	20-Mar	0:00:00
21-Mar-18	0:00:00	7.3	7.3	21-Mar	0:00:00
22-Mar-18	0:00:00	6.5	6.55	22-Mar	23:59:59
23-Mar-18	0:00:00	6.55	6.97	23-Mar	23:59:59
24-Mar-18	0:00:00	6.95	8.12	24-Mar	23:59:59
25-Mar-18	0:00:00	8.11	8.11	25-Mar	0:00:00
26-Mar-18	0:00:00	7.77	7.77	26-Mar	0:00:00
27-Mar-18	0:00:00	6.72	7	27-Mar	23:59:59
28-Mar-18	0:00:00	7	7	28-Mar	0:00:00
29-Mar-18	0:00:00	6.61	6.61	29-Mar	0:00:00

Reporting on 1 points  
Enter Start Date [28-JAN-2020]: 1-jan-2018  
Enter Start Time [ 0:00:00] :  
Enter Stop Date [ 1-JAN-2018]: 1-jan-2020  
Enter Stop Time [23:59:59] :  
Report increment (xx[M/H/D]): 1d  
Searching history files

Month	
January	219.62
February	190.56
March	215.57
April	251.86
May	438.88
June	363.34
July	557.07
August	420.38
September	399.13
October	254.13
November	231.29
December	239.31
Totals	3781.14

219.62 Jan-18

190.56 Feb-18

Interval	start	Total	Peak	Date	time		
30-Mar-18	0:00:00	6.45	7.06	30-Mar	23:59:59		
31-Mar-18	0:00:00	7.05	8.22	31-Mar	23:59:59	215.57	Mar-18
1-Apr-18	0:00:00	8.2	8.2	1-Apr	0:00:00		
2-Apr-18	0:00:00	7.81	7.81	2-Apr	0:00:00		
3-Apr-18	0:00:00	6.5	6.5	3-Apr	0:00:00		
4-Apr-18	0:00:00	6.33	6.33	4-Apr	0:00:00		
5-Apr-18	0:00:00	6.3	6.52	5-Apr	23:59:59		
6-Apr-18	0:00:00	6.52	6.52	6-Apr	0:00:00		
7-Apr-18	0:00:00	6.5	8.08	7-Apr	23:59:59		
8-Apr-18	0:00:00	8.06	8.06	8-Apr	0:00:00		
9-Apr-18	0:00:00	7.78	7.78	9-Apr	0:00:00		
10-Apr-18	0:00:00	7.28	7.28	10-Apr	0:00:00		
11-Apr-18	0:00:00	6.7	6.7	11-Apr	0:00:00		
12-Apr-18	0:00:00	7.78	7.78	12-Apr	0:00:00		
13-Apr-18	0:00:00	6.59	16.02	13-Apr	23:59:59		
14-Apr-18	0:00:00	16	16	14-Apr	0:00:00		
15-Apr-18	0:00:00	8.06	8.06	15-Apr	0:00:00		
16-Apr-18	0:00:00	7.66	7.66	16-Apr	0:00:00		
17-Apr-18	0:00:00	6.94	6.94	17-Apr	0:00:00		
18-Apr-18	0:00:00	6.75	6.8	18-Apr	23:59:59		
19-Apr-18	0:00:00	6.78	6.8	19-Apr	23:59:59		
20-Apr-18	0:00:00	6.78	16.34	20-Apr	23:59:59		
21-Apr-18	0:00:00	16.33	16.33	21-Apr	0:00:00		
22-Apr-18	0:00:00	8.36	8.36	22-Apr	0:00:00		
23-Apr-18	0:00:00	7.8	7.8	23-Apr	0:00:00		
24-Apr-18	0:00:00	6.64	6.83	24-Apr	23:59:59		
25-Apr-18	0:00:00	6.81	6.81	25-Apr	0:00:00		
26-Apr-18	0:00:00	6.77	7.36	26-Apr	23:59:59		
27-Apr-18	0:00:00	7.34	24	27-Apr	23:59:59		
28-Apr-18	0:00:00	23.98	23.98	28-Apr	0:00:00		
29-Apr-18	0:00:00	8.89	8.89	29-Apr	0:00:00		
30-Apr-18	0:00:00	7.62	7.62	30-Apr	0:00:00	251.86	Apr-18
1-May-18	0:00:00	6.72	6.75	1-May	23:59:59		
2-May-18	0:00:00	6.73	24	2-May	23:59:59		
3-May-18	0:00:00	23.98	24	3-May	23:59:59		
4-May-18	0:00:00	23.98	24	4-May	23:59:59		
5-May-18	0:00:00	6.64	7.94	5-May	23:59:59		
6-May-18	0:00:00	7.94	24	6-May	23:59:59		
7-May-18	0:00:00	23.98	23.98	7-May	0:00:00		
8-May-18	0:00:00	13.34	13.34	8-May	0:00:00		
9-May-18	0:00:00	13.31	14.89	9-May	23:59:59		
10-May-18	0:00:00	14.87	14.87	10-May	0:00:00		
11-May-18	0:00:00	11.67	19.91	11-May	23:59:59		
12-May-18	0:00:00	19.89	24	12-May	23:59:59		
13-May-18	0:00:00	7.94	12.8	13-May	23:59:59		
14-May-18	0:00:00	12.78	12.78	14-May	0:00:00		
15-May-18	0:00:00	12.59	12.59	15-May	0:00:00		
16-May-18	0:00:00	10.62	11.78	16-May	23:59:59		
17-May-18	0:00:00	11.77	12.28	17-May	23:59:59		
18-May-18	0:00:00	12.27	24	18-May	23:59:59		
19-May-18	0:00:00	23.98	24	19-May	23:59:59		
20-May-18	0:00:00	23.98	24	20-May	23:59:59		
21-May-18	0:00:00	23.98	23.98	21-May	0:00:00		
22-May-18	0:00:00	7.94	7.94	22-May	0:00:00		
23-May-18	0:00:00	7.94	12.11	23-May	23:59:59		
24-May-18	0:00:00	12.09	12.69	24-May	23:59:59		
25-May-18	0:00:00	12.67	12.67	25-May	0:00:00		
26-May-18	0:00:00	12.55	24	26-May	23:59:59		
27-May-18	0:00:00	23.98	23.98	27-May	0:00:00		
28-May-18	0:00:00	16.12	16.12	28-May	0:00:00		
29-May-18	0:00:00	7.94	12.05	29-May	23:59:59		
30-May-18	0:00:00	12.03	12.67	30-May	23:59:59		
31-May-18	0:00:00	12.66	12.66	31-May	0:00:00	438.88	May-18
1-Jun-18	0:00:00	7.94	13.11	1-Jun	23:59:59		
2-Jun-18	0:00:00	13.09	24	2-Jun	23:59:59		
3-Jun-18	0:00:00	23.98	23.98	3-Jun	0:00:00		
4-Jun-18	0:00:00	8.44	8.44	4-Jun	0:00:00		
5-Jun-18	0:00:00	7.06	13.5	5-Jun	23:59:59		
6-Jun-18	0:00:00	13.48	13.48	6-Jun	0:00:00		
7-Jun-18	0:00:00	11.84	12.61	7-Jun	23:59:59		
8-Jun-18	0:00:00	12.59	13.84	8-Jun	23:59:59		
9-Jun-18	0:00:00	13.83	24	9-Jun	23:59:59		
10-Jun-18	0:00:00	23.98	23.98	10-Jun	0:00:00		
11-Jun-18	0:00:00	15.61	15.61	11-Jun	0:00:00		
12-Jun-18	0:00:00	9.97	12.69	12-Jun	23:59:59		
13-Jun-18	0:00:00	12.67	13.2	13-Jun	23:59:59		
14-Jun-18	0:00:00	8.44	14.87	14-Jun	23:59:59		
15-Jun-18	0:00:00	14.86	16.53	15-Jun	23:59:59		
16-Jun-18	0:00:00	16.52	16.52	16-Jun	0:00:00		
17-Jun-18	0:00:00	7.2	7.2	17-Jun	0:00:00		
18-Jun-18	0:00:00	6.95	6.95	18-Jun	0:00:00		
19-Jun-18	0:00:00	6.69	9.84	19-Jun	23:59:59		
20-Jun-18	0:00:00	9.83	10.12	20-Jun	23:59:59		
21-Jun-18	0:00:00	10.11	13.66	21-Jun	23:59:59		
22-Jun-18	0:00:00	13.64	14.2	22-Jun	23:59:59		
23-Jun-18	0:00:00	14.19	18.31	23-Jun	23:59:59		
24-Jun-18	0:00:00	18.3	18.3	24-Jun	0:00:00		
25-Jun-18	0:00:00	7.16	10.33	25-Jun	23:59:59		

Interval	start	Total	Peak	Date	time		
26-Jun-18	0:00:00	10.31	13.19	26-Jun	23:59:59		
27-Jun-18	0:00:00	13.17	13.17	27-Jun	0:00:00		
28-Jun-18	0:00:00	12.19	12.19	28-Jun	0:00:00		
29-Jun-18	0:00:00	12.14	24	29-Jun	23:59:59		
30-Jun-18	0:00:00	7.16	24	30-Jun	23:59:59	363.34	Jun-18
1-Jul-18	0:00:00	23.98	23.98	1-Jul	0:00:00		
2-Jul-18	0:00:00	16.8	16.8	2-Jul	0:00:00		
3-Jul-18	0:00:00	11.53	11.83	3-Jul	23:59:59		
4-Jul-18	0:00:00	11.81	24	4-Jul	23:59:59		
5-Jul-18	0:00:00	23.98	24	5-Jul	23:59:59		
6-Jul-18	0:00:00	23.98	24	6-Jul	23:59:59		
7-Jul-18	0:00:00	23.98	24	7-Jul	23:59:59		
8-Jul-18	0:00:00	23.98	23.98	8-Jul	0:00:00		
9-Jul-18	0:00:00	12.87	12.87	9-Jul	0:00:00		
10-Jul-18	0:00:00	11.58	11.86	10-Jul	23:59:59		
11-Jul-18	0:00:00	11.84	12.8	11-Jul	23:59:59		
12-Jul-18	0:00:00	12.78	24	12-Jul	23:59:59		
13-Jul-18	0:00:00	23.98	24	13-Jul	23:59:59		
14-Jul-18	0:00:00	23.98	24	14-Jul	23:59:59		
15-Jul-18	0:00:00	23.98	24	15-Jul	23:59:59		
16-Jul-18	0:00:00	23.98	23.98	16-Jul	0:00:00		
17-Jul-18	0:00:00	13.47	14.86	17-Jul	23:59:59		
18-Jul-18	0:00:00	14.84	14.84	18-Jul	0:00:00		
19-Jul-18	0:00:00	12.39	14.25	19-Jul	23:59:59		
20-Jul-18	0:00:00	14.23	21.72	20-Jul	23:59:59		
21-Jul-18	0:00:00	21.7	24	21-Jul	23:59:59		
22-Jul-18	0:00:00	23.98	23.98	22-Jul	0:00:00		
23-Jul-18	0:00:00	16.44	16.44	23-Jul	0:00:00		
24-Jul-18	0:00:00	12.81	15.05	24-Jul	23:59:59		
25-Jul-18	0:00:00	15.03	15.03	25-Jul	0:00:00		
26-Jul-18	0:00:00	14.52	14.52	26-Jul	0:00:00		
27-Jul-18	0:00:00	11.47	24	27-Jul	23:59:59		
28-Jul-18	0:00:00	23.98	24	28-Jul	23:59:59		
29-Jul-18	0:00:00	23.98	23.98	29-Jul	0:00:00		
30-Jul-18	0:00:00	16.06	17.16	30-Jul	23:59:59		
31-Jul-18	0:00:00	17.14	17.14	31-Jul	0:00:00	557.07	Jul-18
1-Aug-18	0:00:00	14.87	14.87	1-Aug	0:00:00		
2-Aug-18	0:00:00	11.78	12.53	2-Aug	23:59:59		
3-Aug-18	0:00:00	12.52	17.73	3-Aug	23:59:59		
4-Aug-18	0:00:00	17.72	17.72	4-Aug	0:00:00		
5-Aug-18	0:00:00	14.7	15.19	5-Aug	23:59:59		
6-Aug-18	0:00:00	15.17	15.17	6-Aug	0:00:00		
7-Aug-18	0:00:00	10.59	14.3	7-Aug	23:59:59		
8-Aug-18	0:00:00	14.28	14.28	8-Aug	0:00:00		
9-Aug-18	0:00:00	12.97	14.64	9-Aug	23:59:59		
10-Aug-18	0:00:00	14.62	15.23	10-Aug	23:59:59		
11-Aug-18	0:00:00	15.22	15.22	11-Aug	0:00:00		
12-Aug-18	0:00:00	10.62	15.64	12-Aug	23:59:59		
13-Aug-18	0:00:00	15.62	17.62	13-Aug	23:59:59		
14-Aug-18	0:00:00	7.16	14.19	14-Aug	23:59:59		
15-Aug-18	0:00:00	14.17	14.91	15-Aug	23:59:59		
16-Aug-18	0:00:00	14.89	14.91	16-Aug	23:59:59		
17-Aug-18	0:00:00	14.89	14.89	17-Aug	0:00:00		
18-Aug-18	0:00:00	13.09	13.39	18-Aug	23:59:59		
19-Aug-18	0:00:00	13.37	14.11	19-Aug	23:59:59		
20-Aug-18	0:00:00	14.09	14.27	20-Aug	23:59:59		
21-Aug-18	0:00:00	14.25	14.25	21-Aug	0:00:00		
22-Aug-18	0:00:00	12.02	12.02	22-Aug	0:00:00		
23-Aug-18	0:00:00	11.36	11.36	23-Aug	0:00:00		
24-Aug-18	0:00:00	11.27	15.31	24-Aug	23:59:59		
25-Aug-18	0:00:00	15.3	15.3	25-Aug	0:00:00		
26-Aug-18	0:00:00	13.42	13.87	26-Aug	23:59:59		
27-Aug-18	0:00:00	13.86	13.94	27-Aug	23:59:59		
28-Aug-18	0:00:00	13.92	13.92	28-Aug	0:00:00		
29-Aug-18	0:00:00	6.64	12.03	29-Aug	23:59:59		
30-Aug-18	0:00:00	12.02	24	30-Aug	23:59:59		
31-Aug-18	0:00:00	23.98	24	31-Aug	23:59:59	420.38	Aug-18
1-Sep-18	0:00:00	23.98	23.98	1-Sep	0:00:00		
2-Sep-18	0:00:00	14	14	2-Sep	0:00:00		
3-Sep-18	0:00:00	13.31	13.7	3-Sep	23:59:59		
4-Sep-18	0:00:00	13.69	13.69	4-Sep	0:00:00		
5-Sep-18	0:00:00	8.45	9.45	5-Sep	23:59:59		
6-Sep-18	0:00:00	9.44	14.36	6-Sep	23:59:59		
7-Sep-18	0:00:00	10.5	11.97	7-Sep	23:59:59		
8-Sep-18	0:00:00	11.95	15.5	8-Sep	23:59:59		
9-Sep-18	0:00:00	10.5	10.5	9-Sep	0:00:00		
10-Sep-18	0:00:00	8.91	10.7	10-Sep	23:59:59		
11-Sep-18	0:00:00	10.69	10.81	11-Sep	23:59:59		
12-Sep-18	0:00:00	10.8	11.25	12-Sep	23:59:59		
13-Sep-18	0:00:00	11.23	11.23	13-Sep	0:00:00		
14-Sep-18	0:00:00	11.06	12.2	14-Sep	23:59:59		
15-Sep-18	0:00:00	12.19	15.22	15-Sep	23:59:59		
16-Sep-18	0:00:00	15.2	15.2	16-Sep	0:00:00		
17-Sep-18	0:00:00	14.56	14.56	17-Sep	0:00:00		
18-Sep-18	0:00:00	11.41	12.56	18-Sep	23:59:59		
19-Sep-18	0:00:00	12.55	12.55	19-Sep	0:00:00		
20-Sep-18	0:00:00	10.5	15.37	20-Sep	23:59:59		
21-Sep-18	0:00:00	15.36	24	21-Sep	23:59:59		

Interval	start	Total	Peak	Date	time
22-Sep-18	0:00:00	23.98	23.98	22-Sep	0:00:00
23-Sep-18	0:00:00	15.78	15.78	23-Sep	0:00:00
24-Sep-18	0:00:00	14.14	14.14	24-Sep	0:00:00
25-Sep-18	0:00:00	13.83	15.05	25-Sep	23:59:59
26-Sep-18	0:00:00	15.03	15.03	26-Sep	0:00:00
27-Sep-18	0:00:00	14.28	14.28	27-Sep	0:00:00
28-Sep-18	0:00:00	11.09	14.94	28-Sep	23:59:59
29-Sep-18	0:00:00	14.92	15.81	29-Sep	23:59:59
30-Sep-18	0:00:00	15.8	15.8	30-Sep	0:00:00
1-Oct-18	0:00:00	14.75	14.75	1-Oct	0:00:00
2-Oct-18	0:00:00	14.62	14.62	2-Oct	0:00:00
3-Oct-18	0:00:00	9.69	12.2	3-Oct	23:59:59
4-Oct-18	0:00:00	12.19	12.19	4-Oct	0:00:00
5-Oct-18	0:00:00	11.06	12.27	5-Oct	23:59:59
6-Oct-18	0:00:00	12.25	14.83	6-Oct	23:59:59
7-Oct-18	0:00:00	14.81	14.81	7-Oct	0:00:00
8-Oct-18	0:00:00	7.83	7.83	8-Oct	0:00:00
9-Oct-18	0:00:00	6.86	6.86	9-Oct	0:00:00
10-Oct-18	0:00:00	6.78	6.78	10-Oct	0:00:00
11-Oct-18	0:00:00	6.78	6.78	11-Oct	0:00:00
12-Oct-18	0:00:00	6.78	8.36	12-Oct	23:59:59
13-Oct-18	0:00:00	8.34	8.34	13-Oct	0:00:00
14-Oct-18	0:00:00	7.89	7.89	14-Oct	0:00:00
15-Oct-18	0:00:00	7.75	7.75	15-Oct	0:00:00
16-Oct-18	0:00:00	6.8	6.8	16-Oct	0:00:00
17-Oct-18	0:00:00	6.53	6.75	17-Oct	23:59:59
18-Oct-18	0:00:00	6.73	8.08	18-Oct	23:59:59
19-Oct-18	0:00:00	8.08	8.08	19-Oct	0:00:00
20-Oct-18	0:00:00	6.66	8.42	20-Oct	23:59:59
21-Oct-18	0:00:00	8.08	8.08	21-Oct	0:00:00
22-Oct-18	0:00:00	8.08	8.08	22-Oct	0:00:00
23-Oct-18	0:00:00	6.78	6.78	23-Oct	0:00:00
24-Oct-18	0:00:00	6.62	6.78	24-Oct	23:59:59
25-Oct-18	0:00:00	6.78	6.78	25-Oct	0:00:00
26-Oct-18	0:00:00	6.78	16.23	26-Oct	23:59:59
27-Oct-18	0:00:00	6.78	7.77	27-Oct	23:59:59
28-Oct-18	0:00:00	7.77	7.77	28-Oct	0:00:00
29-Oct-18	0:00:00	0	6.69	29-Oct	23:59:59
30-Oct-18	0:00:00	6.69	6.69	30-Oct	0:00:00
31-Oct-18	0:00:00	6.59	6.77	31-Oct	23:59:59
1-Nov-18	0:00:00	6.75	7.11	1-Nov	23:59:59
2-Nov-18	0:00:00	7.11	15.89	2-Nov	23:59:59
3-Nov-18	0:00:00	15.87	15.87	3-Nov	0:00:00
4-Nov-18	0:00:00	7.55	8.39	4-Nov	23:59:59
5-Nov-18	0:00:00	8.37	8.37	5-Nov	0:00:00
6-Nov-18	0:00:00	6.75	6.75	6-Nov	0:00:00
7-Nov-18	0:00:00	6.42	6.59	7-Nov	23:59:59
8-Nov-18	0:00:00	6.59	7.08	8-Nov	23:59:59
9-Nov-18	0:00:00	7.08	15.05	9-Nov	23:59:59
10-Nov-18	0:00:00	15.03	15.03	10-Nov	0:00:00
11-Nov-18	0:00:00	7.97	7.97	11-Nov	0:00:00
12-Nov-18	0:00:00	7.64	8.23	12-Nov	23:59:59
13-Nov-18	0:00:00	8.23	8.23	13-Nov	0:00:00
14-Nov-18	0:00:00	6.56	6.56	14-Nov	0:00:00
15-Nov-18	0:00:00	6.52	6.59	15-Nov	23:59:59
16-Nov-18	0:00:00	6.59	15.48	16-Nov	23:59:59
17-Nov-18	0:00:00	6.59	7.56	17-Nov	23:59:59
18-Nov-18	0:00:00	7.55	7.87	18-Nov	23:59:59
19-Nov-18	0:00:00	7.86	7.86	19-Nov	0:00:00
20-Nov-18	0:00:00	6.73	6.73	20-Nov	0:00:00
21-Nov-18	0:00:00	6.52	6.78	21-Nov	23:59:59
22-Nov-18	0:00:00	6.78	6.81	22-Nov	23:59:59
23-Nov-18	0:00:00	6.81	8.3	23-Nov	23:59:59
24-Nov-18	0:00:00	8.28	8.69	24-Nov	23:59:59
25-Nov-18	0:00:00	8.67	8.67	25-Nov	0:00:00
26-Nov-18	0:00:00	7.78	7.78	26-Nov	0:00:00
27-Nov-18	0:00:00	6.69	6.69	27-Nov	0:00:00
28-Nov-18	0:00:00	6.67	6.67	28-Nov	0:00:00
29-Nov-18	0:00:00	6.64	6.69	29-Nov	23:59:59
30-Nov-18	0:00:00	6.69	15.78	30-Nov	23:59:59
1-Dec-18	0:00:00	15.77	15.77	1-Dec	0:00:00
2-Dec-18	0:00:00	7.92	8.09	2-Dec	23:59:59
3-Dec-18	0:00:00	8.08	8.08	3-Dec	0:00:00
4-Dec-18	0:00:00	6.72	7.3	4-Dec	23:59:59
5-Dec-18	0:00:00	7.3	7.3	5-Dec	0:00:00
6-Dec-18	0:00:00	6.8	6.8	6-Dec	0:00:00
7-Dec-18	0:00:00	6.77	16.53	7-Dec	23:59:59
8-Dec-18	0:00:00	16.52	16.52	8-Dec	0:00:00
9-Dec-18	0:00:00	7.84	7.84	9-Dec	0:00:00
10-Dec-18	0:00:00	6.77	7.03	10-Dec	23:59:59
11-Dec-18	0:00:00	7.03	7.03	11-Dec	0:00:00
12-Dec-18	0:00:00	6.7	6.95	12-Dec	23:59:59
13-Dec-18	0:00:00	6.94	7.97	13-Dec	23:59:59
14-Dec-18	0:00:00	7.95	7.95	14-Dec	0:00:00
15-Dec-18	0:00:00	7.72	8.19	15-Dec	23:59:59
16-Dec-18	0:00:00	8.17	8.17	16-Dec	0:00:00
17-Dec-18	0:00:00	7.36	7.36	17-Dec	0:00:00
18-Dec-18	0:00:00	6.73	6.73	18-Dec	0:00:00

399.13 Sep-18

254.13 Oct-18

231.29 Nov-18

Interval	start	Total	Peak	Date	time
19-Dec-18	0:00:00	6.61	6.61	19-Dec	0:00:00
20-Dec-18	0:00:00	6.61	6.61	20-Dec	0:00:00
21-Dec-18	0:00:00	6.53	7.03	21-Dec	23:59:59
22-Dec-18	0:00:00	7.03	7.72	22-Dec	23:59:59
23-Dec-18	0:00:00	7.7	7.7	23-Dec	0:00:00
24-Dec-18	0:00:00	7.37	7.37	24-Dec	0:00:00
25-Dec-18	0:00:00	6.77	7.62	25-Dec	23:59:59
26-Dec-18	0:00:00	7.62	7.62	26-Dec	0:00:00
27-Dec-18	0:00:00	6.67	6.67	27-Dec	0:00:00
28-Dec-18	0:00:00	6.64	6.64	28-Dec	0:00:00
29-Dec-18	0:00:00	6.36	7.75	29-Dec	23:59:59
30-Dec-18	0:00:00	6.64	7.69	30-Dec	23:59:59
31-Dec-18	0:00:00	7.67	7.91	31-Dec	23:59:59
1-Jan-19	0:00:00	7.89	7.89	1-Jan	0:00:00
2-Jan-19	0:00:00	7.36	7.36	2-Jan	0:00:00
3-Jan-19	0:00:00	0	6.91	3-Jan	23:59:59
4-Jan-19	0:00:00	6.91	7.53	4-Jan	23:59:59
5-Jan-19	0:00:00	7.52	7.94	5-Jan	23:59:59
6-Jan-19	0:00:00	7.92	7.92	6-Jan	0:00:00
7-Jan-19	0:00:00	6.91	6.91	7-Jan	0:00:00
8-Jan-19	0:00:00	6.7	6.77	8-Jan	23:59:59
9-Jan-19	0:00:00	6.77	6.77	9-Jan	0:00:00
10-Jan-19	0:00:00	6.59	6.67	10-Jan	23:59:59
11-Jan-19	0:00:00	6.67	6.8	11-Jan	23:59:59
12-Jan-19	0:00:00	6.78	7.83	12-Jan	23:59:59
13-Jan-19	0:00:00	7.81	7.86	13-Jan	23:59:59
14-Jan-19	0:00:00	7.84	7.84	14-Jan	0:00:00
15-Jan-19	0:00:00	6.75	6.75	15-Jan	0:00:00
16-Jan-19	0:00:00	6.48	6.7	16-Jan	23:59:59
17-Jan-19	0:00:00	6.7	6.72	17-Jan	23:59:59
18-Jan-19	0:00:00	6.72	7.39	18-Jan	23:59:59
19-Jan-19	0:00:00	7.39	7.72	19-Jan	23:59:59
20-Jan-19	0:00:00	7.72	7.91	20-Jan	23:59:59
21-Jan-19	0:00:00	7.91	7.91	21-Jan	0:00:00
22-Jan-19	0:00:00	7.75	7.75	22-Jan	0:00:00
23-Jan-19	0:00:00	6.59	6.66	23-Jan	23:59:59
24-Jan-19	0:00:00	6.66	6.66	24-Jan	0:00:00
25-Jan-19	0:00:00	6.59	6.7	25-Jan	23:59:59
26-Jan-19	0:00:00	6.7	7.81	26-Jan	23:59:59
27-Jan-19	0:00:00	7.8	7.8	27-Jan	0:00:00
28-Jan-19	0:00:00	7.41	7.41	28-Jan	0:00:00
29-Jan-19	0:00:00	6.64	6.64	29-Jan	0:00:00
30-Jan-19	0:00:00	6.61	6.7	30-Jan	23:59:59
31-Jan-19	0:00:00	6.7	6.72	31-Jan	23:59:59
1-Feb-19	0:00:00	6.72	6.94	1-Feb	23:59:59
2-Feb-19	0:00:00	6.92	7.72	2-Feb	23:59:59
3-Feb-19	0:00:00	7.7	8.03	3-Feb	23:59:59
4-Feb-19	0:00:00	8.02	8.02	4-Feb	0:00:00
5-Feb-19	0:00:00	7	7.58	5-Feb	23:59:59
6-Feb-19	0:00:00	7.58	7.58	6-Feb	0:00:00
7-Feb-19	0:00:00	7.19	7.19	7-Feb	0:00:00
8-Feb-19	0:00:00	6.78	7.09	8-Feb	23:59:59
9-Feb-19	0:00:00	6.78	8.34	9-Feb	23:59:59
10-Feb-19	0:00:00	8.33	8.33	10-Feb	0:00:00
11-Feb-19	0:00:00	7.52	7.52	11-Feb	0:00:00
12-Feb-19	0:00:00	6.86	6.87	12-Feb	23:59:59
13-Feb-19	0:00:00	6.86	6.86	13-Feb	0:00:00
14-Feb-19	0:00:00	6.8	6.8	14-Feb	0:00:00
15-Feb-19	0:00:00	6.55	7.14	15-Feb	23:59:59
16-Feb-19	0:00:00	7.12	7.75	16-Feb	23:59:59
17-Feb-19	0:00:00	6.55	7.45	17-Feb	23:59:59
18-Feb-19	0:00:00	7.45	7.55	18-Feb	23:59:59
19-Feb-19	0:00:00	7.53	7.53	19-Feb	0:00:00
20-Feb-19	0:00:00	5.45	6.53	20-Feb	23:59:59
21-Feb-19	0:00:00	6.53	6.56	21-Feb	23:59:59
22-Feb-19	0:00:00	6.56	7.27	22-Feb	23:59:59
23-Feb-19	0:00:00	7.25	7.72	23-Feb	23:59:59
24-Feb-19	0:00:00	7.7	7.7	24-Feb	0:00:00
25-Feb-19	0:00:00	7.62	7.62	25-Feb	0:00:00
26-Feb-19	0:00:00	7.31	7.31	26-Feb	0:00:00
27-Feb-19	0:00:00	6.72	6.86	27-Feb	23:59:59
28-Feb-19	0:00:00	6.86	6.86	28-Feb	0:00:00
1-Mar-19	0:00:00	6.83	6.98	1-Mar	23:59:59
2-Mar-19	0:00:00	6.97	7.37	2-Mar	23:59:59
3-Mar-19	0:00:00	7.37	7.61	3-Mar	23:59:59
4-Mar-19	0:00:00	7.61	7.61	4-Mar	0:00:00
5-Mar-19	0:00:00	7.14	7.14	5-Mar	0:00:00
6-Mar-19	0:00:00	6.72	6.72	6-Mar	0:00:00
7-Mar-19	0:00:00	6.67	6.7	7-Mar	23:59:59
8-Mar-19	0:00:00	6.7	6.89	8-Mar	23:59:59
9-Mar-19	0:00:00	6.87	7.69	9-Mar	23:59:59
10-Mar-19	0:00:00	7.67	7.67	10-Mar	0:00:00
11-Mar-19	0:00:00	7.31	7.31	11-Mar	0:00:00
12-Mar-19	0:00:00	5.06	6.44	12-Mar	23:59:59
13-Mar-19	0:00:00	6.44	6.44	13-Mar	0:00:00
14-Mar-19	0:00:00	6.34	6.34	14-Mar	0:00:00
15-Mar-19	0:00:00	0.14	7.12	15-Mar	23:59:59
16-Mar-19	0:00:00	7.12	7.89	16-Mar	23:59:59

239.31 Dec-18

Interval	start	Total	Peak	Date	time	Interval	start	Total	Peak	Date	time
17-Mar-19	0:00:00	7.87	7.87	17-Mar	0:00:00	13-Jun-19	0:00:00	14.16	14.17	13-Jun	23:59:59
18-Mar-19	0:00:00	7.3	7.33	18-Mar	23:59:59	14-Jun-19	0:00:00	14.16	14.5	14-Jun	23:59:59
19-Mar-19	0:00:00	7.33	7.33	19-Mar	0:00:00	15-Jun-19	0:00:00	14.48	16.2	15-Jun	23:59:59
20-Mar-19	0:00:00	6.91	6.91	20-Mar	0:00:00	16-Jun-19	0:00:00	16.19	16.19	16-Jun	0:00:00
21-Mar-19	0:00:00	6.75	6.75	21-Mar	0:00:00	17-Jun-19	0:00:00	13.12	13.12	17-Jun	0:00:00
22-Mar-19	0:00:00	6.72	6.72	22-Mar	0:00:00	18-Jun-19	0:00:00	12.12	12.14	18-Jun	23:59:59
23-Mar-19	0:00:00	6.19	7.84	23-Mar	23:59:59	19-Jun-19	0:00:00	12.12	14.25	19-Jun	23:59:59
24-Mar-19	0:00:00	7.83	7.83	24-Mar	0:00:00	20-Jun-19	0:00:00	14.23	14.23	20-Jun	0:00:00
25-Mar-19	0:00:00	7.52	7.52	25-Mar	0:00:00	21-Jun-19	0:00:00	6.72	14.94	21-Jun	23:59:59
26-Mar-19	0:00:00	6.77	6.8	26-Mar	23:59:59	22-Jun-19	0:00:00	14.92	14.92	22-Jun	0:00:00
27-Mar-19	0:00:00	6.8	6.8	27-Mar	0:00:00	23-Jun-19	0:00:00	14.67	15.02	23-Jun	23:59:59
28-Mar-19	0:00:00	6.72	6.83	28-Mar	23:59:59	24-Jun-19	0:00:00	15	15	24-Jun	0:00:00
29-Mar-19	0:00:00	6.81	6.86	29-Mar	23:59:59	25-Jun-19	0:00:00	13.12	13.83	25-Jun	23:59:59
30-Mar-19	0:00:00	6.86	6.86	30-Mar	0:00:00	26-Jun-19	0:00:00	13.81	14.89	26-Jun	23:59:59
31-Mar-19	0:00:00	0.75	7.39	31-Mar	23:59:59	27-Jun-19	0:00:00	14.87	14.87	27-Jun	0:00:00
1-Apr-19	0:00:00	6.86	6.87	1-Apr	23:59:59	28-Jun-19	0:00:00	14.52	16.25	28-Jun	23:59:59
2-Apr-19	0:00:00	6.87	7.42	2-Apr	23:59:59	29-Jun-19	0:00:00	16.23	24	29-Jun	23:59:59
3-Apr-19	0:00:00	7.42	7.42	3-Apr	0:00:00	30-Jun-19	0:00:00	23.98	23.98	30-Jun	0:00:00
4-Apr-19	0:00:00	6.8	6.8	4-Apr	0:00:00	1-Jul-19	0:00:00	15.48	15.48	1-Jul	0:00:00
5-Apr-19	0:00:00	6.77	7.05	5-Apr	23:59:59	2-Jul-19	0:00:00	12.34	12.34	2-Jul	0:00:00
6-Apr-19	0:00:00	6.77	7.89	6-Apr	23:59:59	3-Jul-19	0:00:00	11.97	12.23	3-Jul	23:59:59
7-Apr-19	0:00:00	7.87	7.87	7-Apr	0:00:00	4-Jul-19	0:00:00	6.72	15.77	4-Jul	23:59:59
8-Apr-19	0:00:00	7.77	7.77	8-Apr	0:00:00	5-Jul-19	0:00:00	15.75	15.75	5-Jul	0:00:00
9-Apr-19	0:00:00	6.78	6.83	9-Apr	23:59:59	6-Jul-19	0:00:00	12.05	16.02	6-Jul	23:59:59
10-Apr-19	0:00:00	6.83	6.83	10-Apr	0:00:00	7-Jul-19	0:00:00	16	24	7-Jul	23:59:59
11-Apr-19	0:00:00	6.77	6.77	11-Apr	0:00:00	8-Jul-19	0:00:00	23.98	23.98	8-Jul	0:00:00
12-Apr-19	0:00:00	0	0	12-Apr	0:00:00	9-Jul-19	0:00:00	12.98	12.98	9-Jul	0:00:00
13-Apr-19	0:00:00	0	0.33	13-Apr	23:59:59	10-Jul-19	0:00:00	6.34	11.17	10-Jul	23:59:59
14-Apr-19	0:00:00	0.31	7.56	14-Apr	23:59:59	11-Jul-19	0:00:00	11.16	12.58	11-Jul	23:59:59
15-Apr-19	0:00:00	7.55	7.55	15-Apr	0:00:00	12-Jul-19	0:00:00	12.56	14.83	12-Jul	23:59:59
16-Apr-19	0:00:00	6.78	6.78	16-Apr	0:00:00	13-Jul-19	0:00:00	14.81	24	13-Jul	23:59:59
17-Apr-19	0:00:00	6.72	6.94	17-Apr	23:59:59	14-Jul-19	0:00:00	23.98	24	14-Jul	23:59:59
18-Apr-19	0:00:00	6.92	6.92	18-Apr	0:00:00	15-Jul-19	0:00:00	23.98	23.98	15-Jul	0:00:00
19-Apr-19	0:00:00	6.91	7.12	19-Apr	23:59:59	16-Jul-19	0:00:00	5.42	12.69	16-Jul	23:59:59
20-Apr-19	0:00:00	7.11	7.7	20-Apr	23:59:59	17-Jul-19	0:00:00	12.67	12.67	17-Jul	0:00:00
21-Apr-19	0:00:00	7.69	7.69	21-Apr	0:00:00	18-Jul-19	0:00:00	6.72	12.61	18-Jul	23:59:59
22-Apr-19	0:00:00	7.58	7.58	22-Apr	0:00:00	19-Jul-19	0:00:00	12.59	24	19-Jul	23:59:59
23-Apr-19	0:00:00	6.67	6.67	23-Apr	0:00:00	20-Jul-19	0:00:00	23.98	23.98	20-Jul	0:00:00
24-Apr-19	0:00:00	6.66	6.78	24-Apr	23:59:59	21-Jul-19	0:00:00	22.7	22.7	21-Jul	0:00:00
25-Apr-19	0:00:00	6.78	7.66	25-Apr	23:59:59	22-Jul-19	0:00:00	14.81	14.81	22-Jul	0:00:00
26-Apr-19	0:00:00	7.66	7.66	26-Apr	0:00:00	23-Jul-19	0:00:00	13.55	13.83	23-Jul	23:59:59
27-Apr-19	0:00:00	7.66	7.91	27-Apr	23:59:59	24-Jul-19	0:00:00	13.81	14.3	24-Jul	23:59:59
28-Apr-19	0:00:00	7.89	7.89	28-Apr	0:00:00	25-Jul-19	0:00:00	14.28	14.28	25-Jul	0:00:00
29-Apr-19	0:00:00	7.66	7.66	29-Apr	0:00:00	26-Jul-19	0:00:00	11.55	15.8	26-Jul	23:59:59
30-Apr-19	0:00:00	6.86	6.94	30-Apr	23:59:59	27-Jul-19	0:00:00	15.78	15.78	27-Jul	0:00:00
1-May-19	0:00:00	6.94	6.94	1-May	0:00:00	28-Jul-19	0:00:00	15.25	15.25	28-Jul	0:00:00
2-May-19	0:00:00	6.58	6.8	2-May	23:59:59	29-Jul-19	0:00:00	10.05	12.84	29-Jul	23:59:59
3-May-19	0:00:00	6.8	7.47	3-May	23:59:59	30-Jul-19	0:00:00	12.83	12.83	30-Jul	0:00:00
4-May-19	0:00:00	7.45	8.34	4-May	23:59:59	31-Jul-19	0:00:00	11.56	11.56	31-Jul	0:00:00
5-May-19	0:00:00	8.33	8.33	5-May	0:00:00	1-Aug-19	0:00:00	11.05	12.19	1-Aug	23:59:59
6-May-19	0:00:00	8.22	8.22	6-May	0:00:00	2-Aug-19	0:00:00	12.17	24	2-Aug	23:59:59
7-May-19	0:00:00	7.42	7.42	7-May	0:00:00	3-Aug-19	0:00:00	11.55	11.55	3-Aug	0:00:00
8-May-19	0:00:00	6.87	6.87	8-May	0:00:00	4-Aug-19	0:00:00	10.5	13.19	4-Aug	23:59:59
9-May-19	0:00:00	6.8	6.8	9-May	0:00:00	5-Aug-19	0:00:00	13.17	13.17	5-Aug	0:00:00
10-May-19	0:00:00	6.75	7.08	10-May	23:59:59	6-Aug-19	0:00:00	10	10	6-Aug	0:00:00
11-May-19	0:00:00	7.06	7.78	11-May	23:59:59	7-Aug-19	0:00:00	7.25	7.25	7-Aug	0:00:00
12-May-19	0:00:00	7.77	12.86	12-May	23:59:59	8-Aug-19	0:00:00	0	0	8-Aug	0:00:00
13-May-19	0:00:00	12.84	12.84	13-May	0:00:00	9-Aug-19	0:00:00	0	10.14	9-Aug	23:59:59
14-May-19	0:00:00	11.83	12	14-May	23:59:59	10-Aug-19	0:00:00	10.12	10.12	10-Aug	0:00:00
15-May-19	0:00:00	11.98	11.98	15-May	0:00:00	11-Aug-19	0:00:00	7.05	7.19	11-Aug	23:59:59
16-May-19	0:00:00	7.44	9.64	16-May	23:59:59	12-Aug-19	0:00:00	7.17	12.22	12-Aug	23:59:59
17-May-19	0:00:00	6.8	11.03	17-May	23:59:59	13-Aug-19	0:00:00	12.2	12.2	13-Aug	0:00:00
18-May-19	0:00:00	11.02	15.73	18-May	23:59:59	14-Aug-19	0:00:00	6.17	6.17	14-Aug	0:00:00
19-May-19	0:00:00	15.72	15.72	19-May	0:00:00	15-Aug-19	0:00:00	0.55	8	15-Aug	23:59:59
20-May-19	0:00:00	12.73	12.73	20-May	0:00:00	16-Aug-19	0:00:00	7.98	14.64	16-Aug	23:59:59
21-May-19	0:00:00	6.72	6.72	21-May	0:00:00	17-Aug-19	0:00:00	14.62	15.27	17-Aug	23:59:59
22-May-19	0:00:00	3.11	10.3	22-May	23:59:59	18-Aug-19	0:00:00	15.25	15.25	18-Aug	0:00:00
23-May-19	0:00:00	6.72	10.47	23-May	23:59:59	19-Aug-19	0:00:00	7.95	7.95	19-Aug	0:00:00
24-May-19	0:00:00	10.45	12.44	24-May	23:59:59	20-Aug-19	0:00:00	4.58	12.05	20-Aug	23:59:59
25-May-19	0:00:00	12.42	15.36	25-May	23:59:59	21-Aug-19	0:00:00	12.03	12.03	21-Aug	0:00:00
26-May-19	0:00:00	15.34	15.34	26-May	0:00:00	22-Aug-19	0:00:00	12	14.61	22-Aug	23:59:59
27-May-19	0:00:00	6.72	13.16	27-May	23:59:59	23-Aug-19	0:00:00	7.95	14.36	23-Aug	23:59:59
28-May-19	0:00:00	6.72	10.12	28-May	23:59:59	24-Aug-19	0:00:00	14.34	15.22	24-Aug	23:59:59
29-May-19	0:00:00	10.11	11.83	29-May	23:59:59	25-Aug-19	0:00:00	15.2	15.2	25-Aug	0:00:00
30-May-19	0:00:00	11.81	12.12	30-May	23:59:59	26-Aug-19	0:00:00	12.5	12.5	26-Aug	0:00:00
31-May-19	0:00:00	12.11	12.37	31-May	23:59:59	27-Aug-19	0:00:00	10.7	11.14	27-Aug	23:59:59
1-Jun-19	0:00:00	12.36	12.36	1-Jun	0:00:00	28-Aug-19	0:00:00	11.12	12.44	28-Aug	23:59:59
2-Jun-19	0:00:00	11.03	13.03	2-Jun	23:59:59	29-Aug-19	0:00:00	12.42	14.66	29-Aug	23:59:59
3-Jun-19	0:00:00	13.02	13.02	3-Jun	0:00:00	30-Aug-19	0:00:00	14.64	14.64	30-Aug	0:00:00
4-Jun-19	0:00:00	6.72	10.75	4-Jun	23:59:59	31-Aug-19	0:00:00	7.95	11.31	31-Aug	23:59:59
5-Jun-19	0:00:00	10.73	10.73	5-Jun	0:00:00	1-Sep-19	0:00:00	11.3	11.3	1-Sep	0:00:00
6-Jun-19	0:00:00	10.33	12.75	6-Jun	23:59:59	2-Sep-19	0:00:00	7.73	7.73	2-Sep	0:00:00
7-Jun-19	0:00:00	12.73	12.73	7-Jun	0:00:00	3-Sep-19	0:00:00	0	2.98	3-Sep	23:59:59
8-Jun-19	0:00:00	11.89	15.8	8-Jun	23:59:59	4-Sep-19	0:00:00	2.97	11.36	4-Sep	23:59:59
9-Jun-19	0:00:00	15.78	15.78	9-Jun	0:00:00	5-Sep-19	0:00:00	0	12.06	5-Sep	23:59:59
10-Jun-19	0:00:00	10.55	12.45	10-Jun	23:59:59	6-Sep-19	0:00:00	12.05	12.37	6-Sep	23:59:59
11-Jun-19	0:00:00	12.44	12.44	11-Jun	0:00:00	7-Sep-19	0:00:00	12.36	12.36	7-Sep	0:00:00
12-Jun-19	0:00:00	6.72	14.17	12-Jun	23:59:59	8-Sep-19	0:00:00	7.67	7.67	8-Sep	0:00:00

Interval	start	Total	Peak	Date	time	Interval	start	Total	Peak	Date	time		
	9-Sep-19	0:00:00	0	5.61	9-Sep	23:59:59		6-Dec-19	0:00:00	0.11	14.98	6-Dec	23:59:59
	10-Sep-19	0:00:00	5.59	12.06	10-Sep	23:59:59		7-Dec-19	0:00:00	14.97	14.97	7-Dec	0:00:00
	11-Sep-19	0:00:00	12.05	12.05	11-Sep	0:00:00		8-Dec-19	0:00:00	0	7.56	8-Dec	23:59:59
	12-Sep-19	0:00:00	6.42	6.42	12-Sep	0:00:00		9-Dec-19	0:00:00	7.55	7.55	9-Dec	0:00:00
	13-Sep-19	0:00:00	3.72	8.25	13-Sep	23:59:59		10-Dec-19	0:00:00	6.42	7.14	10-Dec	23:59:59
	14-Sep-19	0:00:00	8.25	8.25	14-Sep	0:00:00		11-Dec-19	0:00:00	7.14	7.14	11-Dec	0:00:00
	15-Sep-19	0:00:00	0	2.22	15-Sep	23:59:59		12-Dec-19	0:00:00	0	0.09	12-Dec	23:59:59
	16-Sep-19	0:00:00	0	9.47	16-Sep	23:59:59		13-Dec-19	0:00:00	0.08	7.27	13-Dec	23:59:59
	17-Sep-19	0:00:00	9.45	11.48	17-Sep	23:59:59		14-Dec-19	0:00:00	7.25	8.03	14-Dec	23:59:59
	18-Sep-19	0:00:00	11.47	11.47	18-Sep	0:00:00		15-Dec-19	0:00:00	8.02	8.02	15-Dec	0:00:00
	19-Sep-19	0:00:00	8.48	8.48	19-Sep	0:00:00		16-Dec-19	0:00:00	7.23	7.23	16-Dec	0:00:00
	20-Sep-19	0:00:00	6.58	8.28	20-Sep	23:59:59		17-Dec-19	0:00:00	6.89	7.12	17-Dec	23:59:59
	21-Sep-19	0:00:00	8.27	10.84	21-Sep	23:59:59		18-Dec-19	0:00:00	7.12	7.12	18-Dec	0:00:00
	22-Sep-19	0:00:00	10.83	10.83	22-Sep	0:00:00		19-Dec-19	0:00:00	0.09	6.83	19-Dec	23:59:59
	23-Sep-19	0:00:00	7.92	7.92	23-Sep	0:00:00		20-Dec-19	0:00:00	6.81	11.41	20-Dec	23:59:59
	24-Sep-19	0:00:00	7.5	12.16	24-Sep	23:59:59		21-Dec-19	0:00:00	11.39	11.39	21-Dec	0:00:00
	25-Sep-19	0:00:00	12.14	12.14	25-Sep	0:00:00		22-Dec-19	0:00:00	7.8	7.8	22-Dec	0:00:00
	26-Sep-19	0:00:00	10.67	11.16	26-Sep	23:59:59		23-Dec-19	0:00:00	7.27	7.27	23-Dec	0:00:00
	27-Sep-19	0:00:00	11.14	11.14	27-Sep	0:00:00		24-Dec-19	0:00:00	6.42	6.84	24-Dec	23:59:59
	28-Sep-19	0:00:00	8.45	11.91	28-Sep	23:59:59		25-Dec-19	0:00:00	6.84	6.84	25-Dec	0:00:00
	29-Sep-19	0:00:00	7.92	13.84	29-Sep	23:59:59		26-Dec-19	0:00:00	0	6.73	26-Dec	23:59:59
	30-Sep-19	0:00:00	13.83	13.83	30-Sep	0:00:00		27-Dec-19	0:00:00	6.73	7.05	27-Dec	23:59:59
	1-Oct-19	0:00:00	6.53	6.53	1-Oct	0:00:00		28-Dec-19	0:00:00	6.73	7.98	28-Dec	23:59:59
	2-Oct-19	0:00:00	4.81	11.25	2-Oct	23:59:59		29-Dec-19	0:00:00	7.97	7.97	29-Dec	0:00:00
	3-Oct-19	0:00:00	11.23	12.27	3-Oct	23:59:59		30-Dec-19	0:00:00	7.47	7.47	30-Dec	0:00:00
	4-Oct-19	0:00:00	12.25	13.44	4-Oct	23:59:59		31-Dec-19	0:00:00	0.23	6.47	31-Dec	23:59:59
	5-Oct-19	0:00:00	13.42	14.14	5-Oct	23:59:59							
	6-Oct-19	0:00:00	14.12	14.12	6-Oct	0:00:00							
	7-Oct-19	0:00:00	7.11	7.11	7-Oct	0:00:00							
	8-Oct-19	0:00:00	3.39	6.86	8-Oct	23:59:59							
	9-Oct-19	0:00:00	6.84	6.84	9-Oct	0:00:00							
	10-Oct-19	0:00:00	6.81	6.81	10-Oct	0:00:00							
	11-Oct-19	0:00:00	6.78	15.36	11-Oct	23:59:59							
	12-Oct-19	0:00:00	15.34	15.34	12-Oct	0:00:00							
	13-Oct-19	0:00:00	6.78	7.67	13-Oct	23:59:59							
	14-Oct-19	0:00:00	7.66	7.66	14-Oct	0:00:00							
	15-Oct-19	0:00:00	7.14	7.14	15-Oct	0:00:00							
	16-Oct-19	0:00:00	6.89	6.89	16-Oct	0:00:00							
	17-Oct-19	0:00:00	6.8	6.86	17-Oct	23:59:59							
	18-Oct-19	0:00:00	6.86	16.25	18-Oct	23:59:59							
	19-Oct-19	0:00:00	16.23	16.23	19-Oct	0:00:00							
	20-Oct-19	0:00:00	6.86	7.36	20-Oct	23:59:59							
	21-Oct-19	0:00:00	7.36	7.36	21-Oct	0:00:00							
	22-Oct-19	0:00:00	7.36	7.36	22-Oct	0:00:00							
	23-Oct-19	0:00:00	7.02	7.02	23-Oct	0:00:00							
	24-Oct-19	0:00:00	6.77	6.81	24-Oct	23:59:59							
	25-Oct-19	0:00:00	6.81	7.98	25-Oct	23:59:59							
	26-Oct-19	0:00:00	7.97	8.52	26-Oct	23:59:59							
	27-Oct-19	0:00:00	8.5	8.5	27-Oct	0:00:00							
	28-Oct-19	0:00:00	7.08	7.34	28-Oct	23:59:59							
	29-Oct-19	0:00:00	7.34	7.34	29-Oct	0:00:00							
	30-Oct-19	0:00:00	6.47	6.75	30-Oct	23:59:59							
	31-Oct-19	0:00:00	6.73	6.86	31-Oct	23:59:59							
	1-Nov-19	0:00:00	6.86	6.87	1-Nov	23:59:59							
	2-Nov-19	0:00:00	6.86	6.86	2-Nov	0:00:00							
	3-Nov-19	0:00:00	6.42	7.59	3-Nov	23:59:59							
	4-Nov-19	0:00:00	7.59	7.59	4-Nov	0:00:00							
	5-Nov-19	0:00:00	6.87	6.87	5-Nov	0:00:00							
	6-Nov-19	0:00:00	6.61	6.61	6-Nov	0:00:00							
	7-Nov-19	0:00:00	6.55	6.55	7-Nov	0:00:00							
	8-Nov-19	0:00:00	6.5	6.94	8-Nov	23:59:59							
	9-Nov-19	0:00:00	6.92	8.11	9-Nov	23:59:59							
	10-Nov-19	0:00:00	8.09	8.09	10-Nov	0:00:00							
	11-Nov-19	0:00:00	6.5	7.67	11-Nov	23:59:59							
	12-Nov-19	0:00:00	7.66	7.66	12-Nov	0:00:00							
	13-Nov-19	0:00:00	7.02	7.02	13-Nov	0:00:00							
	14-Nov-19	0:00:00	0	7.11	14-Nov	23:59:59							
	15-Nov-19	0:00:00	7.09	7.2	15-Nov	23:59:59							
	16-Nov-19	0:00:00	0	7.84	16-Nov	23:59:59							
	17-Nov-19	0:00:00	7.83	7.84	17-Nov	23:59:59							
	18-Nov-19	0:00:00	7.84	7.84	18-Nov	0:00:00							
	19-Nov-19	0:00:00	7.84	7.84	19-Nov	0:00:00							
	20-Nov-19	0:00:00	6.8	6.8	20-Nov	0:00:00							
	21-Nov-19	0:00:00	6.77	7.06	21-Nov	23:59:59							
	22-Nov-19	0:00:00	7.05	7.08	22-Nov	23:59:59							
	23-Nov-19	0:00:00	7.06	7.2	23-Nov	23:59:59							
	24-Nov-19	0:00:00	7.2	7.2	24-Nov	0:00:00							
	25-Nov-19	0:00:00	0	0.12	25-Nov	23:59:59							
	26-Nov-19	0:00:00	0.11	6.8	26-Nov	23:59:59							
	27-Nov-19	0:00:00	6.78	6.78	27-Nov	0:00:00							
	28-Nov-19	0:00:00	6.7	7.55	28-Nov	23:59:59							
	29-Nov-19	0:00:00	7.53	7.59	29-Nov	23:59:59							
	30-Nov-19	0:00:00	7.59	7.59	30-Nov	0:00:00							
	1-Dec-19	0:00:00	0.45	7.47	1-Dec	23:59:59							
	2-Dec-19	0:00:00	7.59	7.59	2-Dec	0:00:00							
	3-Dec-19	0:00:00	6.27	6.58	3-Dec	23:59:59							
	4-Dec-19	0:00:00	6.58	6.58	4-Dec	0:00:00							
	5-Dec-19	0:00:00	0	0.12	5-Dec	23:59:59							



LOS ALAMOS COUNTY  
OTOWI 2 WELL PUMP DRIVE  
LIFE CYCLE ANALYSIS

APPENDIX H

LOS ALAMOS COUNTY UTILITY  
UTILITY RATE MEMO

**WILSON  
& COMPANY**

discipline | intensity | collaboration | shared ownership | solutions

# MEMORANDUM



Department of Public Utilities

Electric, Gas, Water, and Wastewater Services

Administrative Offices

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Los Alamos, NM 87544

P 505.662.8333 F 505.662.8005

[customer-care@lacnm.us](mailto:customer-care@lacnm.us)

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**DATE:** January 28, 2020

**TO:** James Alarid

**FROM:** Jordan Garcia

**CC:** Ernesto Gallegos

**RE:** Water Production Pump and Booster Costing

## Electric Cost for Water Pumping

Electric Cost for water pumping is derived from 4 different components. The Demand Cost Component, Energy Cost component, Distribution Adder Cost component, and a Customer Service Charge. The two most complex components are the demand and energy. The Cost components work as follows:

1. The Demand Cost component changes every month. It is based on the demand cost of electricity divided by the monthly peak KW consumption. A good example, is December's 2019 Invoice. The Demand rate is \$10.93/KW (\$911,684.00 divided by 83,417KW). It is then multiplied by Water Production's Coincidental Peak. The Coincidental Peak is determined by Water Production's energy consumption at the hour of Energy Load Peak. In this case Water Production was consuming 662.58KW at the time of peak.
2. The Energy cost component is very similar to the Demand component. It changes every month and is based on the energy cost of electricity divided the monthly energy consumption. Using the same example from above December's rate is \$.03213 cents per KWh (\$1,562,845.00 divided by 48,648,530 KWhs). It is then multiplied by Water Production's total monthly energy. This particular month's energy consumption for Water Production is 484,053.73 KWh.
3. The Distribution Adder Cost component is one set by the Board of Public Utilities. It is .016 cents per KWh. Formula for December 2019 (.016\*484,053.73 KWh)

4. The Customer Service Charge is also set by the Board of Public Utilities and is currently a flat \$215.75/month
  - a. The invoice looks like this:
    - i. Demand- ( $\$10.93 \times 662.58 \text{ KW} = \$7,241.51$ )
    - ii. Energy- ( $\$.03213 \times 484,053.73 \text{ KWh} = \$15,550.34$ )
    - iii. Distribution Adder- ( $.016 \times 484,053.73 \text{ KWh} = \$7,744.86$ )
    - iv. Customer Service Charge- (\$217.75)
    - v. Total - ( $\$7,241.51 + \$15,550.34 + \$7,744.86 + \$217.75 = \$30,754.46$ )

In conclusion, Water Production is essentially a wholesale customer of the Electric Production (EP) group with a fixed cost for the distribution system. The invoicing for water production is highly dependent on what is transpiring in the EP department. Prior to 2016 EP demand costs were very high to debt service surrounding owned generating assets. 2016 and beyond the demand charges for EP have dropped due to the payoff and retirement of debt and assets.

### **Gas Cost for Water Pumping**

#### **Gas Billing for Water Pumping**

Gas cost for water pumping is much simpler in terms of calculations however it still has a variable component. We gather metered data in terms of Million Cubic Feet (MCF) for usage. We then convert to MMBTU. All of the components I will list below are multiplied by the MMBTU. The Formula Works as follows:

1. Multiply Metered MCF by the Dry BTU provided by the Gas Company. For the month of December 2019 The MCF consumed is 38.8 then multiplied by 1.0535 (changes monthly) which gives us a value of 40.92 MMBTU
2. The Value of MMBTU is then multiplied by the cost of gas. Cost of gas is variable based on the index pricing of the San Juan Basin. It is supplied by both long term and short-term contracts. For December 2019 40.92 MMBTU is multiplied by \$2.313 ( $40.92 \times \$2.313 = \$94.64$ )
3. The value of MMBTU is multiplied by the transportation fee charge by New Mexico Gas Company. For December 2019 40.92 MMBTU is multiplied by .247 ( $40.92 \times \$0.247 = \$10.11$ )
4. Total for December Gas Usage by Water Production \$104.75 ( $\$94.64 + \$10.11 = \$104.75$ ).

Water Production is essentially a wholesale customer of Gas Supply. The cost is based on futures of market gas with a slight discount for a long-term contract. It is also subject to transportation increases.

For any questions or concerns please don't hesitate to contact me.

# LAC Historic Cost of Electric for Water Production

1/28/2020

## LAC Recent Historic Cost of Electric for Water Production

Year	Month	Demand			Energy			Customer Service		
		Demand- KW	Rate \$/KWH	Total Demand Cost	Energy-KW	Rate	Distribution adder	Energy Charge	Charge	Total Bill
2019	November	513.00	\$ 12.49	\$ 6,408.45	474,570	0.02943	0.016	\$ 21,557.40	\$ 217.75	\$ 28,183.61
2019	October	1,348.80	\$ 15.67	\$ 21,132.54	48,627	0.01882	0.016	\$ 16,877.06	\$ 217.75	\$ 38,227.35
2019	September	38.15	\$ 13.60	\$ 518.82	716,625	0.0284442	0.016	\$ 31,849.85	\$ 217.75	\$ 32,586.42
2019	August	256.62	\$ 12.92	\$ 3,315.31	777,737	0.0309848	0.016	\$ 36,541.83	\$ 217.75	\$ 40,074.88
2019	July	24.77	\$ 13.71	\$ 339.47	756,087	0.0285262	0.016	\$ 33,665.65	\$ 217.75	\$ 34,222.87
2019	June	20.13	\$ 16.86	\$ 339.47	802,411	0.0240527	0.016	\$32,138.72	\$ 217.75	\$ 32,695.94
2019	May	406.02	\$ 11.86	\$ 4,815.60	601,185	0.0386281	0.016	\$32,841.60	\$ 217.75	\$ 37,874.95
2019	April	38.47	\$ 7.81	\$ 300.57	468,971	0.0093391	0.016	\$11,883.28	\$ 217.75	\$ 12,401.60
2019	March	529.25	\$ 15.90	\$ 8,413.84	459,310	0.0339041	0.016	\$22,921.43	\$ 217.75	\$ 31,553.02
2019	February	2,059.82	\$ 16.63	\$ 34,256.11	457,149	0.0430629	0.016	\$27,000.55	\$ 217.75	\$ 61,474.42
2019	January	135.14	\$ 20.97	\$ 2,833.88	495,401	0.0146268	0.016	\$15,172.54	\$ 217.75	\$ 18,224.17
2018	December	115.72	\$ 17.18	\$ 1,988.34	507,745	0.0322192	0.016	\$24,483.08	\$ 217.75	\$ 26,689.17
2018	November	86.58	\$ 16.32	\$ 1,412.85	537,107	0.0356734	0.016	\$27,754.14	\$ 217.75	\$ 29,384.74
2018	October	70.37	\$ 13.40	\$ 943.23	665,214	0.0355096	0.016	\$34,264.86	\$ 217.75	\$ 35,425.84
2018	September	19.92	\$ 14.56	\$ 290.01	915,759	0.0322148	0.016	\$44,153.09	\$ 217.75	\$ 44,660.86
2018	August	30.07	\$ 16.85	\$ 506.63	764,954	0.0369855	0.016	\$40,531.42	\$ 217.75	\$ 41,255.80
2018	July	70.18	\$ 11.76	\$ 825.25	1,096,955	0.0407854	0.016	\$62,291.02	\$ 217.75	\$ 63,334.02
2018	June	307.18	12.48	\$ 3,834.29	1,004,637.46	0.0246882	0.016	\$40,876.84	\$ 217.75	\$ 44,928.88
2018	May	24.94	13.99	\$ 348.91	1,071,066.76	0.02425	0.016	\$43,110.47	\$ 217.75	\$ 43,677.14
2018	April	43.75	15.82	\$ 692.25	722,957.36	0.0258296	0.016	\$30,241.03	\$ 217.75	\$ 31,151.02
2018	March	172.00	13.40	\$ 2,304.83	460,785.22	0.0307354	0.016	\$21,535.00	\$ 217.75	\$ 24,057.59
2018	February	51.22	15.66	\$ 802.30	556,941.44	0.0299957	0.016	\$25,616.91	\$ 217.75	\$ 26,636.96
2018	January	97.38	15.05	\$ 1,465.73	582,963.55	0.0280154	0.016	\$25,659.36	\$ 217.75	\$ 27,342.84
2017	December	506.05	14.82	\$ 7,498.80	631,600.80	0.0237216	0.016	\$25,088.20	\$ 217.75	\$ 32,804.75
2017	November	478.10	15.40	\$ 7,362.87	612,148.80	0.0194748	0.016	\$21,715.86	\$ 217.75	\$ 29,296.48
2017	October	824.29	14.62	\$ 12,047.77	632,589.47	0.0226253	0.016	\$24,433.94	\$ 217.75	\$ 36,699.46
2017	September	34.28	14.05	\$ 481.72	802,076.76	0.0229729	0.016	\$31,259.23	\$ 217.75	\$ 31,958.70
2017	August	307.53	13.36	\$ 4,108.18	907,456.57	0.0253909	0.016	\$37,560.47	\$ 217.75	\$ 41,886.40
2017	July	35.28	13.33	\$ 470.44	1,181,713.46	0.0247502	0.016	\$48,155.08	\$ 217.75	\$ 48,843.26

# LAC Historic Cost of Electric for Water Production

1/28/2020

## LAC High Demand Historic Cost of Electric for Water Production

Year	Month	Demand- KW	Demand Rate \$/KWH	Total		Energy Rate	Distribution adder	Energy Charge	Customer Service Charge	Total Bill
				Demand Cost	Energy-KW					
2015	June	33.80	15.79	\$ 533.56	438,630.38	0.0400169	0.016	\$24,570.71	\$217.75	\$ 25,322.02
2015	May	42.63	18.54	\$ 790.48	960,075.50	0.0310144	0.016	\$45,137.34	\$217.75	\$ 46,145.57
2015	April	171.70	17.86	\$ 3,067.26	607,477.26	0.0365729	0.016	\$31,936.84	\$217.75	\$ 35,221.84
2015	March	102.33	15.92	\$ 1,629.03	619,628.84	0.039893	0.016	\$34,632.92	\$170.10	\$ 36,432.05
2015	February	256.30	13.68	\$ 3,505.35	617,752.43	0.0356943	0.016	\$31,934.25	\$170.10	\$ 35,609.71
2015	January	102.94	15.68	\$ 1,613.65	694,646.61	0.0343682	0.016	\$34,988.11	\$170.10	\$ 36,771.86
2014	December	93.33	14.64	\$ 1,366.45	723,366.95	0.0449402	0.016	\$44,082.12	\$170.10	\$ 45,618.67
2014	November	476.40	15.14	\$ 7,211.41	661,146.78	0.0472565	0.016	\$41,821.85	\$170.10	\$ 49,203.36
2014	October	71.70	15.71	\$ 1,126.39	473,351.74	0.0369195	0.016	\$25,049.53	\$170.10	\$ 26,346.02
2014	September	171.27	15.11	\$ 2,587.28	801,235.52	0.0355966	0.016	\$41,341.02	\$157.50	\$ 44,085.80
2014	August	176.40	15.68	\$ 2,766.06	764,939.25	0.0390425	0.016	\$42,104.20	\$157.50	\$ 45,027.76
2014	July	168.01	14.14	\$ 2,375.51	980,633.90	0.036252	0.016	\$51,240.12	\$157.50	\$ 53,773.13
2014	June	83.88	22.50	\$ 1,887.41	1,015,087.59	0.0390965	0.016	\$55,927.76	\$ 157.50	\$ 57,972.67
2014	May	210.98	24.64	\$ 5,198.68	1,179,201.90	0.0448859	0.016	\$71,796.73	\$ 157.50	\$ 77,152.91
2014	April	200.03	25.78	\$ 5,156.43	780,590.02	0.0431826	0.016	\$46,197.37	\$ 157.50	\$ 51,511.30
2014	March	1,310.48	24.16	\$ 31,659.65	605,925.52	0.0345666	0.016	\$30,639.59	\$ 157.50	\$ 62,456.74
2014	February	246.66	21.39	\$ 5,277.06	762,649.54	0.0296774	0.016	\$34,835.82	\$ 157.50	\$ 40,270.38
2014	January	100.50	20.32	\$ 2,041.76	741,093.30	0.0446571	0.016	\$44,952.61	\$ 157.50	\$ 47,151.87
2013	December	233.67	19.67	\$ 4,597.05	607,747.03	0.045959	0.016	\$37,655.43	\$ 157.50	\$ 42,409.97
2013	November	194.91	20.83	\$ 4,060.29	538,173.64	0.0393087	0.0158	\$29,658.03	\$ 157.50	\$ 33,875.81
2013	October	20.73	20.88	\$ 432.67	447,189.12	0.0380107	0.0158	\$24,063.58	\$ 157.50	\$ 24,653.75
2013	September	157.80	21.42	\$ 3,380.40	607,846.47	0.03221	0.0158	\$29,182.72	\$ 157.50	\$ 32,720.62
2013	August	158.24	17.49	\$ 2,768.03	679,195.84	0.0503344	0.0158	\$44,918.23	\$ 157.50	\$ 47,843.77
2013	July	160.64	21.19	\$ 3,404.76	825,024.66	0.038673	0.0158	\$44,941.56	\$ 157.50	\$ 48,503.82

# LAC Historic Cost of Gas for Water Production

1/28/2020

	Total MCF	DRY BTU	Cost of Gas	Transportation Cost	Total Dollar Cost
Jul-19	1.56	1.057	\$ 1.67	\$ 0.247	\$ 3.15
Aug-19	1.56	1.065	\$ 1.65	\$ 0.247	\$ 3.15
Sep-19	1.64	1.069	\$ 1.40	\$ 0.247	\$ 2.88
Oct-19	1.95	1.056	\$ 1.57	\$ 0.247	\$ 3.75
Nov-19	17.86	1.062	\$ 1.93	\$ 0.247	\$ 41.27
Dec-19	38.84	1.054	\$ 2.31	\$ 0.247	\$ 104.75
Jul-18	1,771.87	1.078	\$ 2.34	\$ 0.241	\$ 4,918.07
Aug-18	1.88	1.065	\$ 2.02	\$ 0.241	\$ 4.53
Sep-18	3.03	1.057	\$ 1.86	\$ 0.241	\$ 6.72
Oct-18	0.78	1.059	\$ 1.54	\$ 0.241	\$ 1.47
Nov-18	46.96	1.048	\$ 2.47	\$ 0.241	\$ 133.14
Dec-18	91.34	1.047	\$ 3.12	\$ 0.241	\$ 320.79
Jan-19	76.36	1.050	\$ 3.40	\$ 0.241	\$ 291.60
Feb-19	70.51	1.048	\$ 2.61	\$ 0.241	\$ 210.69
Mar-19	59.05	1.050	\$ 2.14	\$ 0.241	\$ 147.37
Apr-19	28.08	1.052	\$ 1.22	\$ 0.241	\$ 43.03
May-19	7.88	1.055	\$ 0.82	\$ 0.241	\$ 8.84
Jun-19	2.73	1.063	\$ 1.47	\$ 0.241	\$ 4.97
Jul-17	2,389.73	1.020	\$ 2.53	\$ 0.241	\$ 6,766.78
Aug-17	1.64	1.020	\$ 2.73	\$ 0.241	\$ 4.97
Sep-17	2,549.95	1.036	\$ 2.34	\$ 0.241	\$ 6,820.98
Oct-17	2,528.52	1.031	\$ 2.07	\$ 0.241	\$ 6,023.70
Nov-17	642.79	1.643	\$ 2.01	\$ 0.241	\$ 2,373.07
Dec-17	47.89	1.052	\$ 2.22	\$ 0.241	\$ 124.14
Jan-18	53.51	1.049	\$ 2.36	\$ 0.241	\$ 145.94
Feb-18	54.68	1.051	\$ 2.38	\$ 0.241	\$ 150.65
Mar-18	53.20	1.055	\$ 1.76	\$ 0.241	\$ 112.27
Apr-18	33.34	1.063	\$ 1.45	\$ 0.241	\$ 60.04
May-18	82.46	1.077	\$ 1.37	\$ 0.241	\$ 142.76
Jun-18	2,670.19	1.081	\$ 1.77	\$ 0.241	\$ 5,796.78
Jul-16	2,389.73	1.045	\$ 2.54	\$ 0.241	\$ 6,946.23
Aug-16	1.64	1.045	\$ 2.72	\$ 0.241	\$ 5.08
Sep-16	1.25	1.035	\$ 2.56	\$ 0.241	\$ 3.63
Oct-16	1.25	1.026	\$ 1.83	\$ 0.241	\$ 2.66
Nov-16	1.09	1.029	\$ 2.18	\$ 0.241	\$ 2.72
Dec-16	29.95	1.019	\$ 2.78	\$ 0.241	\$ 92.32
Jan-17	61.46	1.019	\$ 3.20	\$ 0.241	\$ 215.10
Feb-17	46.96	1.027	\$ 2.61	\$ 0.241	\$ 137.29
Mar-17	43.60	1.025	\$ 1.99	\$ 0.241	\$ 99.70
Apr-17	19.82	1.033	\$ 2.28	\$ 0.241	\$ 51.49
May-17	4.84	1.152	\$ 3.44	\$ 0.241	\$ 20.50
Jun-17	1.88	1.033	\$ 2.11	\$ 0.241	\$ 4.57
Jul-15	3,168.64	1.013	\$ 2.53	\$ 0.241	\$ 8,904.95
Aug-15	2,674.64	1.021	\$ 2.53	\$ 0.241	\$ 7,561.37
Sep-15	2,520.33	1.019	\$ 2.13	\$ 0.241	\$ 6,082.13
Oct-15	2,339.86	1.031	\$ 2.15	\$ 0.241	\$ 5,778.25
Nov-15	12.80	1.018	\$ 1.81	\$ 0.241	\$ 26.68
Dec-15	93.29	1.016	\$ 1.97	\$ 0.241	\$ 209.53
Jan-16	88.61	1.034	\$ 1.89	\$ 0.241	\$ 194.90
Feb-16	61.70	1.023	\$ 1.82	\$ 0.241	\$ 130.33
Mar-16	40.67	1.037	\$ 1.25	\$ 0.241	\$ 63.02
Apr-16	42.43	1.020	\$ 1.23	\$ 0.241	\$ 63.74
May-16	24.65	1.042	\$ 1.41	\$ 0.241	\$ 42.38
Jun-16	2,850.34	1.041	\$ 2.14	\$ 0.241	\$ 7,076.78
Jul-14	651.48	1.025	\$ 4.21	\$ 0.241	\$ 2,974.15
Aug-14	1,250.56	1.028	\$ 3.53	\$ 0.241	\$ 4,841.95
Sep-14	2,639.79	1.030	\$ 3.74	\$ 0.241	\$ 10,815.50
Oct-14	2,758.95	1.039	\$ 3.45	\$ 0.241	\$ 10,583.11
Nov-14	2,032.37	1.018	\$ 3.40	\$ 0.241	\$ 7,538.09
Dec-14	54.06	1.016	\$ 3.99	\$ 0.241	\$ 232.25
Jan-15	75.20	1.024	\$ 2.80	\$ 0.241	\$ 234.09
Feb-15	40.24	1.017	\$ 2.45	\$ 0.241	\$ 110.20
Mar-15	49.92	1.017	\$ 2.37	\$ 0.241	\$ 132.57

# LAC Historic Cost of Gas for Water Production

1/28/2020

	Total MCF	DRY BTU	Cost of Gas	Transportation Cost	Total Dollar Cost
Apr-15	12.17	1,016	\$ 2.14	\$ 0.241	\$ 29.40
May-15	2,627.37	1,017	\$ 2.38	\$ 0.241	\$ 6,987.98
Jun-15	3,343.11	1,027	\$ 2.45	\$ 0.241	\$ 9,225.63
Jul-13	1,847.56	1,030	\$ 3.51	\$ 0.241	\$ 7,143.99
Aug-13	3,013.35	1,028	\$ 3.41	\$ 0.241	\$ 11,309.99
Sep-13	3,060.02	1,029	\$ 3.29	\$ 0.241	\$ 11,118.27
Oct-13	2,837.84	1,041	\$ 3.19	\$ 0.241	\$ 10,133.88
Nov-13	3,154.51	1,007	\$ 3.43	\$ 0.241	\$ 11,643.93
Dec-13	69.54	1,007	\$ 3.61	\$ 0.241	\$ 269.64
Jan-14	76.28	1,007	\$ 4.25	\$ 0.241	\$ 345.21
Feb-14	63.95	1,009	\$ 5.13	\$ 0.241	\$ 346.45
Mar-14	28.15	1,009	\$ 5.04	\$ 0.241	\$ 150.03
Apr-14	875.77	1,013	\$ 4.30	\$ 0.241	\$ 4,029.06
May-14	6.16	1,026	\$ 4.60	\$ 0.241	\$ 30.58
Jun-14	1,650.11	1,027	\$ 4.24	\$ 0.241	\$ 7,591.66
Jul-12	1.55	1,021	\$ 2.59	\$ 0.241	\$ 4.48
Aug-12	2.27	1,017	\$ 2.65	\$ 0.241	\$ 6.66
Sep-12	1.71	1,013	\$ 2.30	\$ 0.241	\$ 4.39
Oct-12	2.81	1,020	\$ 2.56	\$ 0.241	\$ 8.02
Nov-12	10.29	1,011	\$ 3.17	\$ 0.241	\$ 35.51
Dec-12	19.03	1,009	\$ 3.37	\$ 0.241	\$ 68.34
Jan-13	74.18	1,024	\$ 3.13	\$ 0.241	\$ 255.66
Feb-13	53.35	1,016	\$ 3.13	\$ 0.241	\$ 182.54
Mar-13	65.52	1,012	\$ 3.03	\$ 0.241	\$ 217.11
Apr-13	24.33	1,015	\$ 3.67	\$ 0.241	\$ 96.65
May-13	23.47	1,028	\$ 3.79	\$ 0.241	\$ 97.28
Jun-13	21.86	1,029	\$ 3.73	\$ 0.241	\$ 89.32
Jul-11	3,228.88	1,031	\$ 3.97	\$ 0.186	\$ 13,826.54
Aug-11	502.99	1,032	\$ 4.00	\$ 0.186	\$ 2,174.45
Sep-11	1.60	1,025	\$ 3.58	\$ 0.186	\$ 6.17
Oct-11	1.76	1,031	\$ 3.34	\$ 0.186	\$ 8.39
Nov-11	38.61	1,017	\$ 3.16	\$ 0.186	\$ 131.51
Dec-11	66.61	1,024	\$ 3.12	\$ 0.186	\$ 225.43
Jan-12	55.30	1,032	\$ 2.87	\$ 0.186	\$ 174.29
Feb-12	65.68	1,038	\$ 2.34	\$ 0.186	\$ 171.81
Mar-12	60.23	1,309	\$ 2.57	\$ 0.186	\$ 217.36
Apr-12	31.51	1,024	\$ 1.73	\$ 0.186	\$ 61.82
May-12	3.90	1,014	\$ 1.59	\$ 0.186	\$ 7.03
Jun-12	1.55	1,021	\$ 2.18	\$ 0.186	\$ 3.74
Jul-10	2,921.34	1,025	\$ 4.10	\$ 0.186	\$ 12,823.16
Aug-10	2,483.10	1,042	\$ 3.81	\$ 0.186	\$ 10,348.96
Sep-10	2,038.10	1,036	\$ 3.24	\$ 0.186	\$ 7,221.25
Oct-10	2.96	1,029	\$ 3.38	\$ 0.186	\$ 10.81
Nov-10	33.62	1,028	\$ 3.06	\$ 0.186	\$ 112.19
Dec-10	68.70	1,023	\$ 4.26	\$ 0.186	\$ 312.34
Jan-11	115.30	1,024	\$ 3.88	\$ 0.186	\$ 455.86
Feb-11	65.09	1,014	\$ 3.94	\$ 0.186	\$ 272.69
Mar-11	65.09	1,022	\$ 3.61	\$ 0.186	\$ 252.93
Apr-11	69.29	1,029	\$ 3.79	\$ 0.186	\$ 283.02
May-11	2,702.14	1,022	\$ 3.87	\$ 0.186	\$ 11,212.97
Jun-11	2,965.40	1,027	\$ 3.93	\$ 0.186	\$ 12,517.87
Jul-09	1,777.20	1,045	\$ 4.10	\$ 0.285	\$ 8,136.56
Aug-09	1,644.50	1,044	\$ 4.59	\$ 0.285	\$ 8,368.65
Sep-09	2,299.94	1,039	\$ 3.74	\$ 0.285	\$ 9,613.02
Oct-09	2,180.70	1,045	\$ 4.60	\$ 0.285	\$ 11,125.26
Nov-09	30.90	1,036	\$ 4.08	\$ 0.285	\$ 139.57
Dec-09	77.30	1,029	\$ 4.43	\$ 0.285	\$ 374.95
Jan-10	74.65	1,016	\$ 5.59	\$ 0.285	\$ 445.74
Feb-10	82.00	1,011	\$ 4.81	\$ 0.285	\$ 422.55
Mar-10	2,203.50	1,021	\$ 4.32	\$ 0.285	\$ 10,357.16
Apr-10	3,174.90	1,022	\$ 3.66	\$ 0.285	\$ 12,782.55
May-10	2,895.70	1,026	\$ 3.68	\$ 0.285	\$ 11,789.36
Jun-10	3,098.10	1,031	\$ 3.54	\$ 0.019	\$ 11,377.47



# County of Los Alamos

## Staff Report

June 16, 2021

Los Alamos, NM 87544  
www.losalamosnm.us

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Agenda No.:	7.B.
Index (Council Goals):	DPU FY2021 - 2.0 Achieve and Maintain Excellence in Financial Performance
Presenters:	Bob Westervelt
Legislative File:	14400-21

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### Title

Approval to take a resolution for approval by Council authorizing an application to modify loan agreement DW-5456 to increase the loan amount by \$928,000.00, for a revised loan amount of \$3,780,444.02 (which amount includes \$79,832 program subsidy which is not required to be repaid), and a revised loan ordinance and supporting loan documents in a form acceptable to the County Attorney's office, to provide increased funding for the Otowi Well #2 Pump House and Equipment and Otowi Well #4 Motor Control Center (MCC), required because the final bids came in over the original estimated project cost and loan amount.

### Recommended Action

**I move the Board of Public Utilities authorize staff to take a resolution for approval by Council authorizing an application to modify loan agreement DW-5456 to increase the loan amount by approximately \$928,000.00, for a revised loan amount of approximately \$3,780,444.02 (which amount includes approximately \$79,832 program subsidy which is not required to be repaid), and a revised loan ordinance and supporting loan documents in a form acceptable to the County Attorney's office, to provide increased funding for the Otowi Well #2 Pump House and Equipment and Otowi Well #4 Motor Control Center (MCC).**

### Staff Recommendation

Staff recommends approval of the motion as presented.

### Body

As a separate agenda item this evening, BPU will consider award of the contract with RMCI for the Otowi Well #2 Pumphouse and Equipment and Otowi Well #4 MCC. As noted in that discussion, the low bid came in significantly above the initial engineer's estimates, upon which the original loan for the project was based. The explanation for the higher project costs is discussed in that agenda item and is not repeated here. The NMFA has acknowledged that they have seen similar escalation in most of the projects they have provided funding for, have acknowledged that they have additional loan funds available, and are working to expedite modifying loan agreements so these important projects can proceed. They do require the governing body to approve a resolution authorizing the application for such funds and execution of new or revised loan documents. Staff has been working with NMFA on the specific form of those requirements, but we do not have them finalized yet. To avoid delays in obtaining this important financing and moving forward with the project, the recommendation is for the BPU to authorize staff to work with NMFA and the County Attorney's office to ensure the form and content are acceptable to the County, and then take those documents to Council for approval/execution

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upon receipt.

Note, as an “add/alternate” a gas-powered backup generator for the well was proposed, at an additional cost of \$668,000 plus NMGR. Staff is not proposing or recommending award of that addition at this time, but if the Board elects to approve that addition that amount should be included in the motion as well.

It is noted further that the term “approximately” is included in the motion to accommodate slight variances that may result from differences in how taxes, subsidies, or contingencies are calculated. The final, actual amounts will be known and included in documents provided to Council for approval.

#### **Alternatives**

If the loan is not increased, we will have to fund the excess project costs by canceling or delaying other planned projects in the Capital Plan to make up the funding shortfall, or cancel this project indefinitely hoping for a better bid environment in which to pursue the project, in which case the existing loan would have to be cancelled and the favorable loan terms and subsidy may not be available later when re-bid.

#### **Fiscal and Staff Impact**

Increase the loan amount by \$928,000, which will increase the annual debt service for the project by approximately \$42,137.47 per year.

#### **Attachments**

None



# County of Los Alamos

## Staff Report

June 16, 2021

Los Alamos, NM 87544  
www.losalamosnm.us

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**Agenda No.:** 7.C.  
**Index (Council Goals):** DPU FY2021 - 1.0 Provide Safe and Reliable Utility Services  
**Presenters:** Steve Cummins  
**Legislative File:** AGR0745-21

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### Title

Approval of Services Agreement No. AGR21-41 with FTI Consulting, in the amount of \$243,743.00, with a contingency of \$24,374.00 for a total contract amount of \$268,117.00 plus Applicable Gross Receipts Tax, for the Purpose of Developing an Integrated Resource Plan and Approval of Related Budget Revision 2021-50.

### Recommended Action

**I move that the Board of Public Utilities approve Services Agreement No. AGR21-41 with FTI Consulting, in the amount of \$243,743.00 and a contingency in the amount of \$24,374.00, for a total of \$268,117.00, plus applicable gross receipts tax, for the purpose of Development of an Integrated Resource Plan, and forward to Council for approval.**

**I further move that the Board of Public Utilities approve a budget adjustment of \$287,757 to Electric Production FY2021 budget for the purposes of developing an Integrated Resource Plan and forward to Council for approval.**

### Staff Recommendation

Staff recommends approval of the motion as presented.

### Body

The County has partnered with DOE-LANL through the Electric Coordination Agreement since 1985 to meet the electrical power needs of both parties. The term of the current agreement is through June 30, 2025. The partnership is often referred to as the Los Alamos Power Pool (LAPP). Since 1985 the LAPP has developed and maintained a Power Supply Study for planning purposes. This type of study is commonly referred to as an integrated resource plan.

An *integrated resource* plan, or IRP, is a utility plan for meeting forecasted annual peak and energy demand, plus some established reserve margin, through a combination of supply-side and demand-side resources over a specified future period. The plan will compare the Levelized Cost of Electricity (LCOE) for generation resource options while also considering utility specific goals and objectives in the planning process.

The last IRP was completed in 2017 with an additional focus on the benefits of the LAPP. Los Alamos County and Los Alamos National Laboratory believe it is beneficial to continue the ECA post 2025, potentially with a change in philosophy on generating assets. Today, LANL and the County have different goals and objective to meet their current and forecasted energy demands. Each party is considering different replacement resources, either through owning generation assets or through power purchase agreements. In addition, the County and DOE-LANL have

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different targets for reducing greenhouse gas (GHG) emissions, particularly carbon dioxide emissions although DOE-NNSA would like to reduce its GHG emissions in pace with the County.

The Development of an Integrated Resource Plan (IRP) will help guide near-term and long-term decisions in multiple areas as the County and DOE-NNSA LANL plan for meeting the current and future power demands of the power pool in the most environmentally sustainable fashion while also considering the cost to the County citizens and to the Laboratories operation. The IRP will evaluate a comprehensive range of demand-side and supply-side resources over the period 2021-2041.

Currently DPU is evaluating their further participation in the Utah Association of Municipal Power Systems (UAMPS) Carbon Free Power Project (CFPP) developing a small modular reactor nuclear power plant. DPU is also looking for options to exit the Laramie River Station coal fired power plant when economically feasible per the BPU 2016 adopted strategic policy. The IRP will assist DPU staff, Board and Council in making these decisions by looking at all of the options available to the County for meeting their electric demands while considering DPU's strategic initiatives. The IRP will compare the options based on cost, stability and environmental stewardship.

DOE-NNSA is also considering approximately 8 MW of solar PV to be installed on DOE land and connected to the 13.2 kV distribution system. The IRP will assist DOE-NNSA with this decision by comparing alternative options for meeting their growing electric demand while also considering resiliency as a National Laboratory.

A draft of the IRP is scheduled to be completed by December 2021 to support a decision on the next phase of the CFPP. The Operating Committee for the Electric Coordination Agreement approved the recommendation to award this contract to FTI at the May 11, 2021 operating committee meeting. The cost will be shared base on the demand and energy split between the County and LANL, approximately 20/80.

#### **Alternatives**

If the board chooses not to approve this contract, DPU and DOE-NNSA will need to rely on other options for power generation resource planning.

#### **Fiscal and Staff Impact**

This study was estimated to cost upwards of \$275,000 for the initial study and the planned update in 2023. The IRP will require a budget adjustment in FY2021 in the amount of \$287,757 which is included in the motion. This study was approved as a pool expense and DOE-NNSA will pay for approximately 80% of the cost. This contract will authorize DPU at its discretion to have the contractor provide an update of the IRP 18 to 24 months after completion of the IRP in 2021/2022. The update will coincide with a critical decision point related to the Carbon Free Power Project using the most current information available at that time (i.e. cost of fuel, changes in environmental regulation and changes in technology options available). The development of the IRP will greatly assist staff in navigating the multitude of options available to the LAPP for meeting the electrical energy resource needs.

#### **Attachments**

A - AGR21-41 FTI Consulting

B - Budget Revision 2021-50





## INCORPORATED COUNTY OF LOS ALAMOS SERVICES AGREEMENT

This **SERVICES AGREEMENT** ("Agreement") is entered into by and between the **Incorporated County of Los Alamos**, an incorporated county of the State of New Mexico ("County"), and **FTI Consulting**, a Maryland corporation ("Contractor"), collectively "Parties", to be effective for all purposes June 30, 2021 ("Effective Date").

**WHEREAS**, County, through its Department of Public Utilities ("DPU"), owns and operates both electrical power generating facilities and electrical distribution systems within and outside its jurisdictional borders; and

**WHEREAS**, County, through DPU, has entered in certain federal agreements with the U.S. Department of Energy, National Nuclear Safety Administration, to provide electrical power to the Los Alamos National Laboratory ("LANL"); and

**WHEREAS**, the current agreement, commonly referred to and as known as the "Electrical Cooperative Agreement" ("ECA"), provides for certain shared electrical generation and distribution costs between County and LANL; and

**WHEREAS**, the ECA allocates, among other matters, the responsibilities of the County and LANL for ownership, operation, and maintenance of the generating facilities and certain long-term power purchase agreements; and

**WHEREAS**, in a fast changing electric market, it is a prudent to utility practice to regularly review resources and pricing, and current and proposed electrical generating facility capabilities and pricing; and

**WHEREAS**, the County Purchasing Officer determined in writing that the use of competitive sealed bidding was either not practical or not advantageous to County for procurement of the Services and County issued Request for Proposals No. 21-41 ("RFP") on February 25, 2021, requesting proposals for Development of an Integrated Resource Plan to guide the Department of Public Utilities ("DPU") in the acquisition of new power generation resources, as described in the RFP; and

**WHEREAS**, Contractor timely responded to the RFP by submitting a response dated March 28, 2021 ("Contractor's Response"); and

**WHEREAS**, based on the evaluation factors set out in the RFP, Contractor was the successful Offeror for the services listed in the RFP; and

**WHEREAS**, the Board of Public Utilities approved this Agreement at a public meeting held on June 16, 2021; and

**WHEREAS**, the County Council approved this Agreement at a public meeting held on June 29, 2021; and

**WHEREAS**, Contractor shall provide the Services, as described below, to County.

**NOW, THEREFORE**, for and in consideration of the premises and the covenants contained herein, County and Contractor agree as follows:

**SECTION A. SERVICES:** Contractor shall prepare and provide to DPU an Integrated Resource Plan (“IRP”)(hereafter “Project”) that:

1. Guides County’s and DPU’s near-term decisions associated with the California Independent System Operator (“CAISO”) Energy Imbalance Market (“EIM”) and having adequate generation resources and or long-term Power Purchase Agreements (“PPAs”).
2. Guides County’s and DPU’s near-term and long-term decisions in multiple areas as DPU implements the policies adopted by County’s Board of Public Utilities (“BPU”) while considering the requirements of the Department of Energy (“DOE”), National Nuclear Security Administration (“NNSA”) and LANL.
3. Is formatted so that it can be easily updated by County or its agent(s) over time to reflect changing circumstances.
4. Evaluates a comprehensive range of demand-side and supply-side resources over calendar years 2021 to 2040.
5. Address the following key questions:
  - a. How can DPU and DOE-LANL best share resources for the benefit of both parties in a post-2025 ECA?
  - b. What is the best portfolio of resources to meet DPU’s goal of being carbon neutral (as defined by the Los Alamos Board of Public Utilities) by 2040?
  - c. Recommendation whether DPU should continue its participation in the Utah Associated Municipal Power Systems (“UAMPS”) Carbon Free Power Project (“CFPP”) using a series of small modular reactors, specifically considering the expansion of the CAISO EIM?
  - d. What additional opportunities exist for cost-effective demand-side programs, including energy efficiency, demand response, and distributed energy storage?
  - e. How can DPU cost-effectively meet the requirements for reliable and economic operations inside the Balancing Area of the Public Service Company of New Mexico (“PNM”) considering their participation in the CAISO EIM beginning the second quarter of 2021?
  - f. How would the projected load forecast effects from electrification of the transportation sector and behind-the-meter distributed generation impact the resource plan?
  - g. What reserve margin should Los Alamos Power Pool (“LAPP”) and DPU maintain separately in consideration of factors, including but not limited to the liquidity in the market, CAISO Duck Curve<sup>1</sup> pricing and renewable overgeneration, upcoming changes in the Western Electricity Coordinating Council (“WECC”) market, the August 2020 heatwave, and the recent electrical system (a.k.a. grid) reliability event in Texas?

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<sup>1</sup> The duck curve is a graph of power production over the course of a day that shows the timing imbalance between peak demand and renewable energy production. Used in utility-scale electricity generation, the term was coined in 2012 by Karen Edson of the California Independent System Operator.

- h. What are the optimal strategies related to the Laramie River Station (“LRS”) contract? LRS is currently one of the least-cost resources and the policy adopted by the Board is to exit the LRS project when economical.
6. Contractor shall complete the Project in five (5) phases. These are:
- a. **Phase 1: Initiation of the IRP Effort.** Contractor shall perform the following work as part of Phase 1:
    - 1. Project Kick-Off Meeting. Contractor shall, within fourteen (14) days from the Effective Date of this Agreement, conduct a kick-off meeting with DPU and DOE-LANL (at DPU's discretion) to align Project management protocols, understand objectives, timelines, technical approach, assumptions, and inputs. During the Kick-Off meeting, the Parties shall mutually agree on project schedule (“Project Schedule”) in substantial conformance with the Project Schedule and Project milestones found in Contractor's proposal. The Parties may mutually agree, in writing, to modify the Project Schedule as necessary to timely complete the Project.
    - a. Conduct team introduction and define roles, agree on weekly project management meetings and protocols. During the Kick-Off Meeting, the Parties shall designate each Parties' Project lead contact and manager (hereafter respectively “Project Manager”). The Contractor shall schedule weekly communications and Project management meetings throughout the Project. The goal of these meetings is to provide progress updates, review work performed to date, clear away any hurdles or obstacles, align the technical approach, and incorporate any new information that may become available. Contractor shall communicate pursuant to the Project Schedule with DPU's Project Manager and team to ensure that DPU is fully appraised of the Project's progress and has input into all steps of the analysis. As part of the Project Management, Contractor shall implement necessary quality controls throughout the IRP process.
    - b. Establish key milestone deliverables to ensure on-time and on-budget completion of the IRP. During the Kick-Off meeting, Contractor shall discuss and establish with DPU key milestone dates that are synced with DPU's planning activities and the County's Board of Public Utilities (“BPU”) meetings. The Project Schedule shall provide time for Contractor's internal quality control reviews and DPU's review to ensure that the work meets the DPU's requirements.
  - 2. Gather input data. Before the kick-off meeting, Contractor shall submit a data request to DPU's Project Manager to collect needed information including DPU and LAPP existing generation resources technical characteristics, power and fuel purchase contracts, the current ECA between DPU and LANL, documentation of any proposed post-2025 ECA options through which the DPU and LANL could combine the generation resources and share the costs within the LAPP, energy efficiency programs, electric vehicle programs, demand response programs, EIM participation agreements, LANL Executive Orders related to energy goals and renewables development, and any other relevant documents that Contractor needs to include in performing the Project.
  - 3. Develop key modeling assumptions. Contractor shall provide DPU the assumptions, approach, and data sources used to produce gas, coal, and CO<sub>2</sub> price forecasts,

capital cost forecasts for key generation technologies (solar, wind, battery storage, gas combined cycle, combustion turbine, reciprocating engines, etc.).

4. Develop objectives and metrics of the IRP. Contractor shall develop consistent key metrics which shall be used to evaluate the merits of each portfolio in Phase 4 and Phase 5, including economic metrics, which identify portfolios with the least cost net present value ("NPV") over the IRP horizon; risk metrics, which measure DPU's market exposure and ability to offer stable rates to customers; reliability and resiliency metrics, which reflect DPU's ability to reliably serve load; and sustainability metrics, which reflect progress towards the carbon neutral goal, renewable penetration, and CO<sup>2</sup> emissions reduction.
5. Discuss IRP technical approach and process. During the kickoff meeting, Contractor shall present the technical approach and processes Contractor will follow in conducting Phases 2 through 5, and to address the core questions of DPU's IRP stated in Section A, item 4 of the Agreement. DPU and LANL will provide input and ask clarifying questions, and Contractor shall consider modifications to the approach and process.
6. After the completion of Phase 1, Contractor shall deliver to DPU the PowerPoint presentation on the technical approach and processes that shall be used in the development of the IRP and a summary memo of the Kick-Off meeting key discussion items. DPU shall review the memo and approve as complete or negotiate modifications with Contractor prior to proceeding to Phase 2.

**b. Phase 2: Initial Screening of post-2025 ECA Options.**

1. Contractor shall hold a meeting with DPU and LANL, pursuant to the Project Schedule, to discuss DPU's and LANL's plans related to existing and planned new resources, and the goals and objectives of both Parties moving forward.
2. Using the information from the meeting with DPU and LANL, Contractor shall construct several portfolios (a portfolio is a collection of generation resources to meet load) based on inputs from DPU and LANL as part of Phase 3, Step 4.
3. Contractor shall include in the final IRP post-2025 options for DPU and LANL meeting DPU's and LANL's separate objectives.
4. Contractor shall deliver a list of resource options to the County Project Manager for acceptance.
5. Contractor shall deliver to DPU, pursuant to the Project Schedule, a summary memo documenting DPU's and LANL's stated Project goals and objectives, and their plans for the 20-year planning horizon. DPU shall review the memo and approve as complete or request modifications with Contractor prior to proceeding to Phase 3.

**c. Phase 3: Integration of post-2025 ECA Options into the IRP.** Contractor shall undertake the following five steps as part of Phase 3 of the Project:

*Step 1: Develop analytical model parameters.*

Contractor shall develop a baseline of analytical model parameters which shall be used to perform the deterministic and stochastic analyses performed later in Phase 3, Steps 2 through 5. Pursuant to the Contractor's proposal, Contractor shall include in the baseline the following parameters:

1. WECC EIM Considerations. Contractor shall evaluate the availability of real-time market purchases and bilateral trading, how the CAISO market's timing imbalance between peak demand and renewable energy production ("Duck Curve") impacts the

- requirements for new resources, and how operating in the EIM affects the Day-Ahead and real-time prices in the regional market that directly impacts DPU's cost of serving its load, and DPU's ability to balance resource and load in real time.
2. Planning Reserve Margin. Contractor shall evaluate planning reserve margin requirements based on the generation resources selected for each portfolio, best practices of utilities in the same market footprint, extra resources necessary to account for peak loads that are higher than forecasted, unplanned outages of generation and transmission resources, and the flexibility to balance short-term and multi-hour ramps in net load and to manage potential over-generation.
  3. Fuel Forecast.
    - a. Contractor shall provide fuel forecast prices for natural gas at the Henry Hub and southwest regional delivery points, price forecasts for base, high, and low scenarios based on FTI's proprietary stochastic forecast model.
    - b. Contractor shall provide fuel forecast prices for coal (including transportation) price forecasts for base, high, and low scenarios based on FTI's integrated coal and electricity market model.
  4. Emission Rates and CO<sup>2</sup> Price Forecasts.
    - a. Emission rates of CO<sup>2</sup>, SO<sup>2</sup>, and NO<sub>x</sub> for owned and potential generation resources.
    - b. CO<sup>2</sup> price forecasts for base, high, and low scenarios, considering differing scenarios of environmental legislation, market design, and market forces affecting the cost of compliance.
  5. Technology Capital Costs Curves Forecast, including:
    - a. Capital costs and operating cost curves for onshore wind, solar, utility scale battery storage (lithium-ion battery, flow battery), nuclear, gas with carbon capture utilization and storage ("CCUS"), gas combined cycle, and gas combustion turbine technologies.
    - b. Federal and state Investment Tax Credits and Production Tax Credits.
  6. Power Market Forecast including:
    - a. Power price forecasts in WECC (peak, off-peak, and around-the-clock prices).
    - b. Generation resources retirements and builds.
  7. Resource Assumptions including:
    - a. Existing and planned resources characteristics (summer and winter capacity, heat rate and efficiency assumptions, fixed operating costs, variable operating costs, options to exit, planned retirement, etc.).
    - b. Renewable resources generation profiles.
    - c. DPU and LANL power purchase agreements with third parties' terms and assumptions.
  8. Load Forecast developed through the following process steps:
    - a. Collect DPU's and LANL's historical load, local weather and economic data (GDP, income, population, vehicle counts).
    - b. Update Contractor's existing regression model with recent weather and economic factors to load.
    - c. Project future weather conditions in Los Alamos County and economic variables based on updated historical indicators and emerging trends.

- d. Develop an electric vehicle forecast for Los Alamos County based on an adoption curve and benchmark electricity consumption per mile.
  - e. Complete baseline load forecast for peak demand (MW) and energy consumption (MWh).
  - f. Develop load forecast scenarios with higher or lower macroeconomic growth parameters.
9. Contractor shall deliver to DPU an Excel workbook and summary memo of baseline forecasts and inputs (analytical model parameters). DPU shall review the memo and approve as complete or negotiate modifications with Contractor prior to proceeding to Phase 3, Step 2.

*Step 2: Develop Scenarios and Options*

1. Contractor shall develop three scenarios which apply three sets of values for the analytical model parameters: base, high and low cases, pursuant to the Contractor's proposal. The scenarios shall be used later in Phase 3, Step 4 to conduct scenario-based deterministic portfolio analysis.
  - a. Contractor shall determine the supply-side resources that shall be considered as part of DPU's portfolios, and seek DPU's inputs, review, and approval of Contractor's selected supply-side resources.
  - b. Contractor shall evaluate the demand-side resources that shall be considered as part of DPU's portfolios, and seek DPU's input, review, and approval of Contractor's selected demands-side resources.
2. Contractor shall deliver to DPU an Excel workbook and a summary memo of the three scenarios, the associated analytical model parameter values for those scenarios, a list of resources that shall be considered in Phase 3, Step 3. DPU shall review the memo and approve as complete or negotiate modifications with Contractor prior to proceeding to Phase 3, Step 3.

*Step 3: Technology Options Screening*

1. Contractor shall evaluate generation resources as potential additions to the DPU's system based on characteristics including environmental performance, level of deployment, location, any related interconnection difficulty, dispatchability, and levelized cost of energy ("LCOE"). As part of the screening analysis, Contractor shall assess LCOEs based on cost and performance assumptions including capital expenditures, operations and maintenance costs, capacity factor, financing assumptions, and delivered fuel costs.
2. This step is intended to develop LCOEs for candidate resources so that the high performing resources will later be included as candidate in Phase 3, Step 4.
3. Contractor shall deliver to DPU a summary memo of technology screening of all viable resource options under the three scenarios based on performance measures such as levelized cost of energy, environmental attributes, and load following capabilities. DPU shall review the memo and approve as complete or negotiate modifications with Contractor prior to proceeding to Phase 3, Step 4.

*Step 4: Portfolio Construction*

Based on the results of Phase 3, Steps 1-3, Contractor shall construct feasible candidate portfolios through the following process steps.

1. Contractor shall develop candidate portfolios that match generation to load and consider the goals and objectives and other parameters developed in the previous steps.
2. Contractor shall present the candidate portfolios to DPU for discussion and approval.

3. Contractor shall build an analytical model of DPU's and LANL's system which includes factors such as load profiles, generation resources characteristics, renewable profiles, and transmission needs.
4. Contractor shall use the model to perform deterministic analyses to generate economic, environmental, and reliability performance assessments of each of the candidate portfolios using the three scenarios established in Phase 3, Step 2.
5. Based on the economic, environmental, and reliability performance assessments from the deterministic analyses, Contractor shall select up to ten (10) portfolio candidates for the stochastic analyses to be performed in Phase 3, Step 5.
6. Contractor shall present to DPU for discussion and approval the results of the deterministic analyses, the basis and rationale for selection of the portfolio candidates and finalize a list of portfolios for stochastic analysis.
7. Contractor shall deliver to DPU an Excel workbook and summary memo of the work performed during Phase 3, Step 4. DPU shall review the memo and approve as complete or negotiate modifications with Contractor prior to proceeding to Phase 3, Step 5.

*Step 5: Stochastic Assessment of 10 Candidate Portfolios*

1. For each of the ten (10) portfolios developed and approved in Step 4 above, Contractor shall evaluate the cost, reliability, diversification, and sustainability attributes as per the metrics identified and approved in Phase 1 and then:
  - a. Contractor shall perform a stochastic forecasting process to assess the 90th percentile of the portfolio costs, which provides an indication of risk parameters of the 10 candidate portfolios.
  - b. Contractor shall apply stochastic analysis to variables including forecasts of power prices, fuel prices and load.
  - c. Based on the results of the stochastic assessments of the 10 candidate portfolios, Contractor shall discuss the results with the DPU team, evaluate the portfolios' performance on the key metrics developed in Phase 1 and the goals and objectives established in Phase 1 and refined in Phase 2, and identify the portfolio that best meets the key metrics and goals and objectives (the "recommended portfolio").
  - d. Upon DPU's request and pursuant to Contractor's proposal, Contractor shall perform additional sensitivity analysis of the recommended portfolio.
  - e. Contractor shall discuss and finalize within the IRP report the key elements and timeline of the recommended portfolio resources.
2. Contractor shall deliver to DPU an Excel workbook and summary memo of the stochastic assessment results for the candidate portfolios. DPU shall review the memo and approve as complete or negotiate modifications with Contractor prior to proceeding to Phase 3, Step 5.

**d. Phase 4: Presentations to the Board of Public Utilities.**

1. Contractor shall make two presentations to obtain BPU feedback and concurrence. These shall occur at the following stages of the Project:
  - a. 50% Presentation to BPU - Contractor shall prepare a PowerPoint® presentation and present to the Board of Public Utilities ("BPU") following the completion of Phase 3, Step 3, (at approximately 50 percent completion of the Project) pursuant to the Project Schedule, either in-person or remotely at the County's discretion. Contractor shall present to the BPU a preliminary review of the post-2025 ECA options, the DPU's resource options considering the adopted policies by the DPU and the evolving WECC market conditions under different state of the world scenarios.
  - b. 90% Presentation to BPU - Contractor shall prepare a PowerPoint® presentation and present to the Board of Public Utilities ("BPU") following the completion of Phase 3, Step 5, (at approximately 90 percent completion of the Project) pursuant to the Project

Schedule, either in-person or remotely at County's discretion. Contractor shall present to the BPU the stochastic analysis process and results, the preliminary selection of the recommended strategy that best meet the BPU's objectives, and the recommended next steps for implementation.

2. For each meeting, Contractor shall develop a presentation in PowerPoint® based on detailed modeling assumptions and results (inputs, assumptions, calculations, models, tables, graphs, and charts) in Excel. Contractor shall clearly document key findings, assumptions, methodology, and acronyms. Contractor shall provide a supplemental memo to document the presentation in a written report style in greater detail to the DPU. Prior to each meeting, Contractor shall submit the presentation materials to DPU for review at least two (2) weeks prior to the scheduled presentations.
3. Following the 50% and 90% presentations to BPU, Contractor shall deliver to DPU the Power point presentation and a summary memo stating the questions, comments and other feedback from BPU. DPU shall review the memo and approve as complete or negotiate modifications with Contractor prior to proceeding to the next steps.

**e. Phase 5: Completion of IRP (Final Report including Implementation Plans.**

1. Following Phase 4, Contractor shall work with the DPU to develop responses and resolutions to BPU questions, comments, and other feedback. Contractor shall prepare and electronically deliver in MS Word and PDF format, a comprehensive IRP report ("IRP report") to guide the resource decisions and assure compliance with adopted strategic objectives.
2. The IRP report shall cover a 20-year planning horizon and fully document DPU's and LANL's key objectives, technology screening, state-of-the-world scenarios and deterministic portfolio analysis, stochastic portfolio analysis, recommended portfolios, and an implementation plan. The report shall explicitly address each of the eight key issues described in Section A, item 4.
3. The IRP shall discuss the recommended strategy and next steps for implementation. The IRP conclusion shall be based on a balanced score card of all portfolios across key objectives and metrics established in Phase 1 of the IRP. Contractor shall deliver the IRP report with an outline structure as described in Contractor's proposal to County, with changes to that outline as agreed upon by Contractor and County.
4. Contractor shall deliver a draft version of the IRP report in MS Word format to DPU for review and comment.
5. Contractor shall fully document and archive the model assumptions and results for future IRP updates.
6. Contractor shall follow the following outline for the IRP, to be modified as agreed upon by Contractor and DPU:

Acknowledgements and Forwards

Acronyms

Chapter 1: Executive Summary

Chapter 2: Introduction and Background

A. LAC DPU

B. LANL

C. EAC and Post-2025 Options

Chapter 3: Objectives and Considerations

A. Development since Last Integrated Resource Plan

B. Objectives of the IRP

C. Major Planning Considerations

i. Carbon Neutral Goal

ii. Resource Adequacy

- iii. Operational Requirements – Spinning Reserve, Ramping Requirements
- Chapter 4: State of the World Scenarios
- Chapter 5: Post-2025 Options Screening
- Chapter 6: WECC EIM Implications
- Chapter 7: Resources Considerations
  - A. Existing Policies and Programs
  - B. Distributed Energy Resources
  - C. Energy Efficiency Resources
  - D. Demand Response Resources
  - E. DPU Existing and Planned Generation Resources
  - F. LANL Existing and Planned Generation Resources
  - G. Transmission Resources
- Chapter 8: Technology Screening
  - A. Small Modular Nuclear
  - B. Solar
  - C. Wind
  - D. Gas-fired generation resources (combined cycle, combustion turbine, reciprocating engine)
  - E. Battery storage technologies (lithium-ion battery, vanadium flow battery, pump hydro storage, gravel train storage, etc.)
  - F. Hybrid Resources (solar + wind; solar + battery; wind + reciprocating engine, etc.)
  - G. Laramie River Station PPA options
  - H. Levelized Cost of Energy Comparisons

**SECTION B. TERM:** The term of this Agreement shall commence June 30, 2021, and shall continue through December 31, 2023, unless sooner terminated, as provided herein.

**SECTION C. COMPENSATION:**

1. **Amount of Compensation.** County shall pay compensation for performance of the Services in an amount not to exceed TWO HUNDRED FORTY-THREE THOUSAND SEVEN HUNDRED FORTY-THREE DOLLARS (\$243,743.00 US), which amount does not include applicable New Mexico gross receipts taxes ("NMGRT"). Compensation shall be paid in accordance with the rate schedule set out in Exhibit "B," attached hereto and made a part hereof for all purposes.
2. **Monthly Invoices.** Contractor shall submit itemized invoices to County's Project Manager showing amount of compensation due, amount of any NMGRT, and total amount payable. Payment of amounts that are not the subject of good faith dispute shall be due and payable thirty (30) days after County's receipt of the invoice. In addition to any other remedies set forth above, and any other remedies available at law, Contractor reserves the right to halt further Services until payment is received on past-due invoices.

**SECTION D. TAXES:** Contractor shall be solely responsible for timely and correctly billing, collecting and remitting all NMGRT levied on the amounts payable under this Agreement.

**SECTION E. STATUS OF CONTRACTOR, STAFF, AND PERSONNEL:** This Agreement calls for the performance of services by Contractor as an independent contractor. Contractor is not an agent or employee of County and will not be considered an employee of County for any purpose. Contractor, its agents or employees shall make no representation that they are County employees, nor shall they create the appearance of being employees by using a job or position title on a name plate, business cards, or in any other manner, bearing County's name or logo.

Neither Contractor nor any employee of Contractor shall be entitled to any benefits or compensation other than the compensation specified herein. Contractor shall have no authority to bind County to any agreement, contract, duty or obligation. Contractor shall make no representations that are intended to, or create the appearance of, binding County to any agreement, contract, duty, or obligation. Contractor shall have full power to continue any outside employment or business, to employ and discharge its employees or associates as it deems appropriate without interference from County; provided, however, that Contractor shall at all times during the term of this Agreement maintain the ability to perform the obligations in a professional, timely and reliable manner.

**SECTION F. STANDARD OF PERFORMANCE:** Contractor agrees and represents that it has and will maintain the personnel, experience and knowledge necessary to qualify it for the particular duties to be performed under this Agreement. Contractor shall perform the Services described herein in accordance with a standard that meets the industry standard of care for performance of the Services.

**SECTION G. DELIVERABLES AND USE OF DOCUMENTS:** All deliverables required under this Agreement shall, upon Contractor's receipt of payment therefore, become County's sole and exclusive property for its use as provided in this Agreement. All deliverables, including any advice given by Contractor, is provided solely for County's use and benefit and only in connection with the purpose in respect of which the Services are provided. In no event shall Contractor assume any responsibility to any third party to which any advice or deliverables are disclosed or otherwise made available. Nothing contained in this Agreement will be construed to restrict, impair, or deprive Contractor of any of its rights or proprietary interest in technology or products which existed prior to and independent of the performance of Services under this Agreement ("Contractor Pre-Existing Works"). All rights to reuse Contractor Pre-Existing Works and any processes created or utilized by Contractor to generate work product hereunder are reserved to Contractor for the creation of derivative works for Contractor and its other clients, but only if such derivative works or the reuse of such processes does not disclose any of County's confidential information. Contractor shall retain ownership of works, materials, programs, processes, etc. proprietary to Contractor which have been developed or created by Contractor prior to this Agreement, outside the scope of the services rendered under this Agreement, or for use in its business or provision of services generally. Notwithstanding any provision to the contrary, nothing in this Agreement grants County any right, title or interest in Contractor Pre-Existing Works or any other intellectual property developed by Contractor prior to the date of this Agreement, outside the scope of the Services rendered hereunder, or for use in its provision of services generally.

**SECTION H. EMPLOYEES AND SUB-CONTRACTORS:** Contractor shall be solely responsible for payment of wages, salary, or benefits to any and all employees or contractors retained by Contractor in the performance of the Services. Contractor agrees to indemnify, defend and hold harmless County for any and all claims that may arise from Contractor's relationship to its employees and subcontractors.

**SECTION I. INSURANCE:** Contractor shall obtain and maintain insurance of the types and in the amounts set out below throughout the term of this Agreement with an insurer acceptable to County. Contractor shall assure that all subcontractors maintain like insurance. Compliance with the terms and conditions of this Section is a condition precedent to County's obligation to pay compensation for the Services and Contractor shall not provide any Services under this Agreement unless and until Contractor has met the requirements of this Section. County requires Certificates of Insurance or other evidence acceptable to County that Contractor has met its obligation to obtain and maintain insurance and to assure that subcontractors maintain like

insurance. Should any of the policies described below be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions. General Liability Insurance and Automobile Liability Insurance shall name County as an additional insured.

1. **General Liability Insurance:** ONE MILLION DOLLARS (\$1,000,000.00) per occurrence; TWO MILLION DOLLARS (\$2,000,000.00) aggregate.
2. **Workers' Compensation:** In an amount as may be required by law. County may immediately terminate this Agreement if Contractor fails to comply with the Worker's Compensation Act and applicable rules when required to do so.
3. **Professional Liability Insurance:** ONE MILLION DOLLARS (\$1,000,000.00) per occurrence; with a ONE MILLION DOLLARS (\$1,000,000.00) annual aggregate, without any restrictive "negligent act, negligent error, or negligent omission" clause, and sufficient to a three (3) year period from completion of this contract, against any and all claims which may arise from the Contractor's negligent performance of work described herein.
4. **Automobile Liability Insurance for Contractor and its Employees:** ONE MILLION DOLLARS (\$1,000,000.00) combined single limit per occurrence; TWO MILLION DOLLARS (\$2,000,000.00) aggregate on any owned, and/or non-owned motor vehicles used in performing Services under this Agreement.

**SECTION J. RECORDS:** Contractor shall maintain, throughout the term of this Agreement and for a period of six (6) years thereafter, records that indicate the date, time, and nature of the services rendered. Contractor shall make available, for inspection by County, all financial records, books of account, memoranda, and other documents pertaining to County upon at least 7 calendar days' advance written notice.

**SECTION K. APPLICABLE LAW:** Contractor shall abide by all applicable federal, state and local laws, regulations, and policies and shall perform the Services in accordance with all applicable laws, regulations, and policies during the term of this Agreement. In any lawsuit or legal dispute arising from the operation of this Agreement, Contractor agrees that the laws of the State of New Mexico shall govern.

**SECTION L. NON-DISCRIMINATION:** During the term of this Agreement, Contractor shall not discriminate against any employee or applicant for an employment position to be used in the performance of the obligations of Contractor under this Agreement, with regard to race, color, religion, sex, age, ethnicity, national origin, sexual orientation or gender identity, disability or veteran status.

**SECTION M. INDEMNITY:** Contractor shall indemnify, hold harmless and defend County, its Council members, employees, agents and representatives, from and against all liabilities, damages, claims, demands, actions (legal or equitable) brought or asserted by a third party, and costs and expenses, including without limitation attorneys' fees related thereto, arising from Contractor's negligence or willful misconduct in the course of its performance hereunder or breach hereof and that of its employees, agents, representatives and subcontractors. EXCEPT AS SPECIFICALLY SET FORTH IN THIS AGREEMENT, IN NO EVENT WILL EITHER PARTY BE LIABLE TO THE OTHER PARTY OR ANY THIRD PARTY FOR INDIRECT, INCIDENTAL, EXEMPLARY, PUNITIVE, SPECIAL OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION DAMAGES FOR LOST PROFITS, REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, TORT OR OTHERWISE AND EVEN IF SUCH PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE PARTIES' LIABILITY TO EACH

OTHER AND THEIR RESPECTIVE AFFILIATES FOR ANY AND ALL CLAIMS RELATING TO THIS AGREEMENT OR THE SERVICES OR DELIVERABLES PROVIDED BY CONTRACTOR HEREUNDER, WHETHER A CLAIM BE IN TORT, CONTRACT, OR ANY OTHER THEORY OF LAW, AND WHETHER BY STATUTE OR OTHERWISE, SHALL NOT, IN THE AGGREGATE, EXCEED THE TOTAL AMOUNT OF THE FEES PAID OR PAYABLE TO CONTRACTOR HEREUNDER. Any limitations or exclusions of liability set forth in this Agreement will not apply with respect to (1) claims for bodily injury or death or physical damage to tangible property resulting from either party's negligence or willful misconduct, (2) any claims resulting from either party's gross negligence, or fraudulent or willful misconduct, or (3) claims, losses, damages, costs, fines, penalties, or expenses resulting from either party's violation of any applicable law or regulation.

**SECTION N. FORCE MAJEURE:** Neither County nor Contractor shall be liable for any delay in the performance of this Agreement, nor for any other breach, nor for any loss or damage arising from uncontrollable forces such as fire, theft, storm, war, or any other force majeure that could not have been reasonably avoided by exercise of due diligence.

**SECTION O. NON-ASSIGNMENT:** Contractor may not assign this Agreement or any privileges or obligations herein without the prior written consent of County.

**SECTION P. LICENSES:** Contractor shall maintain all required licenses including, without limitation, all necessary professional and business licenses, throughout the term of this Agreement. Contractor shall require and shall assure that all of Contractor's employees and subcontractors maintain all required licenses including, without limitation, all necessary professional and business licenses.

**SECTION Q. PROHIBITED INTERESTS:** Contractor agrees that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of its services hereunder. Contractor further agrees that it will not employ any person having such an interest to perform services under this Agreement. No County Council member or other elected official of County, or manager or employee of County shall solicit, demand, accept or agree to accept a gratuity or offer of employment contrary to Section 31-282 of the Los Alamos County Code.

**SECTION R. TERMINATION:**

1. **Generally.** County may terminate this Agreement with or without cause upon ten (10) days prior written notice to Contractor. Upon such termination, Contractor shall be paid for Services actually completed to the satisfaction of County at the rate set out in Section C. Contractor shall render a final report of the Services performed to the date of termination and shall turn over to County originals of all materials prepared pursuant to this Agreement. Contractor may terminate this Agreement if County is in breach of any of its obligations hereunder and such breach remains unremedied for 30 days following the delivery of notice to County in writing.
2. **Funding.** This Agreement shall terminate without further action by County on the first day of any County fiscal year for which funds to pay compensation hereunder are not appropriated by County Council. County shall make reasonable efforts to give Contractor at least ninety (90) days advance notice that funds have not been and are not expected to be appropriated for that purpose.

**SECTION S. NOTICE:** Any notices required under this Agreement shall be made in writing, postage prepaid to the following addresses, and shall be deemed given upon hand delivery,

verified delivery by telecopy (followed by copy sent by United States Mail), or three (3) days after deposit in the United States Mail:

County:

Project Manager  
Incorporated County of Los Alamos  
1000 Central Avenue, Suite 130  
Los Alamos, New Mexico 87544

With a copy to:

Inc. County of Los Alamos  
Attention: County Attorney's Office  
1000 Central Avenue, Suite 340  
Los Alamos, New Mexico 87544

Contractor:

Ken Ditzel  
FTI Consulting, Inc.  
8251 Greensboro Drive, Suite 1111  
McLean, Virginia 22102

With a copy to:

FTI Consulting, Inc.  
Attn: Legal Department  
555 12<sup>th</sup> Street NW, Suite 700  
Washington, DC 20004

**SECTION T. INVALIDITY OF PRIOR AGREEMENTS:** This Agreement supersedes all prior contracts or agreements, either oral or written, that may exist between the parties with reference to the services described herein and expresses the entire agreement and understanding between the parties with reference to said services. It cannot be modified or changed by any oral promise made by any person, officer, or employee, nor shall any written modification of it be binding on either party until approved in writing by both County and Contractor.

**SECTION U. NO IMPLIED WAIVERS:** The failure of either party to enforce any provision of this Agreement is not a waiver by such party of the provisions or of the right thereafter to enforce any provision(s).

**SECTION V. SEVERABILITY:** If any provision of this Agreement is held to be unenforceable for any reason: (i) such provision will be reformed only to the extent necessary to make the intent of the language enforceable; and (ii) all other provisions of this Agreement will remain in effect.

**SECTION W. CAMPAIGN CONTRIBUTION DISCLOSURE FORM:** A Campaign Contribution Disclosure Form was submitted as part of the Contractor's Response and is incorporated herein by reference for all purposes.

**SECTION X. LEGAL RECOGNITION OF ELECTRONIC SIGNATURES:** Pursuant to NMSA 1978 § 14-16-7, this Agreement may be signed by electronic signature.

**SECTION Y. DUPLICATE ORIGINAL DOCUMENTS:** This document may be executed in two (2) counterparts, each of which shall be deemed an original and all of which shall constitute a single instrument.

**IN WITNESS WHEREOF**, the parties have executed this Agreement on the date(s) set forth opposite the signatures of their authorized representatives to be effective for all purposes on the date first written above.

**ATTEST**

**INCORPORATED COUNTY OF LOS ALAMOS**

\_\_\_\_\_  
**NAOMI D. MAESTAS**  
**COUNTY CLERK**

BY: \_\_\_\_\_  
**PHILO S. SHELTON, III, P.E.**                      **DATE**  
**UTILITIES MANAGER**

**Approved as to form:**

\_\_\_\_\_  
**J. ALVIN LEAPHART**  
**COUNTY ATTORNEY**

**FTI CONSULTING, INC, A MARYLAND CORPORATION**

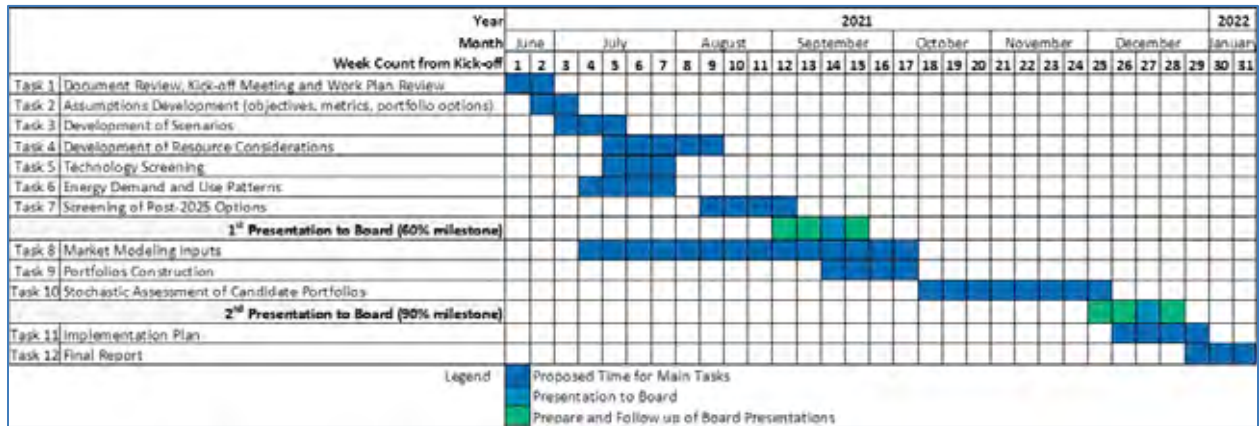
BY: \_\_\_\_\_  
**KEN DITZEL**    **DATE**  
**SENIOR MANAGING DIRECTOR**

# Exhibit "A"

## Project Schedule

### AGR21-41

The following table shows Contractor's proposed Project Schedule which shall be modified and finalized at the above referenced Project Kick-off Meeting.



**Exhibit "B"**  
**Compensation Rate Schedule**  
**AGR21-41**

Contractor shall charge a fixed price of \$151,000 for the Core Initial IRP Study Core, which entails stochastic analysis of ten (10) candidate portfolios as defined in Section A above. This fixed-price includes travel to Los Alamos for two (2) in-person presentations to County. Should the presentations be conducted remotely, and travel not be necessary, the not-to-exceed expenses will not be charged to DPU. If additional in person-presentations are requested by County, the cost for each presentation would be capped at \$4,500 per presentation and will be billed at cost. Contractor shall request and receive approval from the DPU prior to making any travel plans.

If requested by County to analyze more than ten (10) portfolio options as indicated in the Section A above, Contractor shall bill based upon the rate schedule defined below:

IRP Study Core Scope Budget											
	Name	Ken Ditzel	Fengron g Li	Venkl Venkateshwara	Mitch DeRubis	Mitch Nagel	Iqra Nadeem	Ran Li	Total	Expense	Budget
	Location	McLean VA	McLean VA	McLean VA	Pittsburg PA	McLean VA	McLean VA	McLea n VA	Hours	(USD)	(USD)
Task 1	Document Review, Kick-off Meeting	1	8	0	0	0	3	3	15		\$ 5,430.00
Task 2	Assumptions Development	1	8	2	0	0	10	10	31		\$ 9,690.00
Task 3	Development of Scenarios	1	5	5	5	5	5	10	36		\$ 11,640.00
Task 4	Development of Resource Considerations	1	10	0	3	0	10	10	34		\$ 10,740.00
Task 5	Technology Screening	1	5	5	3	10	5	10	39		\$ 12,565.00
Task 6	Energy Demand and Use Patterns	1	5	0	3	0	10	10	29		\$ 8,578.00
Task 7	Screening of Post-2025 Options	1	10	0	3	0	10	10	34		\$ 10,740.00
1st Presentation to Board (60% Milestone)		4	6	0	0	0	0	0	10	\$ 2,500.00	\$ 7,155.00
Task 8	Market Modeling Inputs	1	5	0	5	5	5	15	36		\$ 10,478.00
Task 9	Portfolio Construction	1	10	5	5	10	5	10	46		\$ 15,428.00
Task 10	Stochastic Assessment	1	10	1	15	10	10	20	67		\$ 20,623.00
2nd Presentation to Board (90% Milestone)		4	6	0	0	0	0	0	10	\$ 2,500.00	\$ 7,155.00
Task 11	Implementation Plan	2	8	2	2	0	0	0	14		\$ 6,055.00
Task 12	Final Report	2	10	2	5	5	10	10	44		\$ 14,445.00
Total		22	106	22	49	45	83	118	445	\$ 5,000.00	\$ 150,722.00

**IRP Budget (2023)**

	Name	Ken Ditzel	Fengron g Li	Venkl Venkateshwara	Mitch DeRubis	Mitch Nagel	Iqra Nadeem	Ran Li	Total	Expense	Budget
	Location	McLean VA	McLean VA	McLean VA	Pittsburg PA	McLean VA	McLean VA	McLean VA	Hours	(USD)	(USD)
Task 1	Document Review, Kick-off Meeting	1	4	0	0	0	1.5	1.5	8		\$ 2,973.00
Task 2	Assumptions Development	0	4	0	0	0	5	5	14		\$ 4,155.00
Task 3	Development of Scenarios	0	2.5	2	2.5	2.5	2.5	5	17		\$ 5,346.00
Task 4	Development of Resource Considerations	0	5	0	1.5	0	5	5	16.5		\$ 5,113.00
Task 5	Technology Screening	1	2.5	2	1.5	5	2.5	5	19.5		\$ 6,324.00
Task 6	Energy Demand and Use Patterns	1	2.5	0	1.5	0	5	5	15		\$ 4,546.00
Task 7	Screening of Post-2025 Options	1	5	0	1.5	0	5	5	17.5		\$ 5,628.00
<b>1st Presentation to Board (60% Milestone)</b>		4	6	0	0	0	0	0	10	\$ 2,500.00	\$ 7,155.00
Task 8	Market Modeling Inputs	1	2.5	0	2.5	2.5	2.5	7.5	18.5		\$ 5,496.00
Task 9	Portfolio Construction	1	5	2	2.5	5	2.5	5	23		\$ 7,755.00
Task 10	Stochastic Assessment	1	5	1	6	5	5	15	38		\$ 11,260.00
<b>2nd Presentation to Board (90% Milestone)</b>		4	6	0	0	0	0	0	10	\$ 2,500.00	\$ 7,155.00
Task 11	Implementation Plan	1	4	2	1	0	0	0	8		\$ 3,460.00
Task 12	Final Report	1	5	2	2.5	2.5	5	5	23		\$ 7,655.00
<b>Total</b>		17	59	11	23	22.5	41.5	64	238	\$ 5,000.00	\$ 84,021.00
<b>TOTAL PROJECT</b>											\$ 234,743.00
<b>OPTIONAL MEETINGS</b>											\$ 9,000.00
<b>TOTAL NOT TO EXCEED</b>											\$ 243,743.00

**Exhibit "C"**  
**CAMPAIGN CONTRIBUTION DISCLOSURE FORM**  
**AGR21-41**

Any prospective contractor seeking to enter into a contract with the Incorporated County of Los Alamos must file this form disclosing whether they, a family member or a representative of the prospective contractor has made a campaign contribution to an applicable public official during the two (2) years prior to the date on which prospective contractor submits a proposal or, in the case of a sole source or small purchase contract, the two (2) years prior to the date prospective contractor signs the contract, if the aggregate total of contributions given by the prospective contractor, a family member or a representative of the prospective contractor to the public official exceeds TWO HUNDRED FIFTY DOLLARS (\$250.00) over the two (2) year period.

THIS FORM MUST BE FILED BY ANY PROSPECTIVE CONTRACTOR WHETHER OR NOT THEY, THEIR FAMILY MEMBER, OR THEIR REPRESENTATIVE HAS MADE ANY CONTRIBUTIONS SUBJECT TO DISCLOSURE.

The following definitions apply:

**"Applicable public official"** means a person elected to an office or a person appointed to complete a term of an elected office, who has the authority to award or influence the award of the contract for which the prospective contractor is submitting a competitive sealed proposal or who has the authority to negotiate a sole source or small purchase contract that may be awarded without submission of a sealed competitive proposal.

**"Campaign Contribution"** means a gift, subscription, loan, advance or deposit of money or other things of value, including the estimated value of an in-kind contribution, that is made to or received by an applicable public official or any person authorized to raise, collect or expend contributions on that official's behalf for the purpose of electing the official to either statewide or local office. "Campaign Contribution" includes the payment of a debt incurred in an election campaign, but does not include the value of services provided without compensation or unreimbursed travel or other personal expenses of individuals who volunteer a portion or all of their time on behalf of a candidate or political committee, nor does it include the administrative or solicitation expenses of a political committee that are paid by an organization that sponsors the committee.

**"Contract"** means any agreement for the procurement of items of tangible personal property, services, professional services, or construction.

**"Family member"** means a spouse, father, mother, child, father-in-law, mother-in-law, daughter-in-law or son-in-law of:  
(a) a prospective contractor, if the prospective contractor is a natural person; or  
(b) an owner of a prospective contractor;

**"Pendency of the procurement process"** means the time period commencing with the public notice of the request for proposals and ending with the award of the contract or the cancellation of the request for proposals.

**"Person"** means any corporation, partnership, individual, joint venture, association or any other private legal entity.

**'Prospective contractor'** means a person who is subject to the competitive sealed proposal process set forth in the Procurement Code or is not required to submit a competitive sealed proposal because that person qualifies for a sole source or a small purchase contract.

**'Representative of a prospective contractor'** means an officer or director of a corporation, a member or manager of a limited liability corporation, a partner of a partnership or a trustee of a trust of the prospective contractor.

**DISCLOSURE OF CONTRIBUTIONS:** (Report any applicable contributions made to the following - COUNTY COUNCILORS: Denise Derkacs; David Izraelevitz; David Reagor; James Robinson; Randal Ryt; Sara Scott; and Sean Williams.)

<b>Contribution Made By:</b>			
<b>Relation to Prospective Contractor:</b>			
<b>Name of Applicable Public Official:</b>		Governor _____	
<b>Contribution(s) Date(s)</b>	<b>Contribution Amount(s):</b>	<b>Nature of Contribution(s):</b>	<b>Purpose of Contribution(s):</b>
	\$		
	\$		
	\$		
	\$		
	\$		

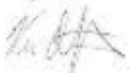
(Attach extra pages if necessary)

\_\_\_\_\_  
Signature Date

\_\_\_\_\_  
Title (position)

—OR—

**NO CONTRIBUTIONS IN THE AGGREGATE TOTAL OVER TWO HUNDRED FIFTY DOLLARS (\$250.00) WERE MADE** to an applicable public official by me, a family member or representative.

  
\_\_\_\_\_  
Signature Date  
Senior Managing Director  
\_\_\_\_\_  
Title (position)

## Budget Revision 2021-50

BPU Meeting Date: June 16, 2021

Council Meeting Date: June 29, 2021

	Fund & Department	Org Object	Revenue (decrease)	Expenditures (decrease)	Transfers In(Out)	Fund Balance (decrease)
1	Joint Utilities Fund Electric Production	51185125 8369		\$ 287,757		\$ (287,757)
<b>Description:</b> The purpose of this budget revision is to increase expenditure budget for the IRP contract in Electric Production.						
<b>Fiscal Impact:</b> The net impact on the Joint Utilities Fund is to increase expenditures and decreasing fund balance by \$287,757.						



# County of Los Alamos

## Staff Report

June 16, 2021

Los Alamos, NM 87544  
www.losalamosnm.us

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<b>Agenda No.:</b>	8.A.
<b>Index (Council Goals):</b>	DPU FY2021 - 1.0 Provide Safe and Reliable Utility Services
<b>Presenters:</b>	Philo Shelton
<b>Legislative File:</b>	14253-21

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### **Title**

Monthly Status Reports

### **Body**

Each month the Board receives in the agenda packet informational reports on various items. No presentation is given, but the Board may discuss any of the reports provided.

### **Attachments**

A - Electric Reliability Report

B - Accounts Receivables Report

C - Safety Report

# STATUS REPORTS

## ELECTRIC RELIABILITY

PREPARED BY

Alan Horton  
Associate Engineer

Prepared by Alan Horton  
Associate Engineer L.A.C.U.

Date	Call Rcd.	Circuit	Cause	Start Time	End Time	Duration	Customers Affected (Meters)	Combined Customer Outage Durations	Total Outage H:M:S	Running SAIDI
6/7/2020	Utilities	WR1	UNKNOWN	2:40	4:10	1:30	66	99:00:00	99:00:00	0:00:39
6/8/2020	Utilities	WR2	UNKNOWN	13:20	15:20	2:00	18	36:00:00	1:35:00:00	0:00:54
6/11/2020	Utilities	WR2	URD Failure	6:50	7:35	0:45	13	9:45:00	1:44:45:00	0:00:58
6/11/2020	Utilities	EA-4	OH Failure	16:30	17:20	0:50	100	83:20:00	2:28:05:00	0:01:31
6/14/2020	Utilities	EA-4	UNKNOWN	11:00	13:00	2:00	30	60:00:00	2:88:05:00	0:01:55
6/17/2020	Utilities	WR2	UNKNOWN	21:00	23:30	2:30	80	200:00:00	4:88:05:00	0:03:14
6/28/2020	Utilities	17	UNKNOWN	11:25	13:00	1:35	2	3:10:00	4:91:15:00	0:03:16
7/5/2020	Utilities	WR2	URD Failure	13:00	14:00	1:00	20	20:00:00	5:11:15:00	0:03:23
7/11/2020	Utilities	WR1	URD Failure	12:30	13:50	1:20	15	20:00:00	5:31:15:00	0:03:31
7/11/2020	Utilities	13	OH Failure	20:30	21:30	1:00	13	13:00:00	5:44:15:00	0:03:37
7/12/2020	Utilities	17	UNKNOWN	21:30	23:00	1:30	17	25:30:00	5:69:45:00	0:03:47
7/18/2020	Utilities	13	ANIMAL	21:50	22:30	0:40	25	16:40:00	5:86:25:00	0:03:53
7/25/2020	Utilities	WR1	ANIMAL	18:30	19:30	1:00	75	75:00:00	6:61:25:00	0:04:23
7/27/2020	Utilities	WR2	URD Failure	11:45	18:30	6:45	44	297:00:00	9:58:25:00	0:06:21
8/7/2020	Utilities	14	URD Failure	6:20	7:25	1:05	4	4:20:00	9:62:45:00	0:06:23
8/9/2020	Utilities	WR2	URD Failure	13:00	13:30	0:30	25	12:30:00	9:75:15:00	0:06:28
8/17/2020	Utilities	WR1	URD Failure	0:35	2:00	1:25	59	83:35:00	10:58:50:00	0:07:01
8/19/2020	Utilities	13	URD Failure	4:00	4:30	0:30	25	12:30:00	10:71:20:00	0:07:06
9/4/2020	Utilities	16	UNKNOWN	16:00	17:00	1:00	11	11:00:00	10:82:20:00	0:07:11
9/4/2020	Utilities	WR1	UNKNOWN	17:00	18:00	1:00	2	2:00:00	10:84:20:00	0:07:12
9/5/2020	Utilities	13	UNKNOWN	18:00	19:00	1:00	1	1:00:00	10:85:20:00	0:07:12
10/2/2020	Utilities	15	ANIMAL	1:00	3:30	2:30	50	125:00:00	12:10:20:00	0:08:02
10/9/2020	Utilities	15	ANIMAL	22:15	23:15	1:00	25	25:00:00	12:35:20:00	0:08:12
10/12/2020	Utilities	15	URD Failure	7:00	8:15	1:15	25	31:15:00	12:66:35:00	0:08:24
10/27/2020	Utilities	17	Weather	5:00	6:30	1:30	70	105:00:00	13:71:35:00	0:09:06
10/27/2020	Utilities	17	URD Failure	9:00	19:00	10:00	10	100:00:00	14:71:35:00	0:09:46
11/8/2020	Utilities	WR1	OH Failure	9:35	13:40	4:05	1	4:05:00	14:75:40:00	0:09:47
11/23/2020	Utilities	WR1	Weather	18:30	20:00	1:30	528	792:00:00	22:67:40:00	0:15:03
11/23/2020	Utilities	WR1	Weather	20:00	20:50	0:50	1586	1321:40:00	35:89:20:00	0:23:49
11/23/2020	Utilities	13	Weather	18:30	21:30	3:00	4	12:00:00	36:01:20:00	0:23:53
11/27/2020	Utilities	WR1	URD Failure	1:29	4:15	2:46	20	55:20:00	36:56:40:00	0:24:15
12/19/2020	Utilities	14	URD Failure	17:00	18:10	1:10	1	1:10:00	36:57:50:00	0:24:16
12/27/2020	Utilities	15	UNKNOWN	1:00	2:30	1:30	20	30:00:00	36:87:50:00	0:24:28
1/15/2021	Utilities	13	UNKNOWN	13:20	14:15	0:55	36	33:00:00	37:20:50:00	0:24:41
2/2/2021	Utilities	15	ANIMAL	6:30	7:15	0:45	200	150:00:00	38:70:50:00	0:25:41
2/4/2021	Utilities	16	URD Failure	0:00	5:00	5:00	69	345:00:00	42:15:50:00	0:27:58
2/5/2021	Utilities	EA-4	OH Failure	21:45	22:30	0:45	10	7:30:00	42:23:20:00	0:28:01
2/25/2021	Utilities	14	URD Failure	8:30	11:30	3:00	1	3:00:00	42:26:20:00	0:28:02
4/21/2021	Utilities	14	ANIMAL	21:23	22:38	1:15	539	673:45:00	49:00:05:00	0:32:30
5/16/2021	Utilities	WR1	UNKNOWN	10:30	12:00	1:30	5	7:30:00	49:07:35:00	0:32:33
5/18/2021	Utilities	14	URD Failure	16:00	19:00	3:00	2	6:00:00	49:13:35:00	0:32:36
5/22/2021	Utilities	EA-4	Weather	19:30	20:30	1:00	30	30:00:00	49:43:35:00	0:32:48
5/26/2021	Utilities	16	URD Failure	16:45	22:20	5:35	100	558:20:00	55:01:55:00	0:36:30

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Twelve Month History	May 2021	
Total # Accounts	9045	
Total # Interruptions	43	
Sum Customer Interruption Durations	4900:05:00	hours:min:sec
# Customers Interrupted	3977.0	
SAIFI (APPA AVG. = 1.0)	0.44	int./cust.
SAIDI (APPA AVG. = 1:00)	0.32	hours:min
CAIDI	1.13	hours:min/INT
ASAI	99.9997%	% available

- **SAIFI - System Average Interruption Frequency Index**  
A measure of interruptions per customer (Per Year)

$$\text{SAIFI} = \frac{(\text{Total number of customer interruptions})}{(\text{Total number of customers served})}$$

- **SAIDI – System Average Interruption Duration Index**  
A measure of outage time per customer if all customers were out at the same time (hours per year)

$$\text{SAIDI} = \frac{(\text{Sum of all customer outage durations})}{(\text{Total number of customers served})}$$

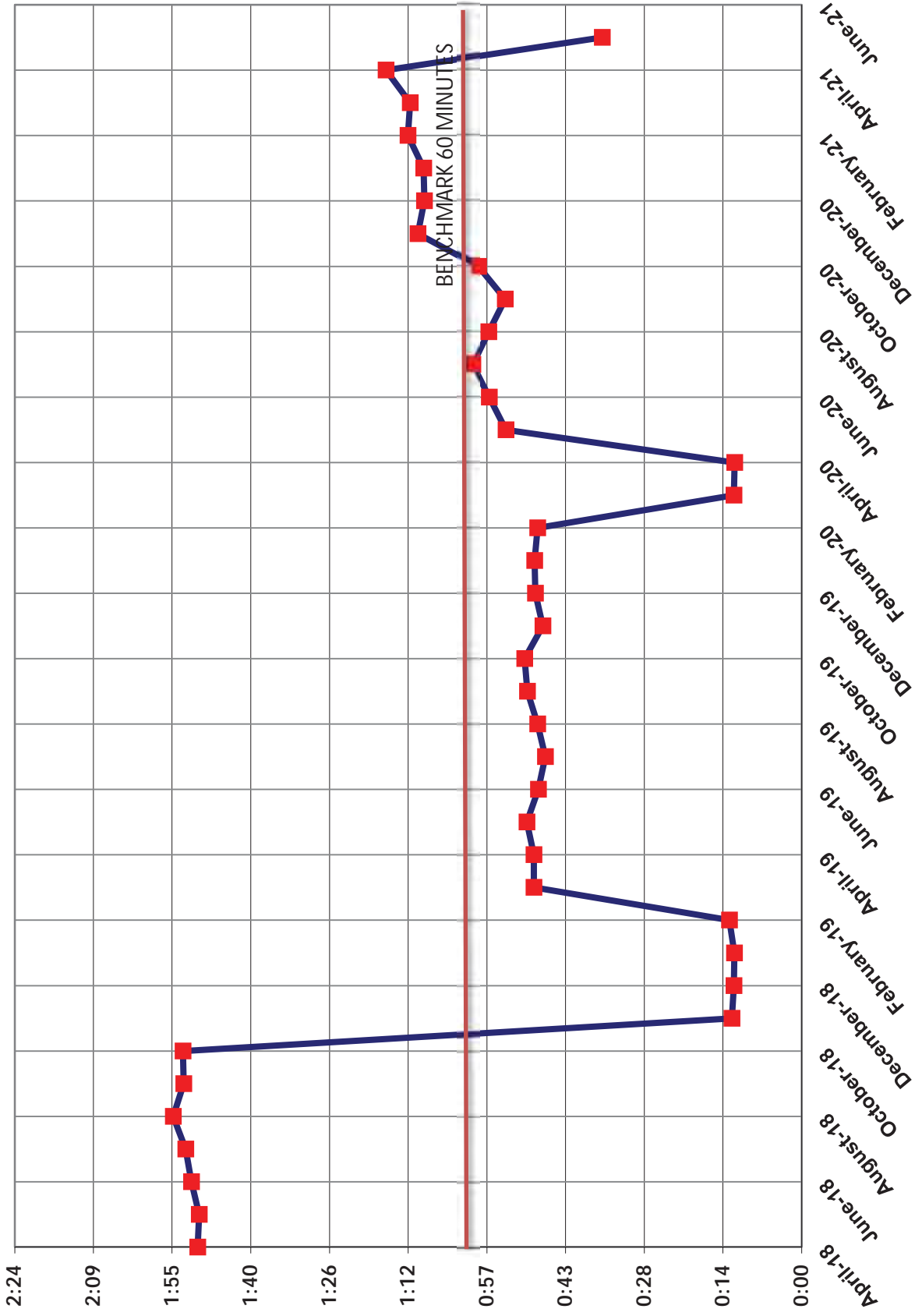
- **CAIDI – Customer Average Interruption Duration Index**  
A measure of the average outage duration per customer (hours per interruption)

$$\text{CAIDI} = \frac{(\text{Sum of all customer outage durations})}{(\text{Total number of customer interruptions})} = \frac{\text{SAIDI}}{\text{SAIFI}}$$

- **ASAI – Average System Availability Index**  
A measure of the average service availability (Per unit)

$$\text{ASAI} = \frac{(\text{Service hours available})}{(\text{Customer demand hours})} = \frac{8760 - \text{SAIDI}}{8760}$$

EACH POINT IS A 12 MONTH SAIDI HISTORY  
1:00 = APPA BENCHMARK SAIDI



1:50:31 1:50:16 1:51:40 1:52:43 1:55:00 1:53:05 1:53:14 0:12:45  
0:12:24 0:12:19 0:13:14 0:49:01 0:48:59 0:50:18 0:48:11 0:46:53...

# STATUS REPORTS

## ACCOUNTS RECEIVABLES

PREPARED BY

Joann Gentry  
Senior Management Analyst

Los Alamos County Utilities Department  
Active Receivables Over 90 Days Past Due  
June 1, 2021

Account	Customer ID	Acct Type	Comments	90 - 119	120 +
3008021	2098098	RS	Phone number on file doesn't work	\$ 100.55	\$ -
3006934	2134408	RS	Unable to call customer before June 7th	\$ 103.99	\$ -
3002750	2009820	RS	Unable to call customer before June 7th	\$ 108.29	\$ -
3008804	2105358	RS	Left Message for customer to call	\$ 112.66	\$ -
3000428	2001601	RS	Unable to call customer before June 7th	\$ 138.12	\$ -
3001821	2136138	RS	Unable to call customer before June 7th	\$ 154.78	\$ -
3000368	2216091	RS	Spoke with customer will call back to make payment	\$ 169.49	\$ -
3004292	2013614	RS	Unable to call customer before June 7th	\$ 186.67	\$ -
3008287	2016070	RS	Paid \$300 and set up payments with Paymentus	\$ 190.26	\$ -
3004327	2087778	RS	Unable to leave message for customer	\$ 196.66	\$ -
3008693	2024875	RS	Phone number on file doesn't work	\$ 211.38	\$ -
3006890	2009572	RS	Left Message for customer to call	\$ 220.70	\$ -
3005299	2017148	RS	Phone number on file doesn't work	\$ 222.15	\$ -
3007919	2061808	RS	Unable to call customer before June 7th	\$ 228.28	\$ -
3009321	2113838	RS	Unable to call customer before June 7th	\$ 228.37	\$ -
3005432	2214757	RS	Left Message for customer to call	\$ 232.90	\$ -
3006190	2049258	RS	Unable to leave message for customer	\$ 233.30	\$ -
3002800	2139108	RS	Phone number on file doesn't work	\$ 234.26	\$ -
3006908	2021249	RS	Unable to call customer before June 7th	\$ 240.00	\$ -
3004509	2215377	RS	Unable to call customer before June 7th	\$ 241.24	\$ -
3009811	2064328	RS	Unable to call customer before June 7th	\$ 247.52	\$ -
3200050	2215671	RS	Unable to call customer before June 7th	\$ 256.26	\$ -
3004852	2137498	RS	Spoke with customer but didn't make payment	\$ 260.46	\$ -
3002756	2135128	RS	Spoke with customer, she will call back	\$ 276.82	\$ -
3002375	2127058	RS	Unable to call customer before June 7th	\$ 289.80	\$ -
3005219	2215352	RS	Left Message for customer to call	\$ 303.32	\$ -
3004222	2124748	RS	Sent email	\$ 305.32	\$ -
3002939	2215105	RS	Unable to leave message for customer	\$ 308.38	\$ -
3008692	2024872	RS	Phone number on file doesn't work	\$ 377.47	\$ -
3004217	2013317	RS	Paid \$1,609.74	\$ 380.36	\$ -
3003944	2215921	RS	Unable to call customer before June 7th	\$ 402.69	\$ -
3200087	2215526	HY	Unable to call customer before June 7th	\$ 408.98	\$ -
3007410	2020433	RS	Left Message for customer to call	\$ 416.02	\$ -
3007457	2136718	RS	Unable to call customer before June 7th	\$ 421.72	\$ -
3004831	2136428	RS	Left Message for customer to call	\$ 468.50	\$ -
3002823	2216257	RS	Unable to call customer before June 7th	\$ 488.73	\$ -
3002428	2089728	RS	Left Message for customer to call	\$ 510.14	\$ -
3002911	2030608	RS	Unable to call customer before June 7th	\$ 540.52	\$ -
3002367	2137648	RS	Unable to call customer before June 7th	\$ 548.23	\$ -
3003563	2216289	RS	Unable to call customer before June 7th	\$ 571.52	\$ -
3002477	2009142	RS	Unable to call customer before June 7th	\$ 571.59	\$ -
3000765	2002538	CM	Unable to leave message for customer	\$ 601.72	\$ -
3002301	2215557	RS	Unable to call customer before June 7th	\$ 94.24	\$ 7.60
3002424	2032538	RS	Unable to call customer before June 7th	\$ 646.24	\$ 8.34
3008769	2215438	RS	Left Message for customer to call	\$ 459.38	\$ 9.35
3003818	2066808	RS	Paid \$400.00 on account	\$ 256.48	\$ 24.49
3008795	2215540	RS	Unable to leave message for customer	\$ 138.59	\$ 31.24
3002801	2112548	RS	Unable to call customer before June 7th	\$ 391.71	\$ 37.88
3010271	2020237	CM	Unable to call customer before June 7th	\$ 68.92	\$ 50.31
3002295	2113348	RS	Unable to call customer before June 7th	\$ 61.24	\$ 52.47
3003986	2215057	RS	Unable to make payment, gave other resources for help	\$ 329.34	\$ 56.34
3007049	2021703	CM	Customer makes payments every week	\$ 204.64	\$ 60.80
3005333	2214836	RS	Unable to leave message for customer	\$ 321.40	\$ 72.22
3010128	2114898	RS	Unable to call customer before June 7th	\$ 66.43	\$ 97.33
3001578	2005016	CM	Unable to call customer before June 7th	\$ 50.91	\$ 99.92
3001904	2085778	RS	Paid \$816.69	\$ 175.46	\$ 110.08
3006937	2216176	RS	Sent email	\$ 131.16	\$ 112.36
3002363	2045808	RS	Sent email	\$ 543.57	\$ 114.23
3007801	2012287	RS	Unable to call customer before June 7th	\$ -	\$ 126.68

3002079	2007812	CM	Unable to call customer before June 7th	\$	66.53	\$	138.66
3001759	2215690	CM	Left Message for customer to call	\$	354.82	\$	139.51
3005180	2126618	RS	Unable to leave message for customer	\$	261.13	\$	143.70
3004846	2015477	RS	Unable to call customer before June 7th	\$	-	\$	151.42
3000344	2001215	CM	Unable to call customer before June 7th	\$	77.97	\$	158.34
3009904	2020232	CM	Unable to call customer before June 7th	\$	83.34	\$	161.08
3005024	2016194	RS	Unable to call customer before June 7th	\$	413.15	\$	179.40
3000529	2215648	RS	Paid \$100.00 on account	\$	180.90	\$	182.27
3009903	2027027	CM	Unable to call customer before June 7th	\$	91.69	\$	184.92
3010046	2000053	HY	Unable to call customer before June 7th	\$	408.98	\$	192.89
3007467	2216191	RS	Called and emailed customer	\$	358.50	\$	200.96
3007682	2139828	RS	Unable to call customer before June 7th	\$	-	\$	205.98
3004241	2115898	RS	Left Message for customer to call	\$	362.19	\$	214.02
3003990	2069638	RS	Unable to call customer before June 7th	\$	290.86	\$	214.09
3000593	2002172	RS	Unable to call customer before June 7th	\$	-	\$	214.86
3008948	2008575	RS	Left Message for customer to call	\$	240.72	\$	217.78
3005312	2215071	RS	Unable to call customer before June 7th	\$	229.12	\$	218.50
3009005	2039248	RS	Unable to leave message for customer	\$	379.80	\$	225.74
3002323	2208833	RS	Unable to call customer before June 7th	\$	133.19	\$	245.73
3007810	2014855	RS	Left Message for customer to call	\$	208.24	\$	256.57
3004779	2090158	RS	Paid \$90.00	\$	256.61	\$	267.86
3005368	2029278	RS	Customer will pay off in full by end of June	\$	292.20	\$	285.64
3002412	2003472	RS	Left Message for customer to call	\$	31.36	\$	286.39
3008736	2024935	RS	Unable to call customer before June 7th	\$	-	\$	292.30
3004737	2119798	RS	Unable to call customer before June 7th	\$	613.86	\$	300.60
3003969	2012357	RS	Sent email	\$	362.66	\$	308.21
3000630	2031288	CM	Unable to call customer before June 7th	\$	193.74	\$	336.87
3004866	2134538	RS	Unable to call customer before June 7th	\$	306.45	\$	337.49
3009964	2038698	RS	Left Message for customer to call	\$	462.89	\$	340.74
3007343	2022445	RS	Left Message for customer to call	\$	362.00	\$	371.42
3007011	2021620	CM	Sent email	\$	-	\$	377.29
3007378	2200139	RS	Unable to call customer before June 7th	\$	266.70	\$	393.70
3005523	2013427	RS	Phone number on file doesn't work	\$	230.54	\$	403.63
3008040	2023776	RS	Spoke with customer will make online payment	\$	530.28	\$	405.15
3002389	2135428	RS	Unable to call customer before June 7th	\$	525.97	\$	435.34
3002379	2115288	RS	Sent email	\$	801.24	\$	470.96
3005220	2215028	RS	Unable to call customer before June 7th	\$	172.68	\$	471.13
3006274	2097578	RS	Unable to call customer before June 7th	\$	269.42	\$	485.47
3008958	2034248	RS	Phone number on file doesn't work	\$	344.38	\$	501.32
3006092	2062068	RS	Unable to make payment, gave other resources for help	\$	208.67	\$	511.60
3006179	2019582	RS	Left Message for customer to call	\$	224.18	\$	512.46
3000068	2113668	RS	Sent email	\$	149.96	\$	558.97
3002334	2126448	RS	Unable to call customer before June 7th	\$	693.65	\$	569.45
3008024	2020168	RS	Customer unable to make payment	\$	327.92	\$	608.55
3004678	2014731	RS	Unable to call customer before June 7th	\$	354.83	\$	625.53
3004025	2094558	RS	Left Message for customer to call	\$	370.28	\$	660.06
3008876	2025506	RS	Paid \$1,424.47	\$	-	\$	688.85
3005561	2017983	RS	Unable to call customer before June 7th	\$	-	\$	692.35
3003894	2069898	RS	Unable to call customer before June 7th	\$	348.13	\$	751.13
3003508	2124208	RS	Left Message for customer to call	\$	350.77	\$	801.14
3000751	2002516	CM	Unable to leave message for customer	\$	251.64	\$	801.38
3005062	2099138	RS	Unable to call customer before June 7th	\$	179.65	\$	802.10
3002328	2139618	RS	Left Message for customer to call	\$	130.48	\$	814.78
3000787	2137578	CM	Phone number on file doesn't work	\$	145.77	\$	833.08
3000175	2210204	RS	Left Message for customer to call	\$	76.50	\$	835.76
3002769	2009914	RS	Unable to leave message for customer	\$	460.04	\$	874.26
3007047	2021698	CM	Customer makes payments every week	\$	577.62	\$	888.82
3001502	2106778	CM	Unable to call customer before June 7th	\$	287.78	\$	919.91
3005246	2000373	RS	Customer paid \$115.00, gave information on other help	\$	330.19	\$	938.44
3006107	2026961	RS	Spoke with customer and will make payment next week	\$	249.95	\$	964.55
3005470	2017719	RS	Unable to leave message for customer	\$	287.42	\$	984.24
3006102	2013630	RS	Spoke with customer, didn't make payment on June 5	\$	145.76	\$	1,010.60
3003169	2215149	RS	Unable to call customer before June 7th	\$	412.29	\$	1,036.23
3002735	2048078	RS	Unable to call customer before June 7th	\$	444.51	\$	1,087.27
3007007	2215166	CM	Unable to call customer before June 7th	\$	78.21	\$	1,092.75
3002803	2098438	RS	Unable to call customer before June 7th	\$	320.48	\$	1,117.99

3004859	2120608	RS	Unable to call customer before June 7th	\$	227.74	\$	1,269.37
3004329	2069558	RS	Unable to call customer before June 7th	\$	246.57	\$	1,290.31
3005372	2215225	RS	Unable to call customer before June 7th	\$	190.53	\$	1,450.85
3007236	2118758	RS	Unable to call customer before June 7th	\$	295.79	\$	1,610.41
3002362	2008831	RS	Phone number on file doesn't work	\$	824.89	\$	1,848.58
3000673	2002547	CM	Left Message for customer to call	\$	540.11	\$	1,920.91
3009203	2118628	RS	Sent email	\$	277.31	\$	2,078.39
3005078	2016362	RS	Left Message for customer to call	\$	492.81	\$	2,114.48
3004024	2004969	RS	Unable to call customer before June 7th	\$	615.75	\$	2,288.15
3004423	2130778	RS	Unable to call customer before June 7th	\$	342.90	\$	2,388.18
3007360	2015299	RS	Unable to call customer before June 7th	\$	398.76	\$	2,549.26
3004060	2085918	RS	Left Message for customer to call	\$	196.72	\$	2,555.31
3006238	2072868	RS	Need to update lien	\$	131.66	\$	2,641.22
3005737	2028518	RS	Unable to make payment, gave other resources for help	\$	377.51	\$	2,711.72
3006881	2072868	RS	Need to update lien	\$	185.42	\$	3,085.99
3008846	2025446	RS	Phone number on file doesn't work	\$	501.81	\$	3,259.05
3009369	2026665	RS	Send email, phone numbers on file don't work	\$	430.65	\$	3,485.06
3007663	2008610	RS	Unable to call customer before June 7th	\$	448.80	\$	3,543.88
3006513	2036208	RS	Unable to call customer before June 7th	\$	343.89	\$	4,287.58

\$ 41,290.24    \$ 80,350.52  
\$ 121,640.76

144 Accounts

Los Alamos County Utilities Department Receivables More than 60 Days Inactive Accounts June 1, 2021				
YEAR	OUTSTANDING 6/1	# OF ACCOUNTS	OUTSTANDING 5/3	# OF ACCOUNTS
FY16	\$ 24,458.30	66	\$ 24,458.30	66
FY17	\$ 14,813.55	63	\$ 14,813.55	63
FY18	\$ 12,985.51	60	\$ 12,985.51	60
FY19	\$ 53,239.30	202	\$ 53,239.30	202
FY20	\$ 53,985.76	196	\$ 53,985.76	196
FY21	\$ 51,974.31	261	\$ 50,553.47	212
<b>TOTAL</b>	<b>\$ 211,456.73</b>	<b>848</b>	<b>\$ 210,035.89</b>	<b>799</b>

# STATUS REPORTS

## SAFETY

PREPARED BY

Steve Klepeis  
Risk Manager

## DEPARTMENT OF PUBLIC UTILITIES CLAIMS

Information Provided by the County Risk Manager

YEAR	REPORT MONTH	BPU MTG DATE	TORT CLAIMS	WORKERS COMP	PROPERTY DAMAGE
2021	2-Jun	6/16/2021	NONE	NONE	NONE
2021	4-Apr	5/19/2021	NONE	NONE	NONE
2021	03-Mar	4/21/2021	NONE	NONE	NONE
2021	02-Feb	3/17/2021	1. GWS employee backed into parked unoccupied motorist's vehicle. 2. GWS snowplow slid into motorist under icy conditions.	An ED employee slipped and fell on ice; injured right wrist/hand; able to return to work with no lost days.	A GWS employee backed into a shed at the Aquatic Center. GWS is repairing damage.
2021	01-JAN	2/24/2021	NONE	NONE	1. A GWS employee misjudged backing clearance and backed vehicle 1113 into 1202, with minor damage. 2. A Utilities EP Hydro employee misjudged backing clearance and backed vehicle 1242 into a parked snow plow, resulting only in a small hole in 1242 tailgate. Winter weather
2020	12-DEC	1/20/2021	On DP Road, GWS driver making turn misjudged clearance and struck a support leg of a flagging machine owned by Southwest Safety. \$3800+- damage claimed.	NONE	NONE
2020	11-NOV	12/16/2020	Claimant alleges that lightning struck a County utility pole causing a voltage surge that damaged his computer. Recommended for denial.	NONE	Claim in which a Utilities employee reported that the toolbox slid in the truck he was driving, and it broke the truck's rear window.
2020	10-OCT	11/18/2020	Claim involving Electrical Distribution: a claimant alleges that home appliances were damaged due to a failure of their neutral conductor, causing voltage overload in part of their electrical panel. ED has responded that the County has no way of knowing or predicting that a house service conductor will fail. Claim has been recommended for denial.	NONE	NONE

## DEPARTMENT OF PUBLIC UTILITIES CLAIMS

Information Provided by the County Risk Manager

YEAR	REPORT MONTH	BPU MTG DATE	TORT CLAIMS	WORKERS COMP	PROPERTY DAMAGE
2020	09-SEP	10/21/2020	NONE	A lineman fractured/lacerated his right middle finger when removing a heavy manhole cover; returned to duty same day.	NONE
2020	08-AUG	9/16/2020	Resident and her insurer claim sewer back-up damage due to County main problem	GWS worker using high pressure wand; wand slipped, causing contact and skin abrasion to wrist.	NONE
2020	07-JUL	8/19/2020	Water main repair caused debris to enter residence plumbing, clogging house facilities; plumber's bill claimed.	NONE	Break-in reported at El Vado. Damage and theft of federally owned property being stored on premises; no damage or theft to County.
2020	06-JUN	7/15/2020	A claimant experienced water damage to his residence due to a County water line leak.	NONE	NONE
2020	05-MAY	6/17/2020	NONE	NONE	NONE
2020	04-APR	5/20/2020	NONE	NONE	NONE
2020	03-MAR	4/15/2020	NONE	NONE	NONE
2020	02-FEB	3/18/2020	NONE	NONE	NONE
2020	01-JAN	2/19/2020	Resident incurred plumber bill; didn't know outage was due to main break.	NONE	NONE

DEPARTMENT OF PUBLIC UTILITIES  
MONTHLY OSHA INCIDENCE RATES FROM RISK MANAGEMENT

MONTH	Hours Worked	Hours Worked	Hours Worked	Hours Worked	Hours Worked	Hours Worked	Hours Worked	Hours Worked	Hours Worked
	ADMIN	EL DIST	EL PROD	GWS	WA PROD	WWTP			
Jan - 2021	4445.0	2200.0	2760.0	4754.0	1523.0	1760.0			
Feb - 2021	3492.0	1828.0	1954.0	3813.0	1181.0	1333.0			
Mar - 2021	3716.0	1907.0	1961.0	3987.0	1277.0	1265.0			
Apr - 2021	3722.0	1886.0	1922.0	4009.0	1313.0	1380.0			
May - 2021	3653.0	1914.0	1944.0	4286.0	1268.0	1326.0			
June - 2020	3208.0	1979.0	1594.0	4002.0	1189.0	1372.0			
July - 2020	4877.0	2789.0	2471.0	6170.0	2026.0	1996.0			
Aug - 2020	3552.0	1897.0	1927.0	4080.0	1247.0	1355.0			
Sept - 2020	3150.0	1502.0	1929.0	3547.0	1189.0	1356.0			
Oct - 2020	3637.0	1663.0	1724.0	3769.0	1116.0	1349.0			
Nov - 2020	3413.0	1687.0	1780.0	3910.0	1206.0	1429.0			
Dec - 2020	4664.0	2358.0	2517.0	5275.0	1589.0	1897.0			
Total Hrs Worked ->	45529.0	23610.0	24483.0	51602.0	16124.0	17818.0			
Number of Recordable Injury and Illness Cases	0	3	0	1	0	0			
OSHA Recordable Injury & Illness Incidence Rate	0.00	25.41	0.00	3.88	0.00	0.00			
Number of OSHA Days Away Days Restricted (DART) cases	0	0	0	0	0	0			
OSHA Days Away Days Restricted (DART) Rate	0.00	0.00	0.00	0.00	0.00	0.00			



# County of Los Alamos

## Staff Report

June 16, 2021

Los Alamos, NM 87544  
www.losalamosnm.us

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<b>Agenda No.:</b>	8.B.
<b>Index (Council Goals):</b>	DPU FY2021 - 1.0 Provide Safe and Reliable Utility Services
<b>Presenters:</b>	Steve Cummins
<b>Legislative File:</b>	14369-21

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### Title

Summer Peak Power Demand: Briefing of Planned Activities

### Recommended Action

No Action

### Staff Recommendation

For information only.

### Body

In Fiscal Year 2021 Los Alamos County Electric Production Division encountered two weather event that highly affected the open market prices. One event was in the summer and one event was in the winter. This briefing will be focusing on the Summer Peak Demand. Last year in the middle of August there was a heat wave that spanned from Mexico to Canada along the Western Interconnect. Due to unforeseen circumstances the Los Alamos Power Pool found itself highly reliant on the open market to meet its power demands. Prices during this period were as high as \$1,695.00/MWh. This summer is predicated to very similar to last year and all the futures pricing indicate high risk of a significant weather event. Staff would like to share the steps of preparation for this summer and their approach to providing Firm Supply in the most economical way possible.

### Alternatives

For information only.

### Fiscal and Staff Impact

Summer Preparations and pricing are currently built into EP's FY2022 budget.

### Attachments

A - Summer Peak Power Demand Briefing of Planned Activities

# 2021 Summer Peak Power Demand- Briefing of Planned Activities

Presented to the Board of Public Utilities  
June 16, 2021

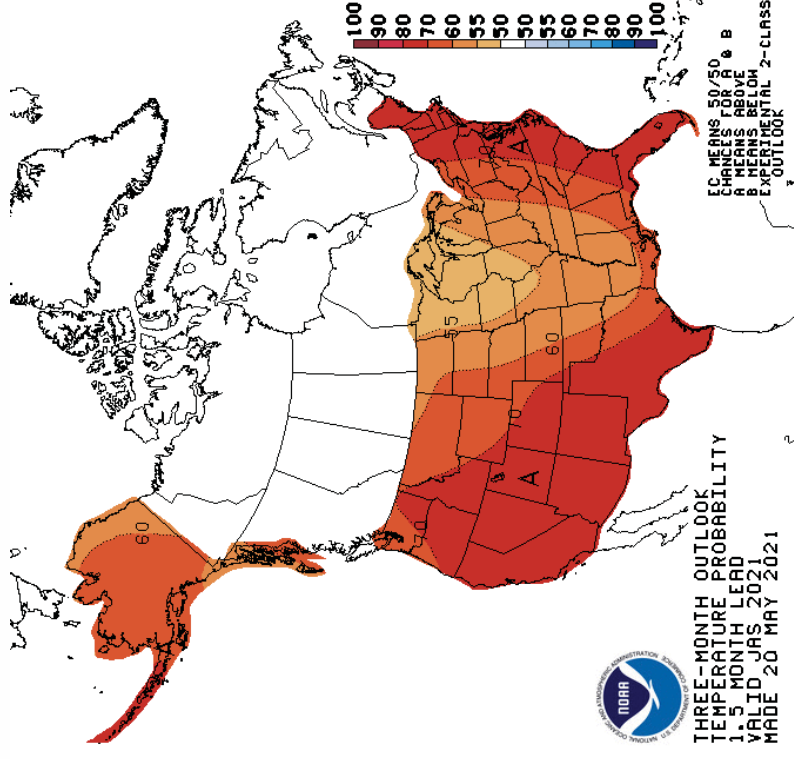
Jordan Garcia, Power System Supervisor  
Electrical Production

# Why are we providing this update?

- Last year was a unique year in which Summer and Winter weather events drove prices upward.
- Forced Unit Outages at San Juan and Laramie River Station drove LAC to the Open Market.
- Last Summer, LAC saw prices as high as \$1,695.00/MWh
- LAC's cost impact was roughly \$3M dollars from Last Year's Summer event for both Sandia/Kirtland and the Los Alamos Power Pool
- Supply Issues plagued the Western Interconnect. Many Balancing Area's declared Energy Emergencies.
- LAC is committed to ensuring adequate supply and limiting cost exposure as much as possible

# Q3 Weather Forecast

- Widespread heat simultaneously throughout the Western interconnect is the greatest threat and a cause of last years issues.
- Other major issues LAC is monitoring:
  - Generation Availability
  - Duck Curve Ramping Capabilities
  - Bilateral Trading Availability



# Thermal Units

- San Juan:
  - 2020- Was in Forced Outage during the major heat event.
  - 2021-We are planning full availability
- LRS:
  - 2020- One Unit was Offline due to Forced outage
  - 2021-We are planning full availability
- Laboratory Combustion Turbine
  - 2020-Unit was Offline for upgrades
  - 2021- We are planning full availability

# Hydro Units

- WAPA AHP- DOE & LAC
  - Allocations remain the same.
- El Vado
  - Last Year El Vado Averaged 4MW. We are expecting this to be reduced to 1MW as the Lake is dropping due to preparations for the Dam Repair.
  - See supplemental slides for forecast information
- Abiquiu
  - We are expecting roughly the same output from Abiquiu as last year.
  - See supplemental slides for forecast information

# Purchased Power

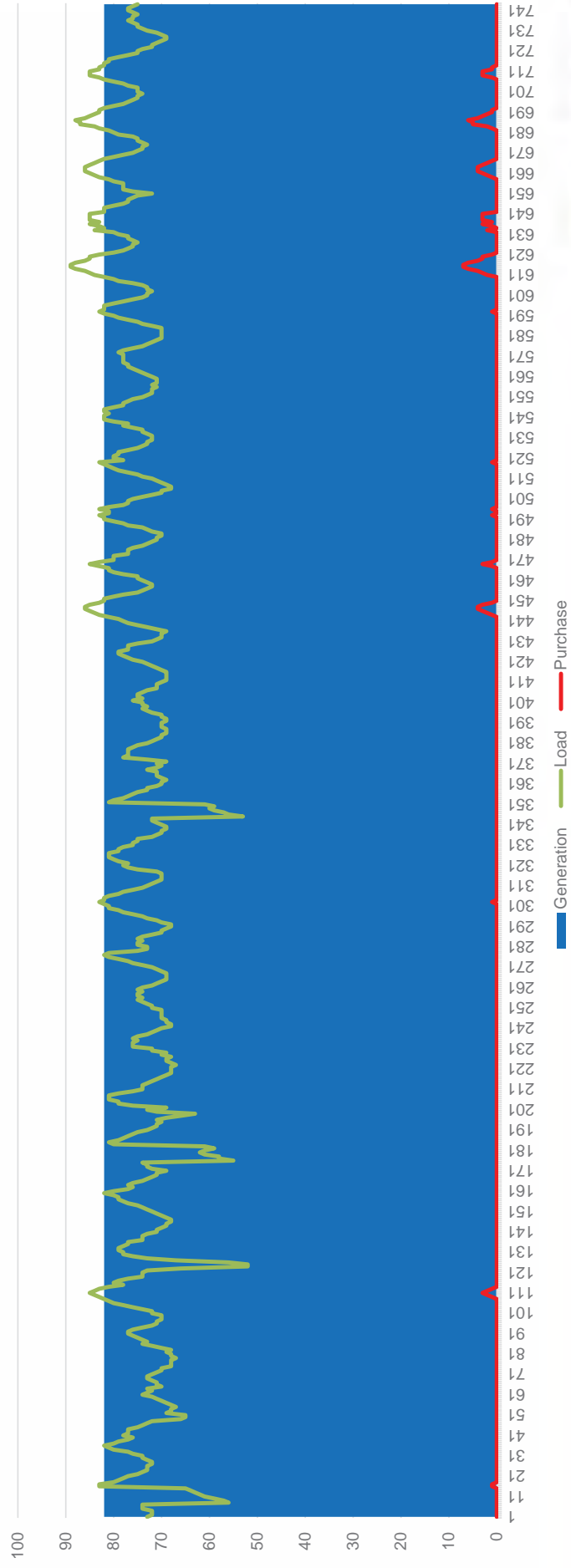
- We currently aren't projecting a major need for Purchased Power during this High Load Period for the Los Alamos Power Pool.
- LAC will still have to Purchase for Sandia/Kirtland. LAC roughly has three options
  - Buy months in advance for set block
  - Purchase Call Options
  - Rely on shorter term purchases including real-time

# Load Vs. Generation: August Forecast

- August Anticipated Average Load 80 MW
  - San Juan output- 36MW
  - LRS Output-10MW
  - WAPA AHP-10MW
  - Abiquiu-4 MW
  - El Vado-1MW
  - LANL CT-21MW
- Total Supply 82 MW
- Peak anticipated to be around 93MW

# Load Vs. Generation: August Forecast

Planned August Load Vs. Generation



# Purchased Power Cont.

- Months in Advance:
  - Pros-Secure Firm energy early
  - Cons-Highly reliant on the speculations pricing which are very high due to last year's occurrence
  - If Purchased Energy would cost \$160HL and \$60LL, we would pay this prices for a block of energy and the block would have to accommodate our load. The pool as demonstrated in graph above is not in need of a block of energy.
- Call Options:
  - Pros-Secures Firm Capacity to be called upon if needed. Cheaper than regular energy
  - Cons-Current pricing for Call options are very high. Strike pricing is even higher. Very expensive insurance for this time period
  - If purchased \$60.00 Capacity Charge with a \$125.00 Strike Price @ 25MW this is almost \$1.2M
- Short-Term Purchases:
  - Pros-Allows for better pricing should the summer weather be better than anticipated. Allows flexibility of purchases that can be more tailored to load.
  - Cons- Bilateral liquidity problems, Prices can be higher if generation sources are scares or Load is higher than expected
  - We anticipate costs will be less than the \$165/\$70 for most of the month

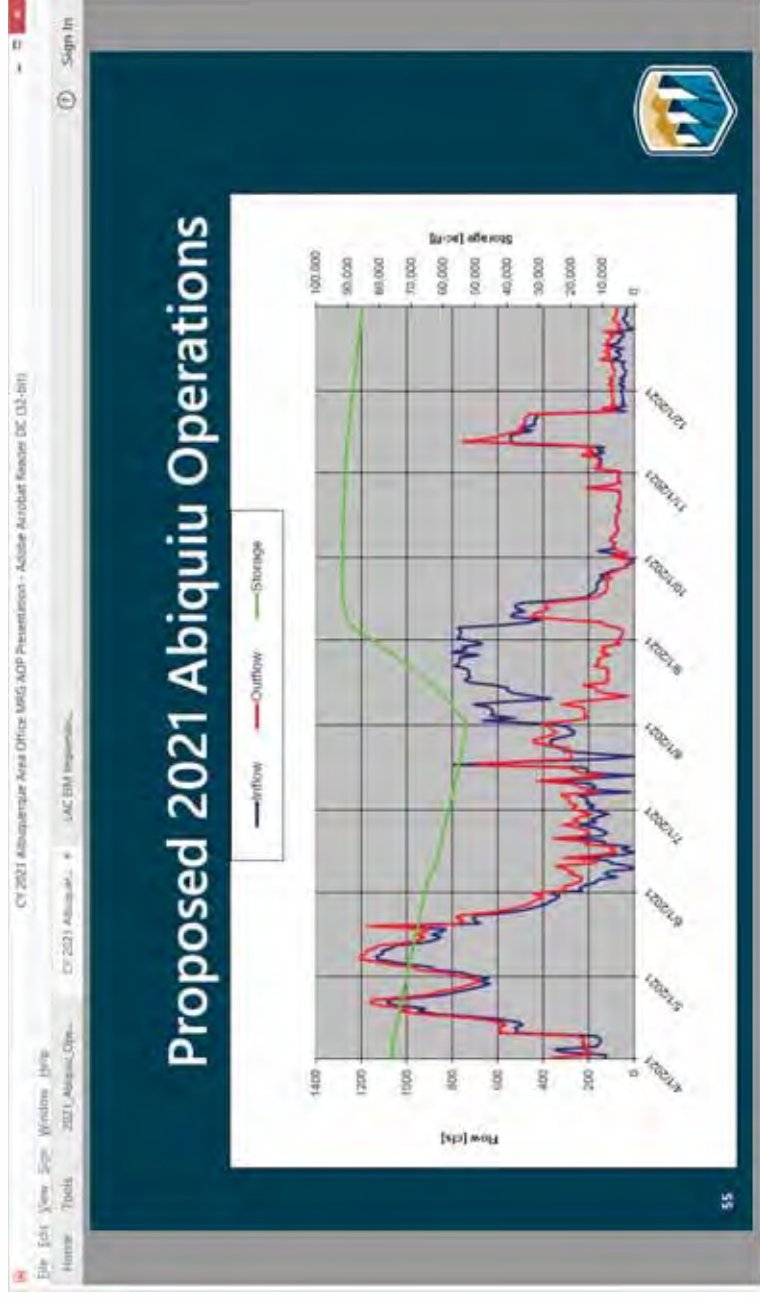
# In Conclusion

- We have chosen to pursue short-term purchases at this point.
  - We are going to utilize WAPA Replacement Power, Day ahead Purchasing, and real-time purchasing
  - The pool is in need of 170 Mwh from the open market for the month of August. At the forecasted price of \$160.00 the total is planned to be \$27,200.00
- The Pool is predicting purchasing very little energy. If the pool had to purchase at last year's peak pricing, 170 Mwh @ \$1,695.00/Mwh \$288,150.00. This is still significantly less than the cost of the call option.

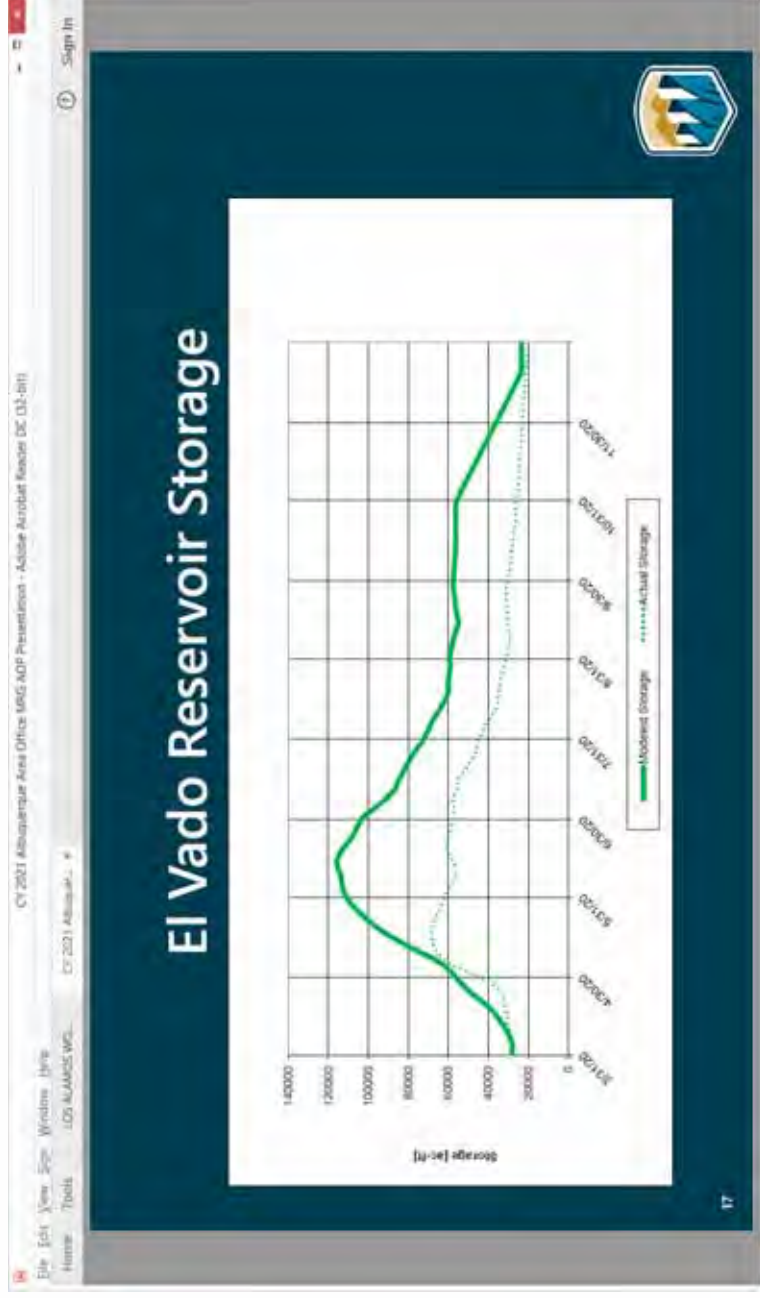
# Hydro Supplement Slides-Abiquiu 2020



# Hydro Supplement Slides- Abiquiu 2021



# Hydro Supplement Slides- El Vado 2020



# Hydro Supplement Slides-El Vado 2021





# County of Los Alamos

## Staff Report

June 16, 2021

Los Alamos, NM 87544  
www.losalamosnm.us

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<b>Agenda No.:</b>	8.C.
<b>Index (Council Goals):</b>	DPU FY2021 - 2.0 Achieve and Maintain Excellence in Financial Performance
<b>Presenters:</b>	Bob Westervelt
<b>Legislative File:</b>	14387-21

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### **Title**

Receivables Status and Post Moratorium Collections Plan

### **Recommended Action**

None - discussion item only

### **Staff Recommendation**

None - discussion item only

### **Body**

The COVID Pandemic and Governor's moratorium on disconnection of utilities services for non-payment has created unprecedented collections issues for utilities providers. As the Pandemic eases it is anticipated the moratorium will be lifted within the next few weeks or months. Throughout the pandemic DPU staff has done significant outreach to work with customers and help them keep their accounts current. However, some customers have simply not been able or willing to do so. As shown on the monthly receivable reports, many customers have accumulated significant past due balances. The BPU requested a further discussion on our plan for returning to normal collections processes and reducing accumulated past due receivables, while minimizing the immediate impact on customers that may still be struggling with the recovery.

### **Alternatives**

N/A - discussion item only.

### **Fiscal and Staff Impact**

As shown, past due receivables on active accounts have increased from "pre-COVID" level of 26 accounts totaling \$33.9k; the current status is 144 accounts totaling \$121.6k

### **Attachments**

A - Collections Status and Post-COVID Recovery Plan

# DEPARTMENT OF PUBLIC UTILITIES

COLLECTION - ACTIVE UTILITY ACCOUNTS

## OUTLINE

1. Current Aging status of accounts over 90 days
2. Pre COVID-19 Collection Process
3. COVID-19 Moratorium
4. Utilities Assistance Funding
5. CARES Funding
6. Other Assistance Available
7. Post COVID-19 Collection Process

# OVER 90 DAYS ACTIVE ACCOUNTS

## Aging Report totals:

April 1, 2020 – Start of COVID-19  
shutoff moratorium

\$33,921.55 - 26 Accounts

June 1, 2021 – Current

\$121,640.76 – 144 Accounts

# PRE COVID-19 COLLECTION PROCESS

## From Billing Date

- 1) Bill Due – 25 days
- 2) Interest – 28 Days
- 3) Letter – 40 Days
- 4) Phone Call – 47 Days
- 5) Door Tag – 51 Days
- 6) Final Phone Call – 54 Days

Payment arrangements – must pay current bill plus additional amount to bring account current within 3 months. If payments were made as agreed, shut off suspended.

# MORATORIUM DUE TO COVID-19

March 11, 2020 – First Case of COVID-19 confirmed in New Mexico

March 17, 2020 – Staffing reduced to mitigate the spread of COVID-19 and ordered to work from home, if possible

March 18, 2020 – NM Public Regulation Commission ordered temporary rule prohibiting disconnection of utilities during the time period the Governor’s executive orders 2020-004 thru 2020-0010 are in place

Phone calls and reminder letters were sent to customers throughout the moratorium as staffing has been available.

# UTILITIES ASSISTANCE PROGRAM (UAP)

UAP assistance since March 2020:

\*Total One Time Assistance: Provided -  
\$6,300.00, 18 accounts

\*Total 6 Month Assistance: Provided -  
\$7,191.44, 35 accounts

\*Total Year-Round Assistance: Provided -  
\$10,210.39, 16 accounts

\*Current Balance Available in UAP Fund:  
\$33,299.90

\*Total UAP Donations Collected:

FY2020 - \$18,110.32

FY2021 - \$22,902.57

April 24, 2020 – Utility Assistance  
donation button made available through  
our online credit card vendor,  
Paymentus

# CARES ACT FUNDING

(CORONA AID, RELIEF, AND ECONOMIC SECURITY FUND)

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December 2020 – CARES Funding  
250 calls or emails were sent to  
accounts with balances over 90 days  
17 Applications Received  
16 applications approved in the  
amount of \$11,201.32

# OTHER ASSISTANCE AVAILABLE

\*LIHEAP (Low Income Home Energy Assistance)

\*Self Help

\*Salvation Army

\*LA Cares

\*Christian Concern Committee

# PLANNED POST COVID-19 COLLECTION PROCESS

(standard process)From Billing Date

- 1) Bill Due – 25 days
- 2) Interest – 28 Days
- 3) Letter – 40 Days
- 4) Phone Call – 47 Days
- 5) Door Tag – 51 Days
- 6) Final Phone Call – 54 Days

For Accounts unpaid through moratorium period:

Payment arrangements – extension to 6-12 months to pay current bill plus additional amount to get account current. If payments are made as agreed, account will not be subject to shut off.



# County of Los Alamos

## Staff Report

June 16, 2021

Los Alamos, NM 87544  
www.losalamosnm.us

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<b>Agenda No.:</b>	8.D.
<b>Index (Council Goals):</b>	DPU FY2021 - 5.0 Achieve Environmental Sustainability
<b>Presenters:</b>	James Alarid
<b>Legislative File:</b>	14283-21

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### Title

Quarterly Conservation Program Update

### Recommended Action

None

### Body

Recent and upcoming events:

June 1-4

A water and energy themed conservation camp as part of LAPS extended school year. Sixteen (16) students participated in hands-on conservation activities with wind and solar energy, and explored our area through hiking.

June 2

A talk by David Petroy about the benefits of heat pumps in our area.

June 28-July 2

Will provide some conservation themed activities for the 4th-6th grade PEEC summer camp.

July 6-11

ScienceFest: We will contribute materials for a hands-on wind turbine activity to the "Discovery Boxes" being distributed by the ScienceFest committee.

July 10

Helping organize the Electric Vehicle Show as part of ScienceFest.

July 14:

Providing water conservation activities for PEEC's Summer Family Evenings and distributing water conservation kits.

### Fiscal and Staff Impact

None

### Attachments

None



# County of Los Alamos

## Staff Report

June 16, 2021

Los Alamos, NM 87544  
www.losalamosnm.us

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**Agenda No.:** 8.E.  
**Index (Council Goals):** DPU FY2020 - N/A  
**Presenters:** Philo Shelton  
**Legislative File:** 14269-21

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### **Title**

Department of Public Utilities Quarterly Report - FY21/Q3

### **Recommended Action**

None

### **Staff Recommendation**

None

### **Body**

The Board requested that the quarterly report be presented each quarter that shows the status of the utility and provides project updates.

### **Alternatives**


Information only, no alternatives presented.

### **Fiscal and Staff Impact**

No Staff or Fiscal impact.

### **Attachments**

A - Quarterly Report FY21/Q3



# QUARTERLY PERFORMANCE REPORT: Qtr 3-FY 2021

**LOS ALAMOS**  
Department of Public Utilities  
Electric, Gas, Water, and Wastewater Services

**FISCAL YEAR 2021:**  
Jul 01, 2020 - Jun 30, 2021

**QUARTER 3:**  
Jan 01 - Mar 31, 2021  
(Issued June 2021)

**Administrative offices :**  
1000 Central Avenue, Suite 130  
Los Alamos, NM 87544

T. 505 662 6333  
CustomerCare@lacnm.us  
<https://ladpu.com/utilities>



WE LOVE OUR CUSTOMERS. ABOVE: A THANK YOU NOTE FROM CHILDREN ON BIG ROCK LOOP WAS DELIVERED TO DPU'S WATER CREWS WHO RESPONDED TO AND REPAIRED A WATER LINE BREAK ON MAY 12, 2021.

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## PHILO SHELTON UTILITIES MANAGER



### Overlook Booster Station Project

The above photo shows the excavation and installation of vertical turbine pumps which will be located beneath the new Overlook booster station. When completed, the booster station will provide effluent irrigation to all the Overlook fields.

# A WORD FROM THE UTILITIES MANAGER

---

Through this pandemic, the Department of Public Utilities (DPU) continues to maintain essential utility services. This quarter, vaccinations were offered to all DPU staff. I am pleased to report that we reached the so-called herd immunity among our essential staff this quarter and we have not had any COVID-19 leave requests after receiving vaccinations. While the Governor's Emergency Order remains in place, our staffing issues due to required COVID-19 quarantines have abated and have allowed for regular operations. Finally, since out of state travel restrictions were lifted, this has allowed for DPU's out of state contractor to install the Advance Metering Infrastructure (AMI) equipment.

This quarter is when next year's budget for FY 2022 is prepared. Activities include meeting with our asset management teams, other partners such as Los Alamos National Laboratory, and coordinating with Public Works on road construction projects as part of our budget development. This year, the Board of Public Utilities were presented the water line GIS data and shown how capital renewal and replacement funds are being dedicated to problem areas within our community. The five percent profit transfer from gas and electric utility funds are in the second year of a three-year ordinance that allows the revenue transferred to the General Fund to be returned to DPU to be reinvested for infrastructure. These funds are necessary to follow road construction projects to

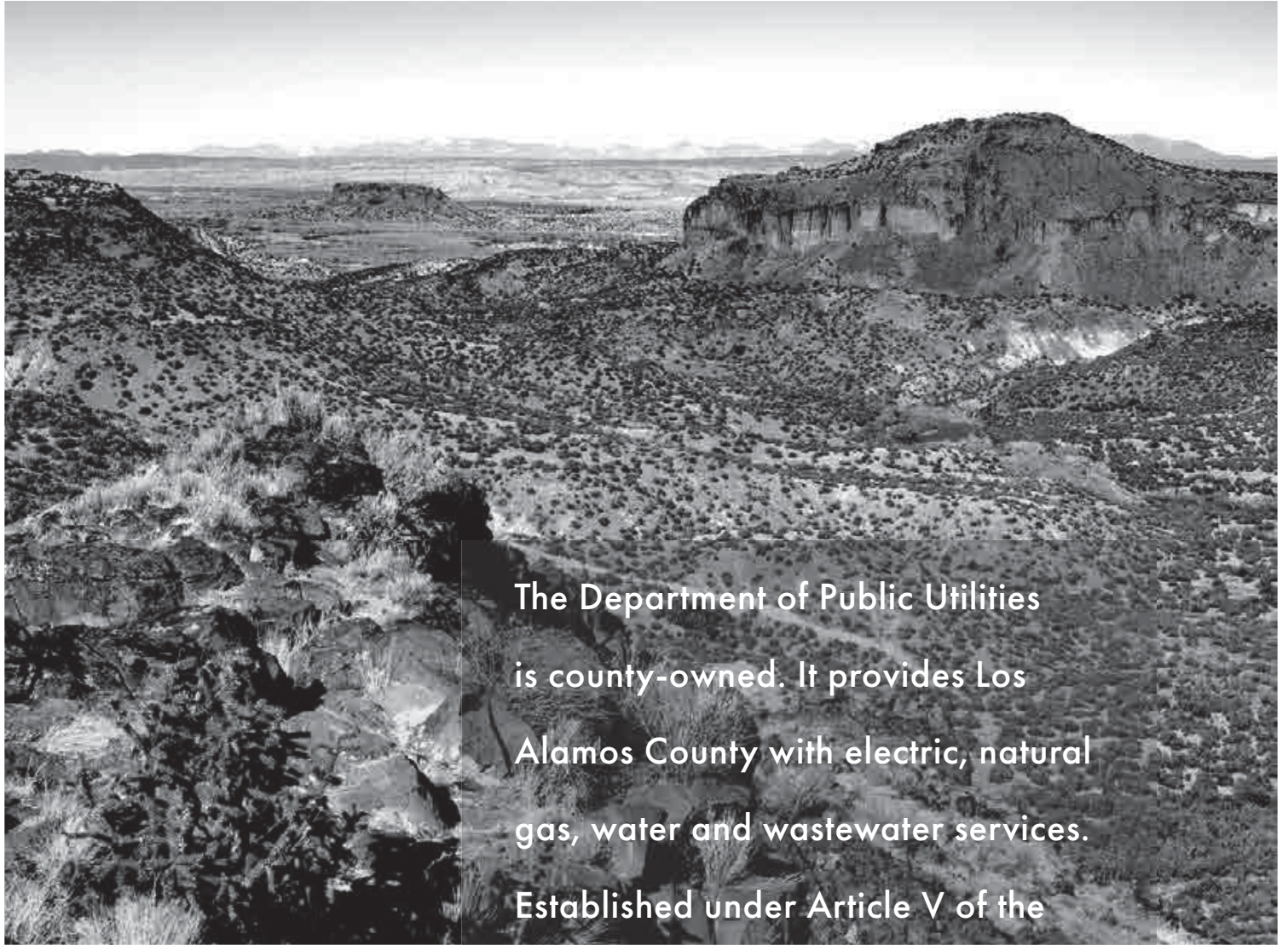
repair and replace aging infrastructure. Furthermore, this coordination saves costs on traffic control, mobilization, and reduces community disruptions with a single construction project while increasing reliability of the utility services provided. Finally, DPU is pursuing financing and refinancing of projects while one percent loans are being offered by the New Mexico Finance Authority for water and sewer projects.

While Los Alamos County had no disruptions in power, water, and gas like Texas, we were impacted. Since we share regional gas supplies, the market price for natural gas increased greatly. DPU's gas purchases in February to meet the community's demand was well over budget. According to the rate ordinance in place, starting April 1st DPU's purchases are being recovered by raising the cost of gas to our customers to \$1.22 per therm until these expenditures are repaid. For comparison, in January DPU's customers paid between \$0.47 and \$0.48 per therm. Since these charges will be spread out over the spring and summer months when usage is generally lower, it should lessen the impact to our customers. Preliminary estimates indicate that this elevated charge per therm may be in effect for four to six months.

Last quarter BPU updated the environmental sustainability goals for FY 2022. One of the updated goals was to increase local solar peak production

to 6 MW by 2040. To implement this goal, DPU's Rule E-5 required some updates to make allowances for this increase in local electric generation and application fees were increased by \$100 to \$360/application to cover average cost to upsize transformers to allow for this expansion. At the current rate of local solar installations, DPU has projected we can reasonably achieve this goal before 2040. Next, DPU completed the Power Purchase Agreement (PPA) with Uniper Global Commodities that will provide Los Alamos County with 15 megawatts of firm energy supply over a 15-year period. The agreement guarantees an energy supply primarily sourced from new wind and solar generation facilities now under development in New Mexico. It also secures a long-term, firm power solution for Los Alamos at pricing lower than the County's current blended cost of power. Deliveries under the new agreement are scheduled to begin in January 2022. This agreement is replacing existing coal-sourced power with supply from renewable energy facilities and could reduce the County's carbon emissions by as much as 70,000 metric tons each year. It is an important step forward that brings the DPU closer to its goal of becoming a carbon-neutral electric provider by 2040.

In conclusion, next quarter DPU looks forward to initiating many stalled projects due to COVID-19 restrictions and adopting the FY 2022 budget.



The Department of Public Utilities is county-owned. It provides Los Alamos County with electric, natural gas, water and wastewater services.

Established under Article V of the 1968 Charter for the Incorporated County of Los Alamos, the DPU falls under the jurisdiction of the Board of Public Utilities.

# ABOUT THE DEPARTMENT OF PUBLIC UTILITIES

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## Mission

Provide safe and reliable utility services in an economically and environmentally sustainable fashion.

## Vision

Be a high-performing utility matched to our community, contributing to its future with diversified and innovative utility solutions.

## We Value

- Customers by being service-oriented and fiscally responsible;
- Employees and partnerships by being a safe, ethical and professional organization that encourages continuous learning;
- Environment and natural resources through innovative solutions; and
- Community by being communicative, organized and transparent.

Revised and adopted: 2020  
for fiscal year 2022

## Goals/Objectives

### 1.0 Provide safe & reliable utility services

- Efficiently deliver safe and reliable electric, gas, water & wastewater services;
- Efficiently implement and maintain secure and reliable business systems;
- Ensure utility control and mapping systems and processes are accurate, safe and secure;
- Develop a culture of continuous improvement.

### 2.0 Achieve & maintain excellence in financial performance

- Utilize revenues to provide a high-level of service and keep rates competitive with similar utility providers;
- Conduct cost of service studies for each utility at least every five years;
- Meet financial plan targets by 2025, and water by 2028;
- Achieve work plans while operating within budget.

### 3.0 Be a customer service-oriented organization that is communicative, efficient & transparent

- Ensure customer service processes and systems are efficient, secure and user-friendly;
- Engage and inform stakeholders on utilities' operations affecting the community.
- Conduct a community survey of the conservation (environmental) objectives.

## Goals/Objectives

### 4.0 Sustain a capable satisfied, engaged, ethical & safe workforce focused on customer service

- Invest in employee training and professional development;
- Promote a culture of safe, ethical and customer-focused behavior;
- Engage employees, improve employee satisfaction and compensate fairly.

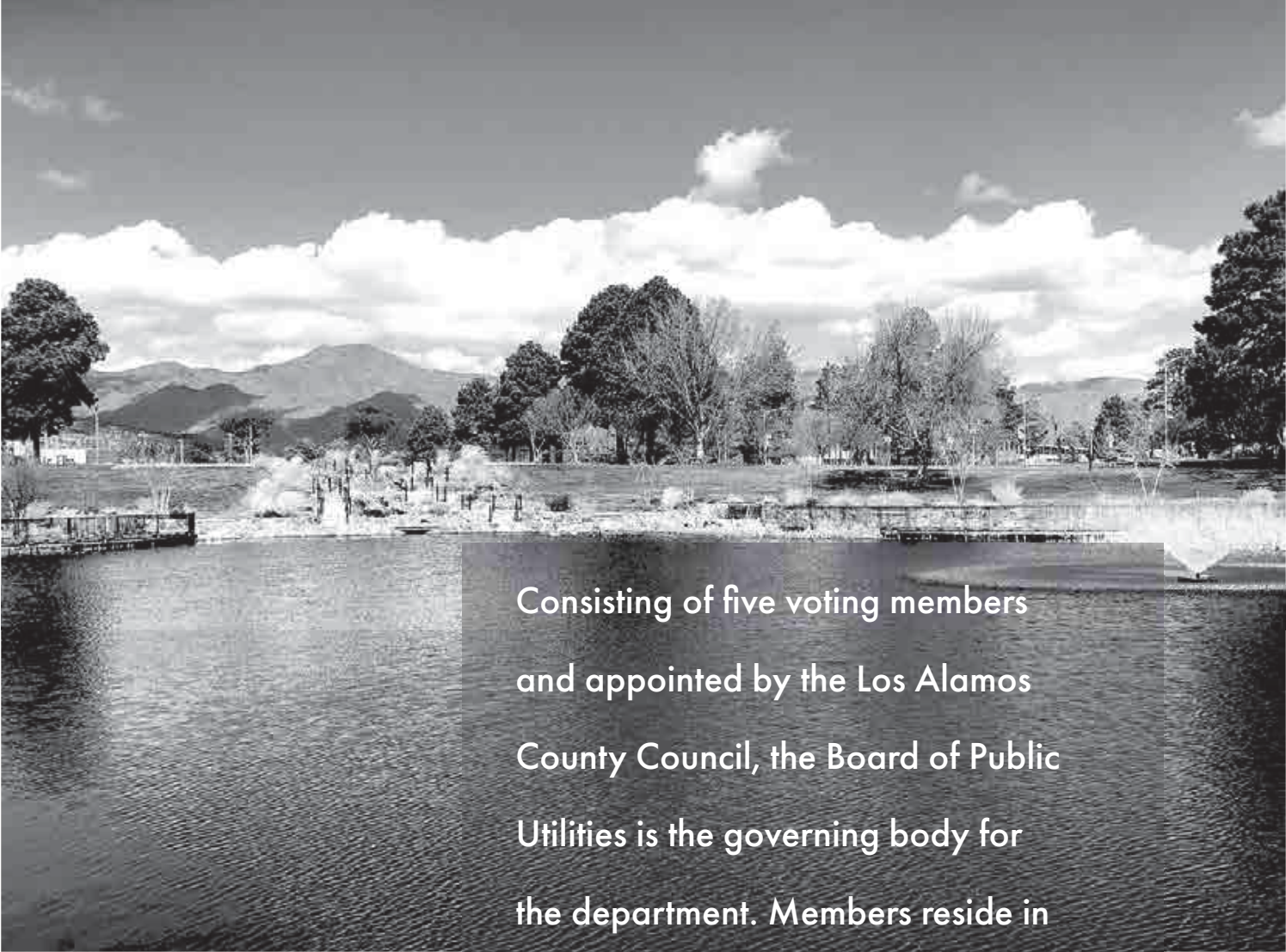
### 5.0 Achieve environmental sustainability

- Be a carbon neutral electric provider by 2040;
- Promote electric efficiency through targeted electrical conservation programs. Increase local solar peak production to 6 MW by 2040 (this is 30% of local solar produced based on the county peak load of 18 MW);
- Reduce potable water use by 12% per capita per day by 2030 using a 2020 calendar year-end baseline;
- Reduce natural gas use by 5% per capita per heating degree day by using a 2020 calendar year-end baseline and support elimination of natural gas usage by 2070;
- Provide class 1A effluent water in Los Alamos County.

### 6.0 Develop and strengthen partnerships with stakeholders

- Communicate with stakeholders to strengthen existing partnerships and identify new potentially beneficial partnering opportunities.

Revised and adopted: 2020  
for fiscal year 2022



Consisting of five voting members and appointed by the Los Alamos County Council, the Board of Public Utilities is the governing body for the department. Members reside in

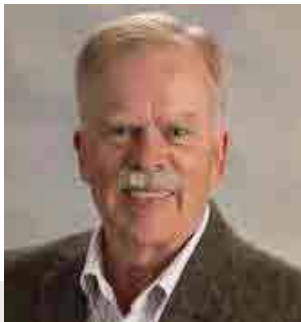
Los Alamos and are customers of the department. Calendars, policies and procedures, agendas, minutes, and videos of meetings are available at <https://ladpu.com/BPU>.

# BOARD OF PUBLIC UTILITIES

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.1/

**CORNELL WRIGHT**  
Chair



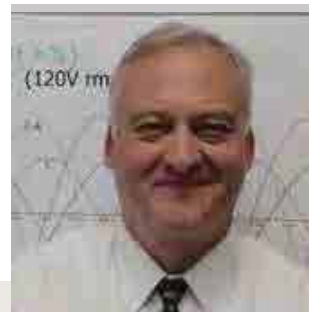
.2/

**STEPHEN MCLIN**  
Vice Chair



.3/

**ERIC STROMBERG**  
Member



.4/

**STEVE TOBIN**  
Member



.5/

**CARRIE WALKER**  
Member

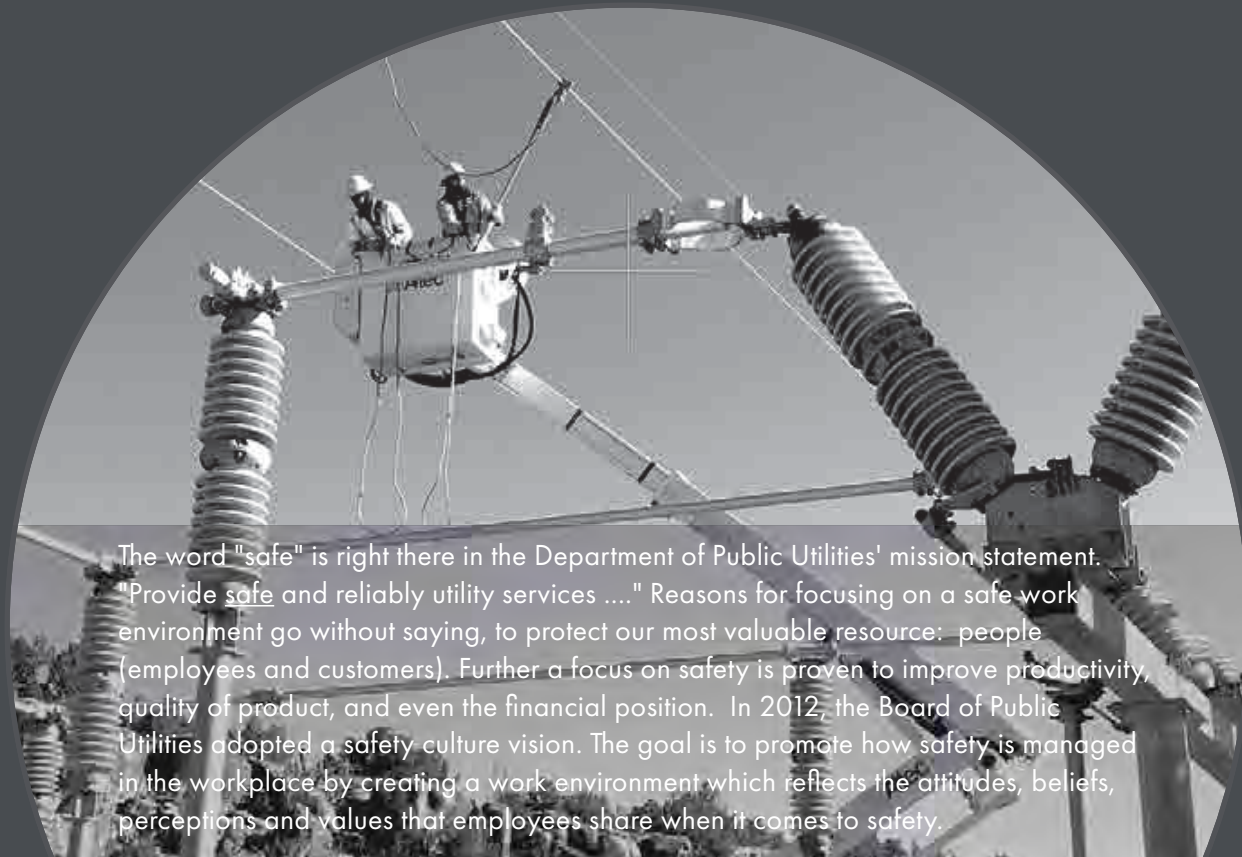


## Meetings

### BOARD OF PUBLIC UTILITIES

The board meets on the third Wednesday of each month at 5:30 p.m. in Council Chambers, 1000 Central, Los Alamos, NM. During the COVID pandemic, however, meetings are held via the ZOOM platform. Watch the meetings streamed online at: [ladpu.com/BPUliveproceedings](http://ladpu.com/BPUliveproceedings)

# SAFETY



The word "safe" is right there in the Department of Public Utilities' mission statement. "Provide safe and reliably utility services ...." Reasons for focusing on a safe work environment go without saying, to protect our most valuable resource: people (employees and customers). Further a focus on safety is proven to improve productivity, quality of product, and even the financial position. In 2012, the Board of Public Utilities adopted a safety culture vision. The goal is to promote how safety is managed in the workplace by creating a work environment which reflects the attitudes, beliefs, perceptions and values that employees share when it comes to safety.

## Safety Culture Vision

DPU seeks to create a safety culture where employees practice safety every hour on the job, while no one is watching, because employees want to and not because employees have to. To create this safety culture, DPU employees believe in:

- Putting safety first
- Leading by example
- Establishing and enforcing a high standard of work performance
- Briefing or tailgating before every job
- Making work and safety suggestions.

Adopted 2012

## Safety Committee

DPU employees representing each utility division comprise the 13-person Safety Committee. They hold a committee meeting quarterly to review and share best practices. They also analyze accidents, incidents and near misses and discuss and implement appropriate prevention measures.

Each member of the Safety Committee is responsible for discussing the accident, incident or near miss with the rest of the staff at the next available weekly group meeting and share agreed upon prevention measures.

## Safety Employee

The Safety Employee of the Quarter program was developed by the safety committee with an intent to reward those who most clearly and effectively demonstrate DPU's safety culture vision.

Each quarter all DPU employees nominate fellow employees who exemplify the safety culture vision. A review of the nominee applications is conducted and voted on by the safety committee members and forwarded to DPU's senior management team for concurrence. The selected employee is recognized and earns an additional day of administrative leave.



# SAFETY EMPLOYEE OF THE QUARTER

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## qtr3/fy21

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**DAVID RODRIGUEZ**

Senior Pipe Fitter  
Gas, Water & Sewer Division



## qtr2/fy21

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**JULIE WILLIAMS-HILL**

Public Relations Manager  
Administration



## qtr1/fy21

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**TIMOTEO MARTINEZ**

Electric Linemen  
Electric Distribution Division



## qtr4/fy20

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**WAYNE VALDEZ**

Electric Linemen  
Electric Distribution Division



## qtr3/ y20

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**HEATHER GARCIA**

Business Operations Manager  
Finance and Administration



## qtr2/fy20

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**JAMES MARK LUJAN**

Engineering Associate  
Engineering Division



**SAFETY EMPLOYEE OF QUARTER 3, FISCAL YEAR 2021:** David Rodriguez, Senior Pipe Fitter for the Gas, Water & Sewer Division is the safety employee of the quarter. This is the second time that David's peers have voted for him as safety employee due to his dedication and commitment to safety. Most recently, David observed a serious public safety hazard near the Canyon Walk Apartments. Heavy steel traffic plates had been placed over a four-foot deep bell hole that contained a 6-inch gas main and a 12-inch water main. Over time, the plates had shifted due to the curvature of the road, heavy traffic from large construction equipment and erosion along the sides of the trench. The plates were no longer secure over the hole, and had David not barricaded and secured the area, a moving vehicle potentially could have driven into an open hole, injuring the driver, damaging the car and the gas and water lines as well. David notified the contractor who then rendered the area safe.

**Electric Linemen**

During quarter 3 electric linemen finished up work on the NM502 road reconstruction and utility upgrade project.

# ELECTRIC DISTRIBUTION DIVISION UPDATE

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During quarter 3, Department of Public Utilities' electric crews completed all work on the New Mexico Department of Transportation project to rehabilitate NM 502 and construct a round-about. This included relocating existing and installing new electric infrastructure. These new facilities will improve redundancy and service to the downtown area.

Electric engineering staff worked with customers at the Gold Street Apartments to install electric master meters on all buildings. Staff also coordinated with the apartment owner to add a 25-kilowatt photovoltaic system at the complex, contributing to the Board of Public Utilities' goal to increase local distributed generation to six megawatts by 2040.

In regard to the Advanced Metering Infrastructure project, department crews installed all six antennas and placed them into service. While the installation of residential electric smart meters began this quarter by the subcontractor, the delivery of commercial electric smart meters has been delayed. Production of the commercial meters was stalled due to COVID-19 and supply chain issues. Department staff was advised to anticipate the arrival in August 2021. Testing of existing meters will coincide with the installation of the new commercial meters which will be

accomplished by in-house crews.

The El Mirador subdivision in White Rock is in full construction mode with housing units being erected on Confianza Street. Electric line crews will continue to install conductors, transformers, and meters to service the new subdivision. Development of upper Confianza phase two is underway.

Tree trimming started up this quarter by the department's contractor who will focus on specific areas throughout the county. To prepare for a potentially dry and windy summer season, the department has prioritized trees in the canyons and the ski hill.

The Los Alamos Substation Switchgear project has been delayed due to the Los Alamos National Laboratory site construction issues. The anticipated date for completion will now be later in the 2021 calendar year. When completed, the townsite will have a second substation and eight new power lines with which to distribute power. The project is important to ensure reliable power to Los Alamos County.

Engineering staff is in the process of designing capital improvement projects identified in the latest condition assessment and scheduled for fiscal year 2022. Engineering is getting a jump

start and working with the procurement department now to order these materials in advance to prevent material shortages since the supply chain is disrupted due to COVID-19. Products that typically arrive in four weeks are now taking 20 weeks. Additionally, the increased number of capital projects within the county will put a strain on supplies needed for maintenance and repair.

Electric engineering continued to work on designs and specifications for several county projects during quarter 3:

- The replacement White Rock wastewater plant. 100% design complete - Begins in Q3
- The White Rock effluent water booster station- Begins in Q3
- The Canyon Rim Trail underpass project- Begins in Q3
- The Hills Apts- In design
- Arkansas Place Apts –In Construction
- Canyon Walk Apts– In construction
- Canyon Walk Apts off site development – In construction
- The Bluffs Apts- In design
- El Vado hydroelectric transformer replacement - In design
- Century Bank – In construction
- Pet Pangea- In design
- Aquatic Center Kiddie Pool- In construction

## System Average Interruption Duration Index

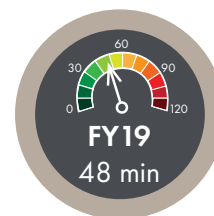
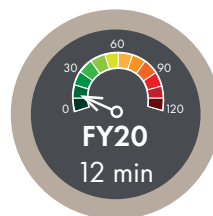
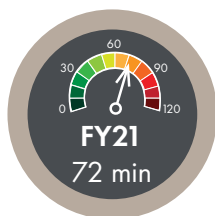
As a reliability indicator, DPU measures its System Average Interruption Duration Index (SAIDI). This is a formula to determine the annual average time that a DPU customer could expect to be without power. According to the Energy Information Administration (EIA), the mean SAIDI in 2019 was 132 minutes without major events and 267 minutes with major events for 809 utilities across the nation (excluding U.S. territories). This information is available on the EIA website - <https://www.eia.gov/electricity/data/eia861/>

DPU set a goal in 2008 to reduce its SAIDI to below 60 minutes (including major events). At the end of quarter 3, FY2021 DPU's SAIDI increased to 72 minutes which includes major events. This is slightly above the DPU 60-minute goal and well below the 2019 National mean SAIDI of 267 minutes.

## QUARTER THREE

### QUARTER THREE DPU RESULTS

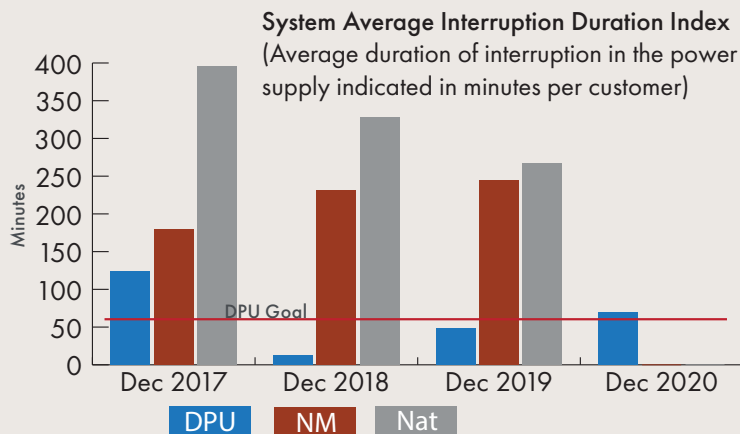
As of March 31, DPU's rolling 12-month SAIDI results for quarter 3 were 72 minutes in FY 2021; 12 minutes in FY 2020; and 48 minutes in FY 2019.



### CALENDAR YEAR RESULTS /Comparisons

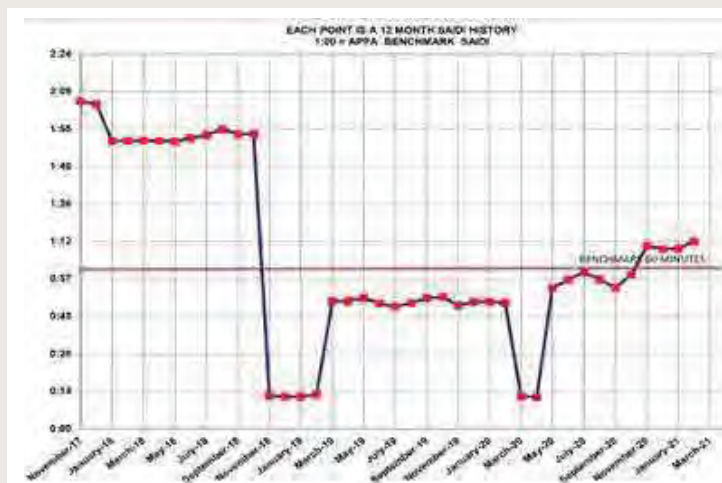
Reliability reports issued by the Energy Information Administration\* demonstrate that DPU's SAIDI is lower than the average of combined New Mexico utilities (includes New Mexico cooperatives, investor- and municipal-owned utilities) and the average of combined U.S. utilities. Note that the EIA will release Dec. 2020 SAIDI data in Oct. 2021.

\*EIA website - <https://www.eia.gov/electricity/data/eia861/>



### DPU SAIDI /2017 - Present

DPU records its SAIDI each month (the rolling 12 month average), and includes major events. In November 2017 DPU experienced a major event when the incoming transmission line from Los Alamos National Laboratory was lost and the townsite lost power, negatively impacting DPU's SAIDI.



## Distributed Generation

Unlike conventional power generating stations that are centralized and require transmission lines, distributed generation resources are decentralized and close to the load, such as rooftop solar systems. In addition to the utility-scale solar array on the landfill, Los Alamos has several commercial and residential customers who have opted to install small solar or photovoltaic distributed generation systems.

### Total Distributed Generation

As of the end of quarter 3, distributed generation resources total 1,515 kilowatts connected to the distribution grid.

- Residential systems total 1,133 kilowatts, and
- Commercial systems total 382 kilowatts.

### New Distributed Generation

547 kilowatts of distributed generation were added to DPU's electric distribution grid during quarter 3.

### Pending Distributed Generation

Currently customers are in the process of adding another 382 kilowatts of distributed generation to DPU's electric grid.

## CARBON-NEUTRAL ELECTRICAL ENERGY PROVIDER

On January 20, 2016, the Board of Public Utilities adopted the following: The Department of Public Utilities will be a carbon-neutral electrical energy provider when the electricity distributed to Los Alamos County consumers is generated or purchased from sources that in their normal operation cause no net release of carbon dioxide to the atmosphere.

1. "Los Alamos County customers" means those customers scheduled in the Los Alamos County Code of Ordinances Section 40-121; this does not include DOE/LANL.
2. "No net release of carbon dioxide" means that purchases or generation of carbon-based electrical energy, necessary when carbon-free supplies are not practically available to supply Los Alamos County consumers, will be fully offset from previous sales of surplus carbon-free electricity to other entities.

**2.1 MW**  
Total DG

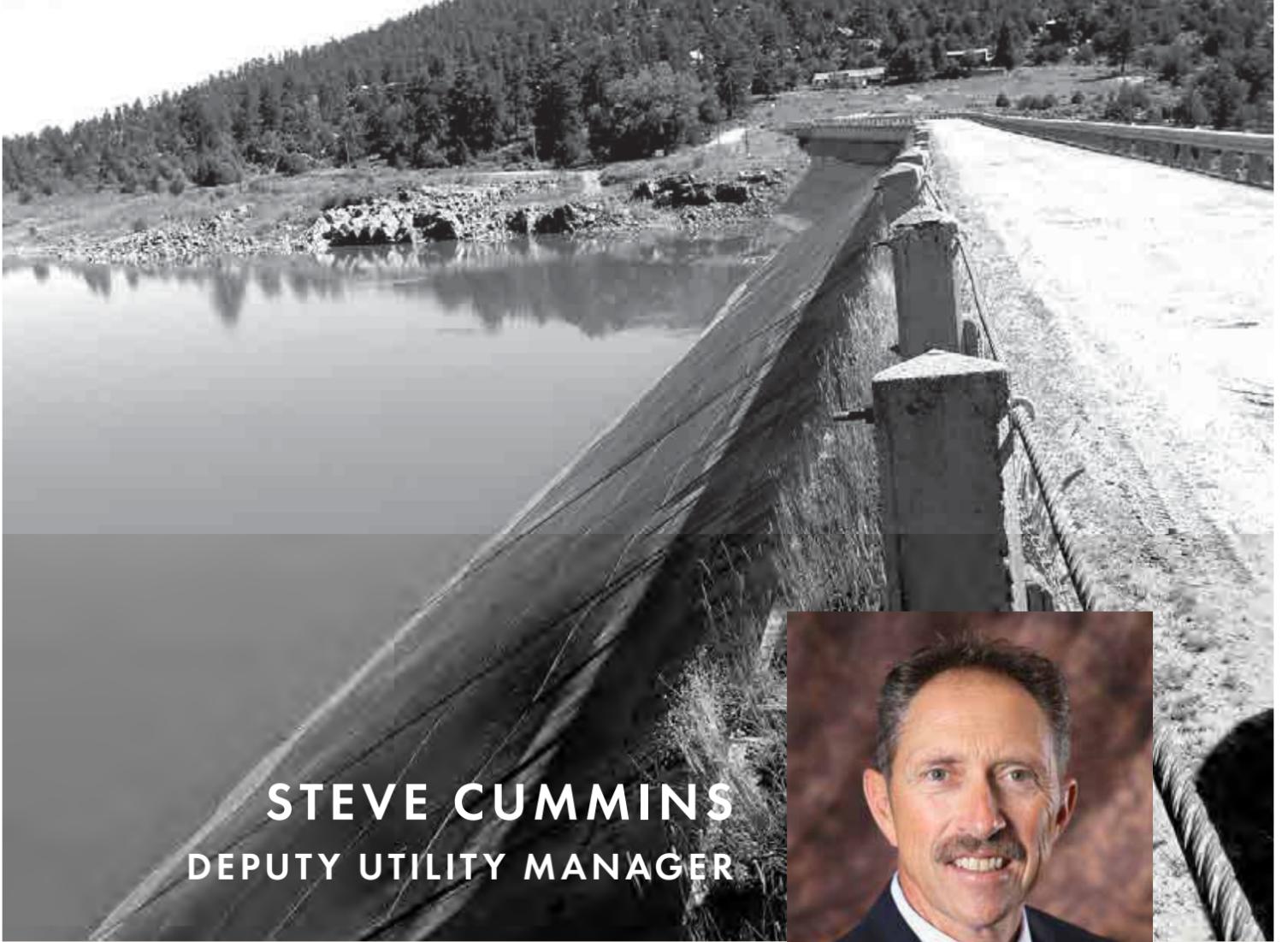
**1.5 MW**  
Metered  
DG

**1.1 MW**  
Residential

**382 kW**  
Commercial

**623 kW**  
Pending DG





**STEVE CUMMINS**  
**DEPUTY UTILITY MANAGER**



**El Vado Dam**

Los Alamos County's hydroelectric facility is on the other side of the dam.

# ELECTRIC PRODUCTION DIVISION UPDATE

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## San Juan Generating Station

The City of Farmington is pursuing a carbon sequestration project along with Enchant Energy that would keep the San Juan Generating Station (SJGS) open beyond the June 30, 2022 expiration date of the Project Participation Agreement. DPU notified all parties that Los Alamos County will exit the facility as planned in 2022 when the Agreement expires. At this time, no evidence has been presented to the satisfaction of the non-extenders to demonstrate: 1) the viability of the project, 2) that Enchant Energy is able to assume liabilities, and 3) Enchant Energy and City of Farmington are able to provide assurances of a clean break to those exiting the facility. The non-extenders expressed concern.

As the last year of operation approaches under the current Project Participation Agreement, the SJGS owners have agreed to move forward on a decommissioning study for the facility in parallel with negotiating a transfer of ownership to the City of Farmington and Enchant Energy.

## Hydroelectric Facilities

As spring run-off enters the reservoirs, flow releases have accelerated and increased electric generation at the El Vado and Abiquiu hydroelectric facilities.

DPU crews are preparing to replace the El Vado transformer. Actual installation is to occur in the summer of 2022 while the facility is off-line and will coincide with

the Bureau of Reclamation's repairs to the dam face. The engineering division issued a bid to paint the interior floors at El Vado, and the outside decks, gantry cranes, jib cranes and railings for both plants. Meanwhile, the hydro staff is replacing the lighting at both plants with LED fixtures.

## One-megawatt Solar Array/Landfill

An inverter failed at the one-megawatt solar array on the Los Alamos landfill, taking 400 kilowatts off-line. Staff received a bid for repairs and a contract was approved by the Board of Public Utilities in April. We anticipate that the 400 kilowatts will be brought back online by the 4th quarter.

DPU and the county procurement office prepared a request for proposals to decommission the Battery Energy Storage System comprising the sodium sulfur and lead acid batteries. DPU was in the process of finalizing a contract with the selected offeror, when the attorney's office alerted staff that they had not complied with the real property disposal policy and obtained an appraisal. Staff appropriately terminated the process. After an appraisal is acquired, staff will advertise for proposals again.

## Energy Imbalance Market (EIM)

As of April 1st, the Public Service Company of New Mexico (PNM) began operating in the California Independent System Operator Energy Imbalance Market. Over the last three quarters DPU was preparing for PNM's

go-live date. Utilicast completed a gap assessment and recommended:

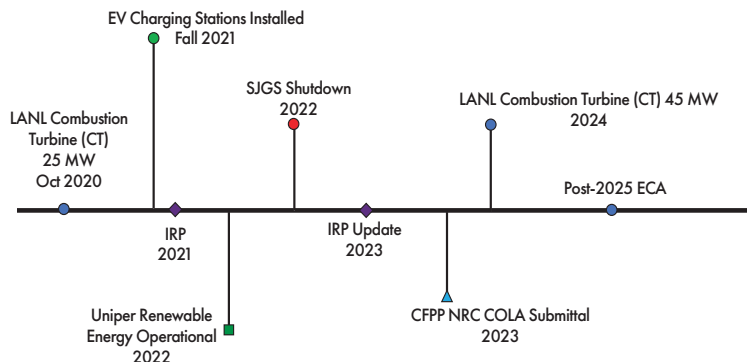
1) adding a full-time employee to the electric production division, 2) hiring a consultant to assist with the implementation of EIM procedures, and 3) purchasing the necessary software to support the requirements of load forecasting. While recommendations two and three are completed, DPU's efforts to complete recommendation one - to hire a new employee by the first week in January - were unsuccessful. After three attempts of advertising for the position, DPU was not able to hire a qualified candidate. Working with representatives from Human Resources, DPU is currently modifying the job description and will advertise again upon Board and Council approval. Until a new employee is hired, existing employees, on top of their regular duties, are staying apprised of the EIM to anticipate and respond appropriately to activity that may affect DPU's operation.

## Sandia & Kirtland Air Force Bases merchant desk services

Staff continues to support Sandia and Kirtland Air Force Bases in a post 2023 power purchase agreement to meet their combined power demands. These efforts require an updated Interagency Agreement between Department of Energy-NNSA and WAPA. Additionally, Kirtland Air Force Base is conducting a study to meet future power demands that considers resiliency and incorporates more sustainable resources such as renewable energy.

# INITIATIVES FOR FUTURE ENERGY RESOURCES

The Future Energy Resources Committee (an ad hoc citizen committee) prepared a July 2015 report to recommend future energy generation resources for Los Alamos County to meet a goal to be a carbon neutral electric provider by 2040. The Board of Public Utilities adopted most of the recommendations in January and March 2016. DPU's plan to implement the BPU adopted policies are described here.



## EV charging stations

On September 18, 2020, DPU received a signed Project Agreement from the New Mexico Environment Department (NMED) formalizing two grants for electric vehicle charging stations. The grants provide \$63,800 for the construction and operation of one direct current fast charger at the White Rock Visitor Center parking lot and \$71,800 for the construction and operation of one direct current fast charger at the Los Alamos County Municipal Building parking lot. The Electric Production division has budgeted an additional \$150,000 for the installation of electric vehicle chargers; approximately \$50,000 for grant matching on the two fast chargers, and \$100,000 for the construction and operation of additional level-two chargers subject to Board and Council approval. DPU has postponed conducting a competitive procurement process for the materials and labor to install the charging stations until later in the summer to help relieve procurements workload. The new plan is to have this project completed in the fall of 2021 prior to the winter months.

## Carbon Free Power Project

Through DPU's membership with the

Utah Associated Municipal Power Systems (UAMPS), staff has been following the development of the Carbon Free Power Project (CFPP) which is a projected 720 MW nuclear generating station to be built in Idaho using small modular reactor (SMR) technology.

On August 25, 2020, the Council approves DPU continued participation in the CFPP project up to \$1.26 million contingent upon UAMPS receiving the DOE-Multi Year cost share award. On October 16, 2020, DOE approves cost-share award of \$1.355 billion for UAMPS' Carbon Free Power Project representing approximately 23 percent of the estimated development and construction cost of the CFPP, spread over a period of nine years, concluding with the commercial operation of the CFPP. October 31, 2020 was the end of the phase allowing the option for participants to reduce project subscription or to withdraw from the project per the Power Sales Contract. As a result the project subscription decreased from 213 MW to 100.6 MW. The elimination of the DOE joint Use Modular Plant (JUMP) concept was responsible for one module or 60MW.

The JUMP concept was replaced with the DOE Multi-year cost share award. The County's reduced its share to 6.37 MW keeping us under the spending cap authorized by Board and Council. Other UAMPS participants in the project reduce for similar reasons.

Since there was a reduction in subscription the Project Management Committee voted to establish an additional contractual off-ramp in January of 2022. The primary goal over the next year is to increase the subscription in the project from utilities outside of UAMPS who have expressed interest but have not signed a power sales contract. Without the full subscription the project may no longer be viable at the \$55/MWh. The first subscribers in the project will have an opportunity to increase their subscription prior to the remaining capacity being committed to other utilities.

## Utility-Scale Renewable Projects

In January 2020, the Board and Council approved a power and renewable energy credit sales agreement with Uniper Global Commodities North America, LLC. The contract quantity is a firm 15 MWs around the clock



## FUTURE ENERGY TIMELINE

Power Purchase Agreement (PPA). It is a take-or-pay PPA for a 15-year term with no escalator. Under the agreement, renewable energy will be sourced from two power-generation facilities now under construction in New Mexico. Solar power will be supplied from a project in northwest San Juan County with wind power coming from a generation center in central New Mexico. DPU expects to begin taking power from this contract in fiscal year 2022, prior to Los Alamos exiting the San Juan Generating Station in June of 2022.

### Electric Coordination Agreement (ECA)

Staff is working with the Department of Energy-NNSA on a post 2025 ECA. This includes efforts to update the Interagency Agreement between DOE-NNSA and Western Area Power Administration (WAPA) to allow DOE-NNSA the ability to contract for Power Purchase Agreements for periods up to 40 years. This will ensure that DOE-NNSA can secure power for LANL well into the future. The first project under consideration in an eight MW solar PV array to be constructed at LANL using a power purchase agreement for an expected 25-year term.

### Advanced Metering Infrastructure (AMI)

Installation of Advanced Metering Infrastructure equipment began this quarter. In March, and commencing in White Rock, Utility Metering Solutions (UMS) attached smart points or communication modules to existing water and natural gas meters and began replacing electric meters with smart electric meters. Work has now extended into the townsite. DPU hopes to roll out the customer portal functions by July.

### Laramie River Station (LRS)

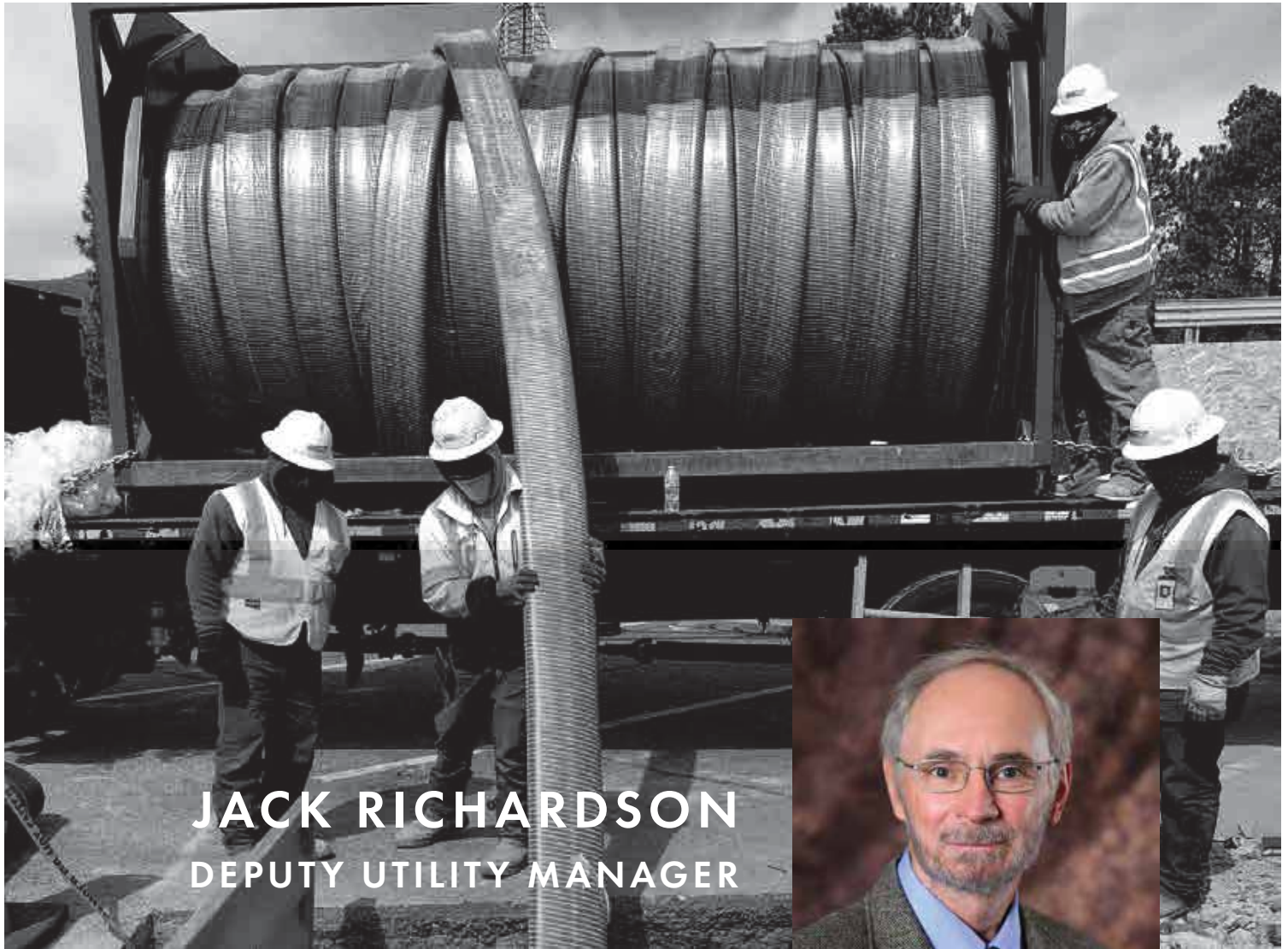
Alternatives to exit the Laramie River Station prior to the end of the life-of-the-plant power purchase agreement are being explored by staff. Since LRS is one of the county's cheapest resources, staff is looking at a potential power swap with a power marketer who is developing wind and solar resources in the region. The swap would be a firm power, unit contingent swap at no additional cost above what we currently pay. We expect the swap to include approximately 75 percent renewable energy with the remaining 25 percent coming from base load resources such as LRS. If staff can negotiate terms acceptable to the county, they will bring the contract to the Board and Council for approval.

### FER Timeline

The timeline (left) shows the strategic plan with several important dates which play a significant role in the decision making process to achieve the goal to be a carbon neutral electric energy provider by 2040 while sustaining the electric demands of the community.

It started with the development of an Integrated Resource Plan (IRP) in 2017, which provides the most economical options to achieve the goal based on the best information available at that time and the County's partnership through the Electric Coordination Agreement with DOE-NNSA.

Staff is planning on updating the 2017 IRP in 2021 to see if there are any changes in the recommended resource portfolios for achieving our 2040 carbon neutral goal. There are three future contract dates which provide an opportunity to shape our future power supply. First the expiration of the San Juan Project Participation Agreement and anticipated shut down of the San Juan Generating Station in 2022. Second, the County's expected exit from the coal-fired Laramie River Station, where the County signed a life of the plant (2042), power purchase agreement. Third, the expiration of the current Electric Coordination Agreement (ECA) between the County and DOE-NNSA LANL in 2025. Through the current agreement resources are pooled together to serve the combined load of the County and Los Alamos National Laboratory. Today LANL accounts for approximately 80% of the total electrical demand. An extension of the ECA along with the negotiated terms and conditions will have a significant impact in DPU's decision to add new or replacement generation resources to the mix to ensure we don't have an over or under supply of energy post 2025.



**JACK RICHARDSON**  
**DEPUTY UTILITY MANAGER**



**16-Inch water line insertion project on Pajarito Road.**

This project utilized a revolutionary new pipeline rehabilitation material using a thin Kevlar material encapsulated within a thin polyethylene inner and outer shell used to slip line the existing pipeline and was completed in April 2021.

# GAS, WATER & SEWER DIVISION UPDATE

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Employees in the Gas, Water and Sewer; Water Production; Wastewater Treatment; and Meter Reading divisions continued functioning while adhering to COVID-19 safety protocols. This included splitting crews into smaller units and driving in separate vehicles. The quarterly report on the condition for the water system was presented to the Board of Public Utilities at the February 24, 2021 board meeting. W

## Gas, Water, Sewer (GWS)

The GWS crew is excited now that both vactor trucks are available for use. The existing vactor truck returned from the repair shop and the new vactor truck arrived this quarter. The rental vactor truck was returned but did not travel far as the City of Espanola was experiencing problems with their vactor trucks and so they began renting the same vehicle we had been renting once we were done using it.

The new supervisory control and data acquisition (SCADA) system contract for wastewater collection and natural gas distribution was approved this quarter. The contractor has started development of HMI screens and background programming as well as acquisition of the necessary software licenses. Completion of field work (SCADA prep) continued to be delayed into the next quarter because of the COVID, weather and huge boulders.

Progress was made with the approval of a contract for field prep construction at the Fairway lift station. Gas system SCADA prep work design in Engineering continues and construction bidding is scheduled in the near future.

Water pipeline breaks were minimal due to relatively mild and stable weather. There was a single small sewer overflow event (no damage claim) which was handled well for the homeowner. The gas system cruised through the deep winter with no problems.

A GWS crew dedicated to the White Rock cathodic protection project continued replacing anodes to protect the steel pipeline from corroding. The crew, at the suggestion of a supervisor, brought back a previous method of temporary road patching that holds up well until the Public Works on call contractor can affect the permanent repair. DPU has expanded the scope of work for their new on call contract to include road patching and after receiving bids next quarter should have multiple firms to select from for road patching within a DPU controlled on-call contract.

Work continued on the capital improvement planning project for adding a pressure regulating valve (PRV) station in Barranca Mesa,

to prepare to paint the Barranca Mesa water tank No. 2. The sewer crew conducts daily visits to two small volume sewer lift stations due to faulty control systems. Two other sewer lift stations with faulty control systems are running on temporary, emergency control systems purchased for circumstances like this. A third sewer lift station with a faulty control system component was repaired in-house with assistance/training from an outside consultant JCH. The plan is to have all of these sewer lift stations up and running with new control systems, and SCADA, within the next six months.

The GWS crew welcomed Robert Lucero into their ranks full time. Robert transferred into GWS from the meter reading crew this quarter.

## Water Production

The waterline repair project along Pajarito Road on DOE land near the Diamond Drive intersection began construction this quarter. This project is utilizing a revolutionary new pipeline rehabilitation material using a thin Kevlar material encapsulated within a thin polyethylene inner and outer shell used to slip line the existing pipeline. The project was delayed due to the cold snap in Texas that caused the ship carrying the material to relocate to California for off-loading. Fortunately, the mild cooler weather remained

during this delay and so water demand did not dramatically increase while this pipeline was out of service. This project will be 100 percent complete and buttoned up next quarter.

Pajarito Well No. 4 continues to function only for preliminary testing. The one remaining item is a reworking of the cooling system for the main bearings to the angle drive between the engine and the pump shaft which is scheduled for completion in the next quarter.

The project to design the new Otowi Well No. 2 pump equipment and housing was completed with bidding and award next quarter. Bids have been received for the Tsankawi chlorination building and partial New Mexico State Road 4 pipeline replacement project. We expect the projects to be awarded next quarter.

The design of the Overlook Park booster station project for the non-potable water system was completed and awarded. Construction begins next quarter. Project design for the non-potable water system Bayo booster station tank No. 2 project is nearing completion with bidding and award scheduled for next quarter.

#### Wastewater Treatment

Bohannen Huston (BHI) and DPU engineering team have completed

the 95 percent design review for the replacement White Rock wastewater treatment plan. The team is moving toward 100 percent design completion early next quarter. The formal public hearing and field site visit with New Mexico Environment Department

Rock wastewater treatment plant comes on line. This new equipment is expected to cut the time needed to pick up and screen a windrow for placing into a curing pile as final compost by half (from 16 to 8 hours) and is also expected to remove any miscellaneous

metal and plastics received in the incoming waste streams for horse manure and green waste used in the composting process.

Evelyn Maestas received a promotion to Apprentice III after passing her level 3 examination for State certification.



16-INCH WATER LINE INSERTION PROJECT ON PAJARITO ROAD.

#### Meter Reading

The Advanced Metering Infrastructure project finally started in earnest this quarter. Installations of smart points to residential water meters began in White Rock in March. To keep up with the contractor who is installing the AMI equipment, the Meter Reader supervisor has been trouble shooting issues in the field, while working with the

DPU Project Manager and GWS crews to record other issues in a work order tracking system.

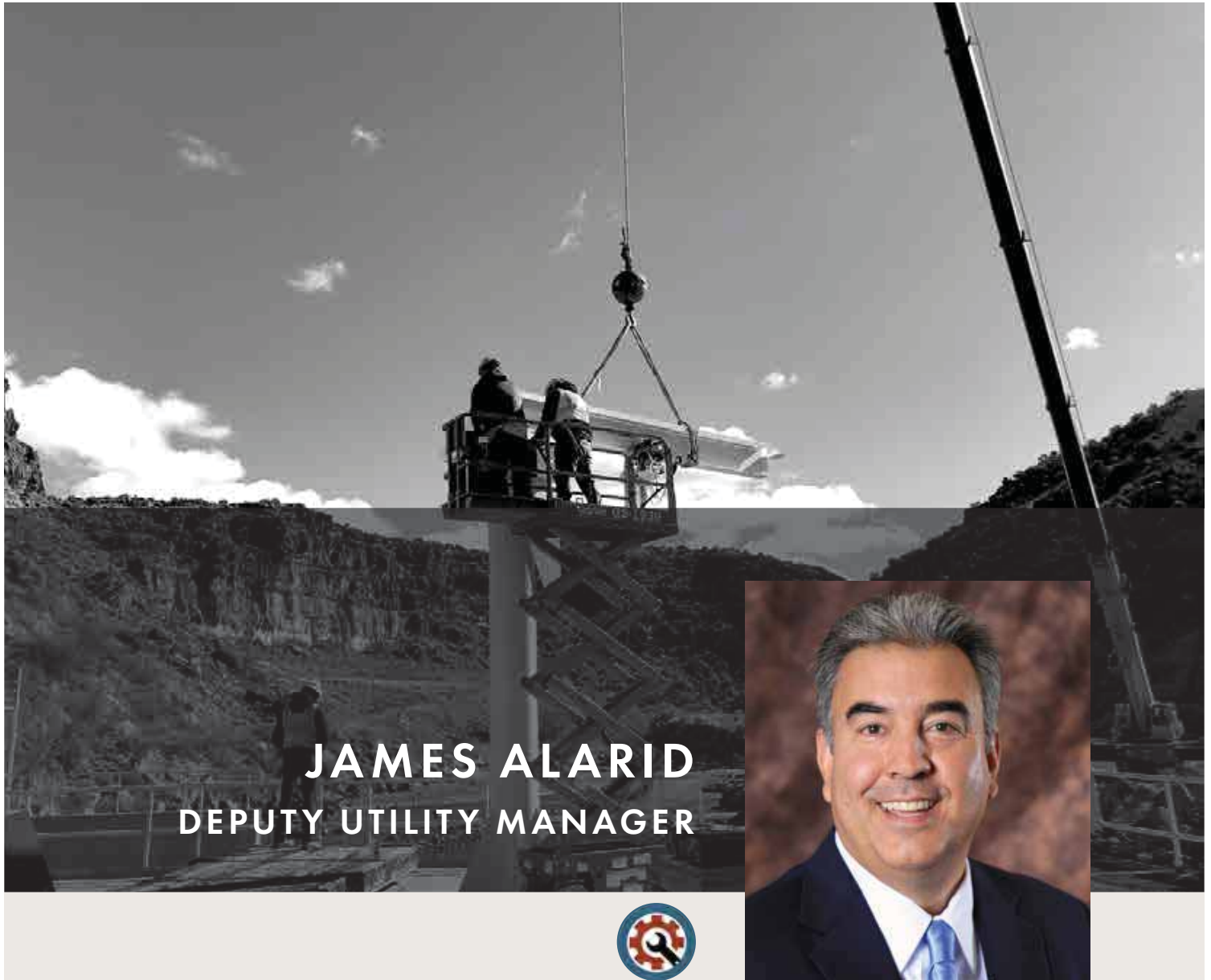
This has kept the staff quite busy and is only expected to continue to grow with the addition of gas meters next quarter.

(NMED) and San Ildefonso Tribal leaders was completed. Following these events, NMED began developing the Environmental Assessment document. Final environmental clearance and bidding is expected in the near future.

Supervisory staff for the wastewater treatment division has been researching equipment in preparation for compost facility expansion which will be needed when the new White



Wastewater treatment plant sludge composting

**Jib Crane Installation**

In December 2020/January 2021, a new jib crane was hoisted by a larger crane across the river and assembled at the Abiquiu hydroelectric facility. The jib crane operates the wicket gates to release the outflows from turbine chamber into the river.

# ENGINEERING DIVISION UPDATE

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The Engineering Division has been working on projects in various stages of design, bidding and construction.

## Construction

The Pajarito 16-inch waterline rehabilitation project was completed in April. Approximately 2,500 feet of 16-inch waterline was rehabilitated by installing a structural liner. This was the first time DPU has used a structural liner to rehabilitate a waterline. The project successfully completed the rehabilitation in two weeks and this critical transmission line was placed back into service prior to our peak water demand season.

The Overlook booster station reconstruction project is progressing well. The contractor has completed the water tie-in to the pond discharge line and completed the excavation to install the turbine shaft pump cans. Work will continue through the summer as scheduled and will be completed by Fall 2021.

As part of the kiddie pool addition to the Aquatic Center there were some extensive utility relocations that were completed this quarter. A major sewer trunk line and gas line were rerouted to clear the area for the pool expansion.

The final utility punch list items are being completed on the NM-502 /Trinity (round-about) project. The project is scheduled to be complete by the end of May 2021.

The advanced metering infrastructure (AMI) project kicked off the mass installation of the gas, water and electric AMI radios this quarter. The mass installations began in March 2021. As of May 5, 2021, all of the residential water

meters have either been equipped with AMI radios or are on a short list of meters requiring meter change-outs, specialized radios or other work required to complete the AMI upgrade. Gas meters that have been equipped with the AMI radios total 1,801 and electric meters that have been changed out to AMI compatible meters total 1,149. The contractor is continuing to install the gas and electric AMI equipment and is scheduled to be complete the summer of 2021. DPU staff is working diligently to work through the AMI conversion. A number of challenges continue to present themselves as the conversion affects all aspects of the DPU's operations and work systems.

## Design

The design is being finalized in-house for a new tank at the Bayo booster station site. The project is funded by a low interest loan and grant from the Water Trust Board. The project will be bid at the end of May 2021 and is scheduled to be online by the 2022 irrigation system. Staff has also been working on the design of new metering, SCADA system and pressure relief system for the County's three natural gas border stations. The project will be bid in early June 2021.

## Engineering

Work has begun on the water production system Motor Control Center/Power Supply/Control Valve evaluation project for the 27 wells and booster stations in the system. A consultant will provide a condition assessment and evaluation of the various control valves and electric gear that are at the end of their service life. The evaluation will identify and prioritize the system needs and DPU will secure a low interest loan in the amount

of \$2 million to perform the highest prioritized improvements. To comply with a new federal mandate the DPU has hired a consultant to prepare a Risk and Resiliency Evaluation and an Emergency Preparedness Plan. All public water systems are required to complete these plans and submit to the Environmental Protection Agency by June 2021. The Risk and Resiliency Plan is complete and the Emergency Preparedness Plan is scheduled to be complete by mid-May.

## Bidding

This quarter a number of planned fiscal year 2021 projects were bid for construction. The Tsankawi chlorination building and pipeline replacement project was bid and awarded. The project will replace the existing chlorination building and sodium hypochlorite generation system which are in need of upgrading to treat the additional flows from the new Otowi Well #2. The El Vado and Abiquiu hydroelectric plant deck and floor painting project was bid this quarter and will be awarded in May. The decks and miscellaneous deck features will be painted to protect the facility from leakage, corrosion and apply a new non-skid finish on the interior floors. The Otowi Well #2 and Otowi Well #4 motor control center replacement project is out to bid, with bids scheduled to be received May 18, 2021. The project will complete the well house, electric gear and pump to bring the new well online. The motor control center at the Otowi Well #4 will replace the existing gear which is at the end of its service life.





### Replace El Vado Transformer

*(Funded through: Electric Production)*

**Scope:** Replace the transformer at the El Vado hydroelectric plant.

**Budget:** \$400,000

**Schedule:** Advertise for bids May 2021



### Replace Abiquiu Office

*(Funded through: Electric Production)*

**Scope:** Relocate and replace the office at the Abiquiu hydroelectric plant away from the transformer for safety reasons.

**Budget:** \$150,000

**Schedule:** Deferred to fiscal year 2022



### Evaluate El Vado Penstock

*(Funded through: Electric Production)*

**Scope:** Evaluate the penstock valve to coincide with and take advantage of the dam refurbishment work that is planned by the Bureau of Reclamation.

**Budget:** \$100,000

**Schedule:** Complete



### Redesign & Install El Vado Shaft Seal

*(Funded through: Electric Production)*

**Scope:** Redesign and install a new shaft seal at the El Vado hydroelectric plant with one that is self-lubricating.

**Budget:** \$150,000

**Schedule:** Deferred



### Replace Switches

*(Funded through: Electric Distribution)*

**Scope:** Replace aging switches with new conductors throughout Los Alamos County

**Budget:** \$200,000

**Schedule:** Year round



### Replace Primary Conductors

*(Funded through: Electric Distribution)*

**Scope:** Replace aging primary conductors throughout Los Alamos County.

**Budget:** \$200,000

**Schedule:** Year round



### Construct A Maintenance Bldg

(Funded: Elect. Dist., Water Prod. & GWS)

**Scope:** Construct a maintenance facility at the White Rock replacement wastewater treatment plant that can be used by field crews with electric distribution, gas, water & sewer, and water production.

**Budget:** \$250,000

**Schedule:** Deferred to fiscal year 2022



### Remove Open Secondary

(Funded through: Electric Distribution)

**Scope:** Remove open secondary

**Budget:** \$300,000

**Schedule:** Year Round



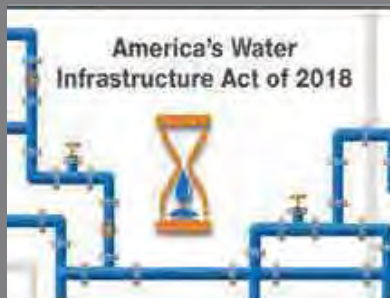
### Improve Gas Border Stations

(Funded through: Gas Distribution)

**Scope:** Improve natural gas border stations (two) with over pressure protection, metering and SCADA functions. Will permit staff to monitor and trend the flows and pressures at these critical points in the system.

**Budget:** \$300,000

**Schedule:** Bid June 2021



### Prepare Risk & Resilience/ Emergency Response Plan

(Funded through: Water Production)

**Scope:** Prepare a risk and resilience assessment and an emergency response plan in accordance with the 2018 America's Water Infrastructure Act. Utilities must certify to the Environmental Protection Agency completion of each.

**Budget:** \$120,000

**Schedule:** Completed by June 2021



### Install Camp May Waterline

(Funded: Los Alamos Co. & Ski Hill Operator)

**Scope:** Install four booster stations and 23,000 feet of waterline along Camp May Road. The project will convey water from the existing potable water system in Los Alamos to the ski lodge, Camp May campground and provide a reliable water supply for regional fire protection.

**Budget:** \$2,000,000 (LA County)

\$2,000,000 (Ski Hill Operator)

**Schedule:** Constructing pending environmental clearance



### Construct Otowi 2 Well House, Replace Motor Control Center for Otowi 4 Well

(Funded through Water Production)

**Scope:** Construct the well house, install pumps and associated equipment for Otowi Well 2. Replace the motor control center for Otowi Well 4 which is located in the same vicinity.

**Budget:** \$1,900,000

**Schedule:** Bids received May 18, 2021



### Upgrade Tank Piping

(Funded through: Water Production)

**Scope:** Replace miscellaneous valves throughout the water production system. Work will be performed by in-house staff and supported by contractors as needed depending on the complexity of the work.

**Budget:** \$300,000

**Schedule:** Bid Summer 2021



### Install New Non-Potable Tank

(Funded: Water Trust Board Loan/Grant and Water Production)

**Scope:** Install a new one million-gallon effluent storage tank at the Bayo booster station adjacent to the composting operation. The new tank will capture effluent during peak times to expand non-potable water use.

**Budget:** \$1,080,000

(\$360k Loan / \$540k Grant / \$180k Match)

**Schedule:** Bid May 2021



### Stabilize LA Reservoir Road

(Funded: FEMA grant, Water Prod. & LAC)

**Scope:** Stabilize the Los Alamos Reservoir road. Clear debris from the channel and reroute the channel back to its original path.

**Budget:** \$2,206,926

(\$1.5M Grant/\$262,500 LAC/\$262,500 DPU)

**Schedule:** FEMA reauthorized funds in 2020 - DPU is now pursuing a New Mexico River Stewardship grant.



### Replace the White Rock Wastewater Treatment Plant

(Funded through: Wastewater Treatment)

**Scope:** Construct a replacement wastewater treatment plant in White Rock to be operational by FY21.

**Budget:** \$14,800,856

**Schedule:** Bid July 2021

# SUSTAINABLE LOS ALAMOS UPDATE

## Reclaimed Wastewater

Reclaimed water use during the months of quarter 3 - January, February and March - are typically non-existent. In fiscal year 2021, however, some reclaimed water use to meet the county's demand to irrigate parks, ballfields and the golf course started to pick up in February and March. Quarter 3 reclaimed wastewater used during fiscal year 2021 for townsite irrigation totaled 3.3 million gallons. White Rock, meanwhile, used no reclaimed wastewater during quarter 3. Quarter 4 includes months when the peak watering season begins and the department anticipates seeing reclaimed wastewater quantities increase drastically. Irrigating with reclaimed wastewater water has saved the county a total 67.5 million gallons of drinking water so far between July and March for fiscal year 2021.

## Water & Energy Conservation

DPU has been working to update the Energy and Water Conservation Plan in fiscal year 2021, now that the Board of Public Utilities has adopted new conservation goals.

DPU maintains a conservation plan for the following three reasons.

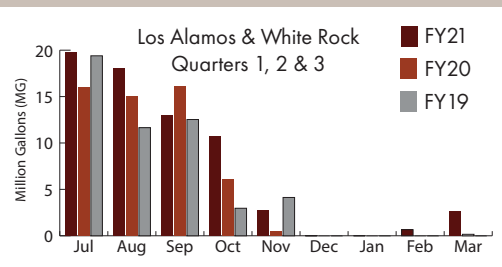
- As a public water supplier, the

Office of the New Mexico State Engineer (OSE), Conservation Division requires a current water conservation plan be reviewed, approved and filed with their office. The OSE has published a guidance document titled "New Mexico's Water Conservation Planning Guide for Public Water Suppliers." The guidance provides a template which must be adhered to for acceptance

year's initiatives and progress in managing the electric demand and supply effectively and efficiently. This includes an energy conservation plan that establishes DPU's demand management strategies, initiatives and measurements.

- The third component of the Water and Energy Conservation Plan is establishing conservation initiatives, policy, programs and measures that reflect the community's demographics, planning efforts, residential and commercial sector and stakeholder interests. In 2015, DPU assembled an advisory group of community stakeholders which is typical in preparation of conservation plans. Gathering community input and recommendations ensure that there will be community buy-in and support.

## Gallons of Reclaimed Wastewater Used to Irrigate County Turf

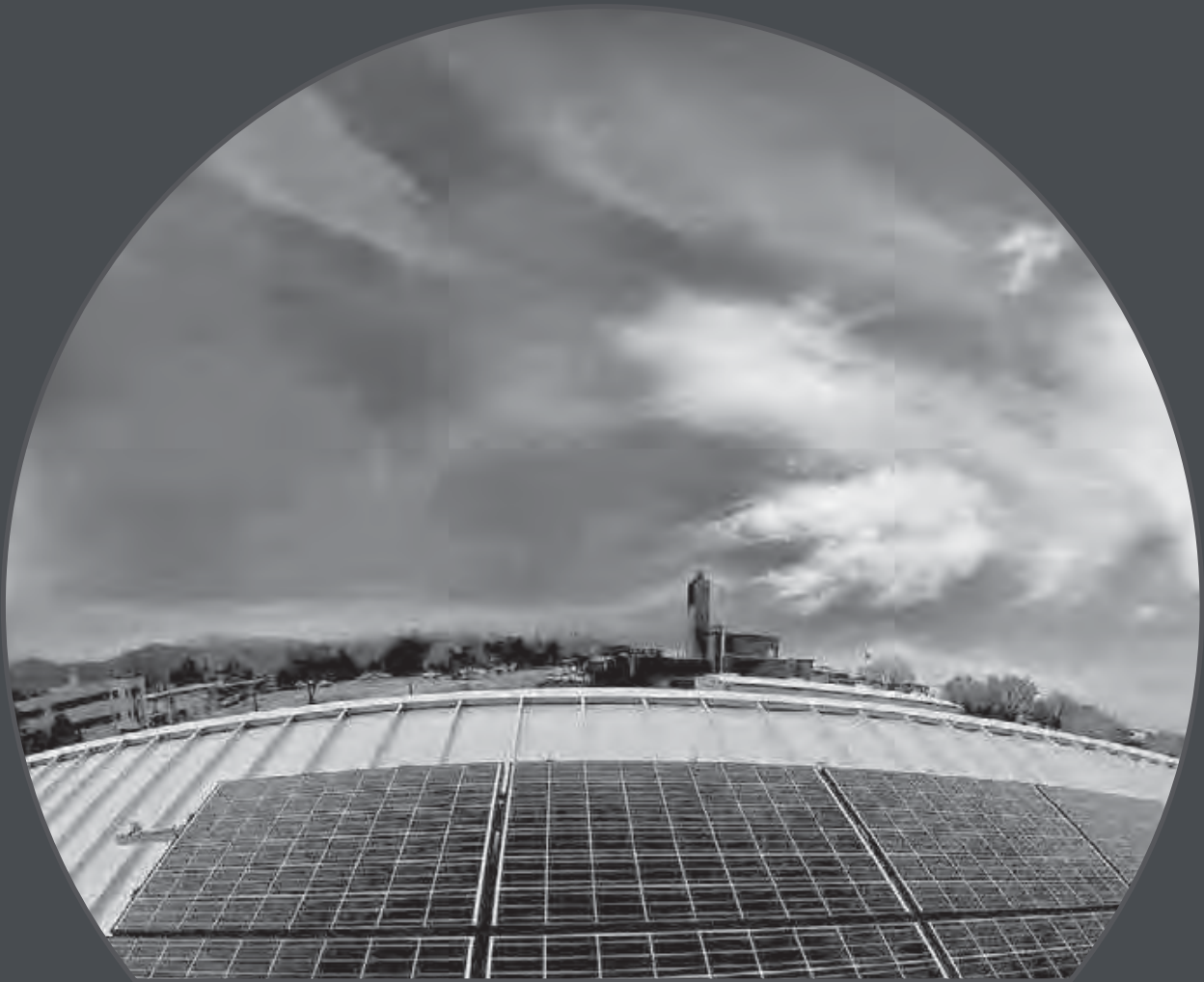


by the OSE. We will follow this template for both the water and energy components of the plan.

- As a requirement to receive the County's allocation of hydroelectric power from Glenn Canyon Dam, the Western Area Power Administration (WAPA) mandates members issue annual progress reports. The reports summarize the

In fiscal year 2020 a volunteer citizen committee at the request of the Board of Public Utilities, prepared a report and presented it at the July 2020 BPU meeting. The citizen committee recommended several initiatives that could be implemented to conserve water and energy in Los Alamos:

- Educating customers on a variety of topics including tracking usage, changing habits, etc.



- Customizing bills to compare usage with neighborhoods and the community at large,
- Researching grants for conservation programs,
- Partnering with the public schools and the environmental services department,
- Developing ordinances that would restructure rates
- Working with other county departments to encourage building code changes, etc.

Based on these recommendations, board members adopted new or modified environmental goals at the October 21, 2020 meeting to be incorporated into the updated DPU energy and water conservation plan.

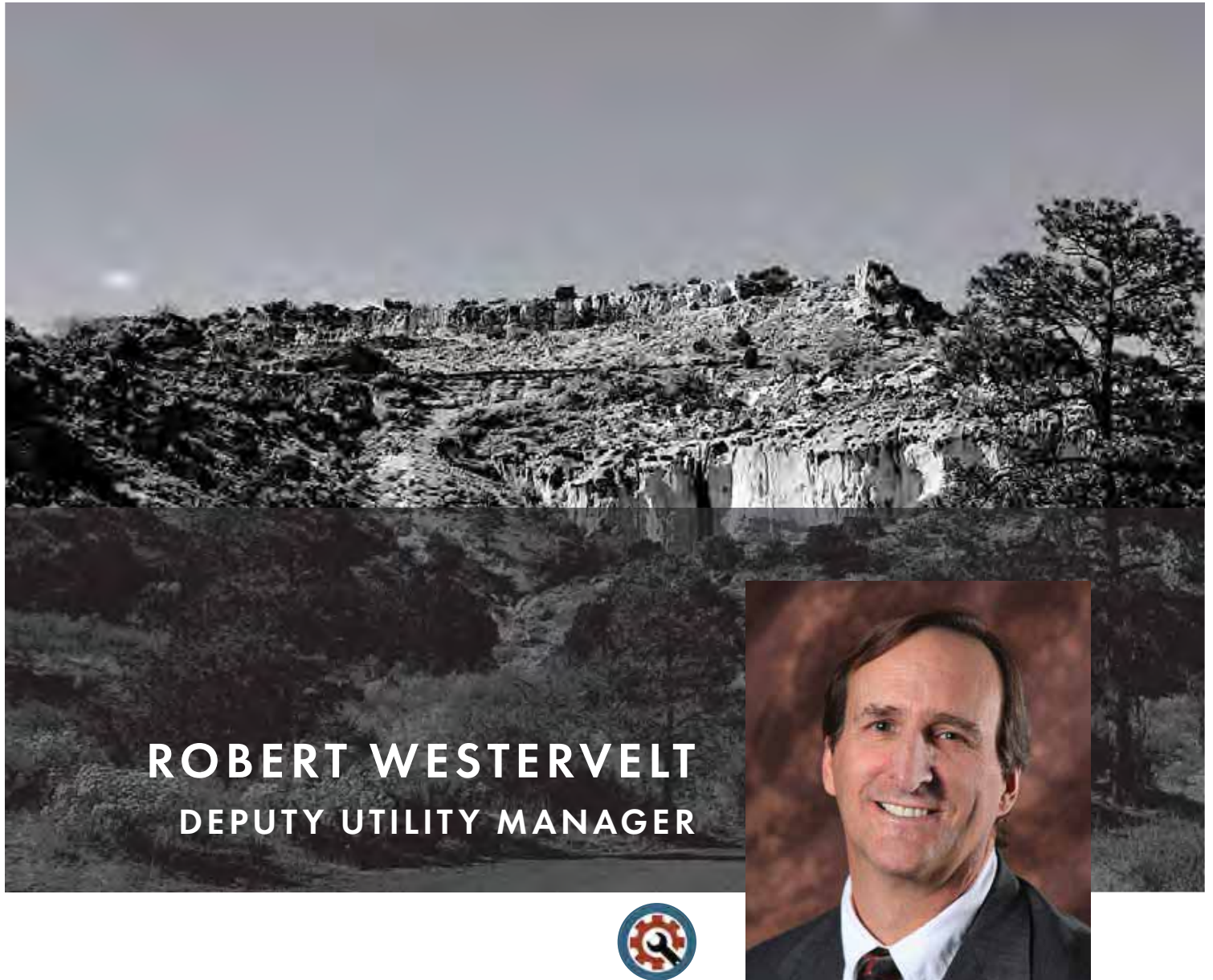
DPU employees were also asked by the BPU to survey the community on the overall sentiment of the adopted environmental goals. This was conducted by Triton Polling in December 2020. Results are as follows:

- 76.9% support and 11% oppose DPU's goal to be a carbon neutral electric provider by 2040.
- 87.4% support and 7.7% oppose DPU's goal to increase local solar (such as roof top solar panels) from two to six megawatts by 2040.
- 44.7% support and 32.1% oppose DPU's goal to reduce today's drinking water use by 12 percent by 2030.
- 68.8% support and 21.1% oppose DPU's goal to reduce today's

natural gas use by five percent by 2030.

- 54% support and 33.7% oppose DPU's goal to eliminate natural gas usage by 2070 (requiring all energy use be from carbon neutral electricity).
- 81.8% support and 8.8% oppose DPU's goal to improve the reclaimed wastewater that is used to irrigate county and school turf so that it is the highest quality possible for unrestricted urban uses.





**View from Los Alamos Canyon**

Looking up at NM502 as it heads into Los Alamos County.

# FINANCE AND ADMINISTRATION

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## Electric Operations

In a continuation of what has been seen in the past several years, electric sales were below budget for the first three quarters of FY21, both for retail customers and for sales to DOE. Retail sales were 10.28 percent below the budgeted 92,814,408 kWh and sales to DOE were 34.71 percent below the budgeted 460,389,091 kWh. Overall kWh sales for all customers were 30.61 percent below budget.

In electric distribution, the third quarter closed with year-to-date net operating revenues of \$3,065,936 which is just over the total budgeted for the year. Due to a power shortage in the southwest region power costs spiked in August, and LAC cost of power for the first three quarters of the fiscal year was \$58.176, compared to a budget projection of \$47.997. This higher than projected cost of power was offset by the allocation of admin charges and several maintenance categories being significantly lower than anticipated. It is expected these maintenance programs will ramp up now in the summer months, but with COVID concerns it may be difficult to schedule crews to meet all maintenance goals. Capital expenditures totaled \$348,232, which is 46.43 percent of the \$750,000 budgeted for FY21.

The first three quarters of FY21 yielded total net income of \$2,717,705 for electric distribution. Net income of \$1,692,890 was budgeted for the year, which includes the profit transfer. Budget adjustments and carryovers totaling \$3,808,002 yield a net loss budgeted at (\$2,115,112), which would be funded through revenues



JEFF ROMERO, SHOP SUPERVISOR WITH GAS, WATER & SEWER DISCUSSES CUSTOMER ISSUES WITH AMANDA BURNWORTH, CUSTOMER CARE REPRESENTATIVE.

earned in the budget year those expenditures were first budgeted. As the department moves forward with planned maintenance activities and capital projects, we should see the early net revenue dissipate over the year to match budget projections more closely.

## Gas Operations

Due to continuing cool temperatures, gas sales in the second and third quarters of FY21 were higher than budgeted, reversing the first quarter's result and yielding year to date gas sales at 4.83 percent over budget, with total sales of 6,632,911 therms.

Net cash flow from operations in the third quarter was negative (\$349,973), reversing the first two quarters positive operating cash flow and yielding year to date operating cash flow of negative (\$78,238). In February there was a short-term regional gas supply shortage due to a polar vortex weather event and for a period of several days market cost of gas was extremely high. While we purchase most of our gas (approximately 80%) at month-end prices through the New Mexico Energy Acquisition Authority (NMMEA), we did have limited exposure to those market prices for a few days. The total additional gas cost of approximately \$1.3M is covered by a budget adjustment

approved in March, but because the "pass through" rate for gas has an upper cap of \$0.99/therm, that additional gas cost will take several months to offset through additional revenues, especially since it is normal for gas consumption to drop off in the fourth quarter summer season.

For the full fiscal year, gas operations' budgeted operating cash flow was originally \$236,728, and the budgeted transfer to the general fund is \$201,959. There are \$350,000 capital expenditures budgeted in FY21. After the budget adjustment for gas purchases discussed above totaling \$2,500,000, and 3,074,786 in other budget adjustments and carryovers, mostly related to the gas portion of the AMI project and other encumbrances, a negative net cash flow of (\$5,890,017) is budgeted. The additional cost of gas will be recovered through the pass-through rate mechanism over the next three to five months. The remainder of that negative cash flow is funded from existing fund balance.

#### **Water Operations**

Retail water sales of 627,133 kgal were 16.67 percent higher than budget estimates of 537,545 for the first three quarters of FY2021. Warm weather and a mild monsoon season most likely led to somewhat higher consumption for irrigation, tempered somewhat by continuing conservation efforts throughout the community. Wholesale sales to LANL of 242,324 kGal were 14.79 percent less than budgeted. The COVID Pandemic has resulted in numerous LANL sites being minimally staffed and normal domestic and irrigation consumption has likely been affected. Process loads at LANL

may have been somewhat curtailed as well. Combined total sales in thousands of gallons for both Retail and DOE were 5.78 percent higher than budgeted for the period.

Net cash flow from water operations were \$1,577,764 year to date. Capital projects funded through sales totaling \$2,975,865 were budgeted in the water fund for the year, but only \$79,590 has been expended to date, yielding total water net revenues of \$1,498,174 for the period. Water production's budget includes certain projects that are to be funded from other sources, which will only be expended if those funding sources are realized. There are \$6.8M in revenue funded projects budgeted, but only minimal costs on those projects have been realized as of the end of the third quarter of the fiscal year.

For the full fiscal year, water operations' budgeted operating cash flow is \$851,928, and budgeted capital expenditures are \$2,975,865, net of external funding. \$5,339,788 in carryovers and budget adjustments, mostly related to the water portion of the AMI and several projects in Water Production result in budgeted net negative cash flow of (\$7,463,725), funded through existing fund balance.

#### **Wastewater Operations**

Cash flow from operations was \$1,958,223 for the nine months

ended March 31, 2021. There have been modest capital expenditures totaling \$524,271 to date this fiscal year, yielding total net sewer revenue of \$1,433,952.

For the full fiscal year, wastewater operations' budgeted operating cash flow is \$1,721,316. In total, \$14,850,856 in capital expenditures are budgeted, which includes the debt funded White Rock treatment facility. Besides the Treatment Facility, there were \$50,000 in additional capital expenditures budgeted. With budget adjustments and carryovers totaling \$2,627,326, total net negative cash flow is budgeted at (\$956,010), funded through existing fund balance.



**MUNICIPAL BUILDING**

Home to DPU's administrative offices and the Customer Care Center.

## Pass-Through Cost Of Gas

Since 2013 the Department of Public Utilities has included a “pass-through” cost of natural gas in its rate. In addition to a monthly service fee, the gas consumption charge comprises a fixed cost recovery fee per therm and a variable cost of gas per therm (pass-through cost). The fixed cost recovery fee includes set distribution maintenance and operation expenses. DPU’s actual cost to purchase the natural gas commodity is passed directly to the customer in the variable cost of gas per therm charge. This price is calculated each month based on the San Juan Index and then adjusted based on the actual cost from the prior month. Customers benefit from this approach as the DPU does not need to maintain a substantial rate stabilization fund to absorb the volatile, fluctuating gas prices. Each month DPU posts the new variable cost of gas rate on the website at: <https://ladpu.com/DPUGasRateSchedule>.

### TOTAL GAS CHARGE COMPRISES THREE COMPONENTS

(1. Monthly Service Fee) + [(2. Fixed Cost Recovery Fee + 3. Variable Cost of Gas) x Total Therms] = Total Charged

#### SCHEDULE OF CUSTOMERS

7A: Residential

7E: Commercial

7L: County

7N: Schools

#### 1. MONTHLY SERVICE FEE

Schedule	Meter Rated	Charge
ALL	≤ 250 CFH	\$ 9.50
ALL	> 250 CFH	\$28.50

#### 2. FIXED COST RECOVER FEE/THERM

Schedule	Fee/Therm
7A & 7E	\$0.23
7L & 7N	\$0.20

#### 3. VARIABLE COST OF GAS/THERM

(Pass-Through Cost of Gas)

Calculated each month based on the San Juan Index and then adjusted based on the actual cost from the prior month

Month and Year	Schedule	Projected Variable Cost of Gas	Adjustment to Prior Month Estimate	Total Variable Cost of Gas/Therm
Mar 2021	ALL	\$0.32	\$0.00	\$0.32
Feb 2021	ALL	\$0.28	(\$0.06)	\$0.22
Jan 2021	ALL	\$0.28	(\$0.04)	\$0.24



**Example:**  
Residential Family (7A)  
that used 40 therms in  
March 2021.

$$\$9.50 + [(\$0.23 + \$0.32) \times 40] =$$

**\$31.50**



**Example:**  
Commercial Customer (7E)  
that used 120 therms in  
March 2021.

$$\$28.50 + [(\$0.23 + \$0.32) \times 120] =$$

**\$94.50**

# NATURAL GAS RATES

## Fluctuating Gas Rates

Natural gas prices are mainly a function of market supply and demand and fluctuate. There are multiple factors that affect the price of gas, one is weather. Cold temperatures, for example, increase demand for heating, while hot weather increases demand for cooling, which increases natural gas demand by electric power plants.

To mitigate some of the fluctuations, DPU joined the New Mexico Municipal Energy Acquisition Authority (NMMEAA). Created by local

governments in 2008 through a Joint Powers Agreement, the purpose of NMMEAA is to obtain reliable, long-term gas supply under favorable terms, conditions and price. NMMEAA benefits government-owned utilities like DPU and through this membership, DPU is able to pass its savings directly to customers.

When comparing the variable cost of gas or the pass-through rate with the rates of New Mexico Gas Company, DPU's rates are usually lower although

not always. This past quarter (three months) DPU's average cost at \$0.26 per therm was lower than NMGC.

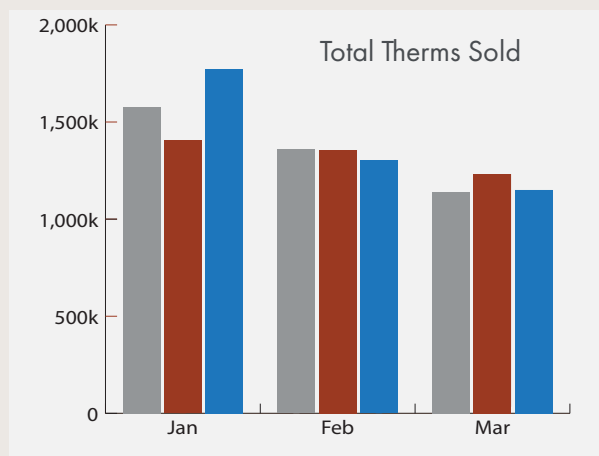
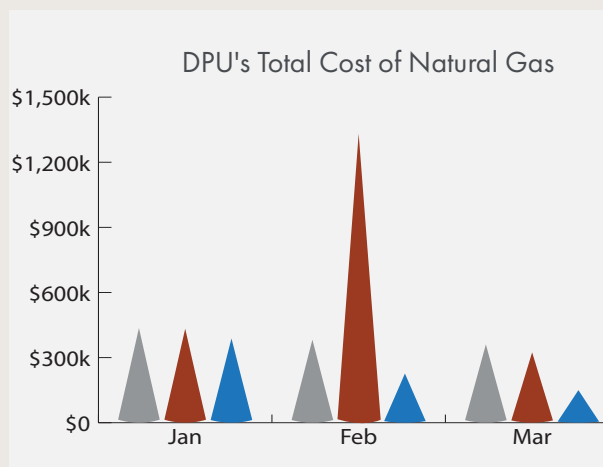
### VARIABLE COST OF GAS/THERM

Mo/Year	DPU	NMGC*
Mar 2021	\$0.32	\$0.42
Feb 2021	\$0.22	\$0.31
Jan 2021	\$0.24	\$0.31
<b>Avg price</b>	<b>\$0.26</b>	<b>\$0.35</b>

\*New Mexico Gas Company

Source: [nmgco.com/en/cost\\_of\\_gas](http://nmgco.com/en/cost_of_gas)

San Juan Index/MMBTU			Total Cost of Gas for Qtr 3			Total Therms Sold for Qtr 3		
	2021	2020		2021	2020		2021	2020
Mar:	\$2.97	\$1.42	Mar:	\$324,332	\$150,189	Mar:	1,232,218	1,150,082
Feb:	\$2.65	\$1.58	Feb:	\$1,331,883	\$226,656	Feb:	1,354,723	1,302,261
Jan:	\$2.61	\$2.43	Jan:	\$433,163	\$388,370	Jan:	1,404,912	1,777,635
			Total:	\$2,089,378	\$765,215	Total:	3,991,853	4,229,978



Estimate 2021    Actual 2021    Actual 2020

# ELECTRIC OPERATIONS

Financial Status - Unaudited // FY2021

Fiscal Year: July 01 through June 30, 2021

	QTR 1	QTR 2	QTR 3	QTR 4	TOTAL
<b>UNIT SALES: KILOWATT HOURS</b>					
Total Retail Sales	28,486,530	26,221,690	28,561,544		83,269,764
Budgeted Sales	32,283,763	29,693,690	30,836,955		92,814,408
Retail Sales Variance	(3,797,233)	(3,472,000)	(2,275,411)		(9,544,644)
Sales to NNSA	124,408,781	108,184,345	68,001,554		300,594,680
Budgeted Sales to NNSA	169,653,529	168,664,348	122,071,214		460,389,091
NNSA Sales Variance	(45,244,748)	(60,480,003)	(54,069,660)		(159,794,411)
Other Wholesale Sales	1,805,485	1,758,165	1,472,323		5,035,973
Budgeted Other Wholesale Sales	2,639,839	1,904,703	1,680,613		6,225,155
Wholesale Sales Variance	(834,354)	(146,538)	(208,290)		(1,189,182)
Total Actual Sales	152,895,311	134,406,035	96,563,098		383,864,444
Total Budgeted Sales	201,937,292	198,358,038	152,908,170		553,203,499
Total Sales Variance	(49,041,981)	(63,952,003)	(56,345,072)		(169,339,055)
<b>FINANCIAL RESULTS</b>					
Electric Distribution Revenues	\$3,887,257	3,450,251	3,902,774		\$11,240,282
Total Electric Production Expenditures	10,988,245	9,573,412	6,790,637		27,352,295
Total Electric Production Revenues	8,966,808	7,730,336	5,810,887		22,508,032
Net Cost of Power to Electric Dist.	2,021,437	1,843,076	979,750		4,844,263
Other Electric Dist. Operating Expenses	764,426	1,510,574	1,055,083		3,330,083
Total Electric Dist. Operating Expenses	2,785,863	3,353,650	2,034,833		8,174,346
Net Electric Dist. Operating Revenue	1,101,394	96,602	1,867,941		3,065,936
Electric Dist. Capital Expenditures	104,748	157,469	86,014		348,232
Net Electric Dist. Total Revenue	\$996,646	(60,867)	1,781,926		\$ 2,717,705
<b>BUDGETED</b>					
Budgeted Operating Income(Loss)					\$3,060,129
Budgeted Capital Expenditures					(\$750,000)
5% Revenue Transfer					(\$617,238)
Budgeted Net Income(Loss)					\$1,692,890
Budget Adjustments *					(3,808,002)
Adj. Budgeted Net Income (Loss)					(\$2,115,112)

NOTE : \*Includes carryforward project amounts, encumbrance rollovers and board/council approved budget adjustments.

# NATURAL GAS OPERATIONS

Financial Status - Unaudited // FY2021

Fiscal Year: July 01 through June 30, 2021

	QTR 1	QTR 2	QTR 3	QTR 4	TOTAL
<b>UNIT SALES: THERMS (100,000 BTU)</b>					
Total Sales	571,648	2,069,410	3,991,853		6,632,911
Budgeted Sales	587,490	1,954,484	3,785,297		6,327,271
Retail Sales Variance	(15,842)	114,927	206,555		305,640
<b>FINANCIAL RESULTS</b>					
Gas Distribution Revenues	\$539,420	1,234,482	\$2,074,144		\$3,848,046
Gas Other Revenues	(26)	(270)	\$167,781		\$167,485
Gas Distribution Operating Expenses	377,814	1,152,327	\$2,591,898		\$4,093,769
Net Gas Operating Revenue	161,581	81,885	(349,973)		(\$78,238)
Gas Distribution Capital Expenditures	104,663	29,944	\$9,460		144,067
Net Gas Revenue	\$56,918	51,941	(359,433)		(\$222,305)
<b>BUDGETED</b>					
Budgeted Operating Income(Loss)					\$236,728
Budgeted Capital Expenditures					(\$350,000)
5% Revenue Transfer					(\$201,959)
Budgeted Net Income(Loss)					(\$315,231)
Budget Adjustments*					(\$5,574,786)
Adj. Budgeted Net Income (Loss)					(\$5,890,017)

NOTE : \*Includes carryforward project amounts, encumbrance rollovers and board/council approved budget adjustments.

# WATER OPERATIONS

Financial Status - Unaudited // FY2021

Fiscal Year: July 01 through June 30, 2021

	QTR 1	QTR 2	QTR 3	QTR 4	TOTAL
<b>UNIT SALES: THOUSAND GALLONS</b>					
Wholesale Sales to LANL	98,546	84,303	59,475		182,850
Budgeted Wholesale Sales	105,149	103,525	75,708		208,674
Retail Sales	321,713	201,803	103,617		523,516
Budgeted Retail Sales	275,814	151,328	110,404		427,141
Total Sales	420,260	286,106	163,092		706,365
Total Budgeted Sales	380,963	254,853	186,112		635,816
Total Sales Variance	39,297	31,253	(23,020)		70,550
<b>FINANCIAL RESULTS</b>					
Wholesale Revenues	\$1,857,772	\$1,068,012	\$812,279		\$3,738,062
Retail Revenues	\$2,287,011	\$1,345,303	\$972,660		\$4,604,973
Other Revenues	\$0	\$0	(\$22,222)		(\$22,222)
Total Water Revenues.	\$4,144,783	\$2,413,315	\$1,762,717		\$8,320,814
Water Production Operating Expenses	\$856,985	\$1,129,440	\$730,881		\$2,718,263
Water Distribution Operating Expenses	\$1,779,676	\$1,259,275	\$975,862		\$4,024,787
Total Water Operating Expenses	\$2,636,661	\$2,388,715	\$1,706,743		\$6,743,050
Net Water Operating Revenue	\$1,508,122	\$24,600	\$55,974		\$1,577,764
Water Production Capital	\$0	\$44,955	\$16,603		\$61,558
Water Distribution Capital	\$4,989	\$8,750	\$4,293		\$18,032
Total Capital Expenditures	\$4,989	\$53,705	\$20,895		\$79,590
Net Water Revenues	\$1,503,132	(\$29,105)	\$35,078		\$1,498,174
<b>BUDGETED</b>					
Budgeted Operating Income(Loss)					851,928
Budgeted Capital Expenditures					(9,806,926)
Budgeted Grant/Loan/GF Transfers					6,831,061
Budgeted Net Income(Loss)					(2,123,937)
Budget Adjustments*					(5,339,788)
Adj. Budgeted Net Income (Loss)					(7,463,725)

NOTE : \*Includes carryforward project amounts, encumbrance rollovers and board/council approved budget adjustments.

# WASTEWATER OPERATIONS

Financial Status - Unaudited // FY2021

Fiscal Year: July 01 through June 30, 2021

	QTR 1	QTR 2	QTR 3	QTR 4	TOTAL
<b>UNIT SALES: THOUSAND GALLONS</b>					
Total Treated	103,361	99,217	95,679		298,257
Budgeted Treated	114,658	109,783	105,181		329,623
Variance	(11,297)	(10,566)	(9,502)		(31,366)
<b>FINANCIAL RESULTS</b>					
Sewer Revenues	\$1,669,590	\$1,507,833	\$1,546,600		\$4,724,022
Sewer Miscellaneous Revenues	(\$133,093)	(\$33,241)	(\$8,408)		(\$174,741)
Sewer Operating Expenses	\$685,355	\$1,072,871	\$832,832		\$2,591,058
Net Sewer Operating Revenue	\$851,142	\$401,720	\$705,361		\$1,958,223
Sewer Capital Expenditures	\$0	\$172,000	\$352,271		\$524,271
Net Sewer Revenue	\$851,142	\$229,720	\$353,090		\$1,433,952
<b>BUDGETED</b>					
Budgeted Operating Income(Loss)					1,721,316
Budgeted Capital Expenditures					(14,850,856)
Budgeted Grant/Loan/GF Transfers					14,800,856
Budgeted Net Income(Loss)					1,671,316
Budget Adjustments*					(2,627,326)
Adj. Budgeted Net Income (Loss)					(956,010)

NOTE : \*Includes carryforward project amounts, encumbrance rollovers and board/council approved budget adjustments.

# ELECTRIC CONSUMPTION

Financial Status - Unaudited // FY2021

	QTR 1	QTR 2	QTR 3	QTR 4	TOTAL
<b>REVENUES</b>					
Residential	2,081,076	1,763,700	2,052,461		5,897,237
Private Area Lights	3,673	3,339	3,580		10,592
Commercial	1,141,733	956,461	1,025,965		3,124,159
Municipal	327,860	468,917	290,957		1,087,733
Water Production	116,624	141,996	79,985		338,606
Educational	106,214	99,238	122,857		328,309
Misc./Backcharges	121,544	223,834	148,210		493,859
TOTAL	\$3,898,724	\$3,657,484	3,724,016		\$11,280,224
<b>SALES: KILOWATT HOURS</b>					
Residential	15,382,994	14,749,504	16,724,500		46,856,998
Private Area Lights	9,354	9,354	9,354		28,062
Commercial	9,679,167	8,167,154	8,608,849		26,455,170
Municipal	2,582,273	2,217,979	2,227,631		7,027,883
Water Production	1,805,485	1,758,165	1,472,323		5,035,973
Educational	832,742	1,077,699	991,210		2,901,651
TOTAL	30,292,015	27,979,855	30,033,867		88,305,737
<b>BILLED LOCATIONS: AVERAGE</b>					
Residential	7,866	8,029	7,769		7,888
Commercial	637	623	625		628
Municipal	164	155	159		159
Educational	54	59	54		56
TOTAL	8,721	8,867	8,608		8,732
<b>REVENUE/KILOWATT HOUR: AVERAGE</b>					
Residential	\$0.1353	\$0.1196	\$0.1227		\$0.1259
Private Area Lights	\$0.3926	\$0.3570	\$0.3827		\$0.3774
Commercial	\$0.1180	\$0.1171	\$0.1192		\$0.1181
Municipal	\$0.1270	\$0.2114	\$0.1306		\$0.1548
Water Production	\$0.0646	\$0.0808	\$0.0543		\$0.0672
Educational	\$0.1275	\$0.0921	\$0.1239		\$0.1131
AVERAGE	\$0.1247	\$0.1227	\$0.1191		\$0.1222
<b>LOSS CALCULATION</b>					
Power Received (kWh)	29,329,795	29,346,869	30,502,609		89,179,274
Photovoltaic Power Received (kWh)	203,592	155,841	144,533		503,966
Qtrly Losses (Gains)	(758,628)	1,522,855	613,275		1,377,503
% Qtrly Losses (Gains)	(2.57%)	5.16%	2.00%		1.54%
YTD CUMM LOSSES (GAINS)	(2.57%)	1.29%	1.54%		1.54%

# NATURAL GAS CONSUMPTION

Financial Status - Unaudited // FY2021

	QTR 1	QTR 2	QTR 3	QTR 4	TOTAL
<b>REVENUES</b>					
Residential	\$395,984	916,866	1,576,924		2,889,773
Commercial	99,745	233,637	365,379		698,761
TA-3 Sales	-	-	-		-
Municipal	14,586	45,221	70,920		130,727
Water Production	140	156	1,129		1,425
Educational	5,270	25,252	59,951		90,473
Misc./Backcharges	23,696	13,350	(159)		36,887
TOTAL	\$539,420	1,234,482	2,074,144		\$3,848,046
<b>SALES: THERMS</b>					
Residential	387,601	1,590,985	3,120,620		5,099,206
Commercial	149,597	331,197	597,390		1,078,184
Municipal	29,217	91,177	161,464		281,858
Water Production	889	646	1,799		3,334
Educational	4,344	55,405	110,580		170,329
TOTAL	571,648	2,069,410	3,991,853		6,632,911
<b>BILLED LOCATIONS: AVERAGE</b>					
Residential	7,047	7,254	7,059		7,120
Commercial	365	363	361		363
Municipal	44	43	43		43
Educational	25	25	25		25
TOTAL	7,482	7,685	7,488		7,551
<b>REVENUE/KILOWATT HOUR: AVERAGE</b>					
Residential	\$1.0216	\$0.5763	\$0.5053		\$0.5667
Commercial	\$0.6668	\$0.7054	\$0.6116		\$0.6481
Municipal	\$0.4992	\$0.4960	\$0.4392		\$0.4638
Water Production	\$0.1575	\$0.2410	\$0.6276		\$0.4274
Educational	\$1.2131	\$0.4558	\$0.5422		\$0.5312
AVERAGE	\$0.9022	\$0.5901	\$0.5196		\$0.5746
<b>LOSS CALCULATION</b>					
Gas Received (therms)	555,690	1,683,165	4,276,820		6,515,675
Qtrly Losses (Gains)	(15,958)	(386,245)	284,967		(117,236)
% Qtrly Losses (Gains)	(2.87%)	(22.95%)	6.66%		(1.80%)
YTD CUMM LOSSES (GAINS)	(2.87%)	(17.96%)	(1.80%)		(1.80%)

# WATER CONSUMPTION

Financial Status - Unaudited // FY2021

	QTR 1	QTR 2	QTR 3	QTR 4	TOTAL
<b>REVENUES</b>					
Residential	\$1,876,868	1,093,075	795,448		3,765,391
Commercial	180,120	129,006	105,864		414,990
Municipal	125,066	69,587	25,364		220,018
Educational	80,724	45,392	18,500		144,616
Misc./Backcharges	24,233	8,242	27,484		59,959
TOTAL	\$2,287,011	1,345,303	972,660		\$4,604,973
<b>SALES: THOUSAND GALLONS</b>					
Residential	259,528	164,919	86,599		511,047
Commercial	30,664	17,893	12,699		61,256
Municipal	19,902	11,121	3,277		34,301
Educational	11,619	7,870	1,042		20,530
TOTAL	321,713	201,803	103,617		627,133
<b>BILLED LOCATIONS: AVERAGE</b>					
Residential	6,558	6,763	6,560		6,627
Commercial	271	270	291		277
Municipal	85	85	77		82
Educational	22	25	18		22
TOTAL	6,936	7,142	6,945		7,008
<b>REVENUE/THOUSAND GALLONS: AVERAGE</b>					
Residential	\$7.2318	\$6.6279	\$9.1854		\$7.3680
Commercial	\$5.8739	\$7.2100	\$8.3365		\$6.7747
Municipal	\$6.2840	\$6.2573	\$7.7390		\$6.4144
Educational	\$6.9479	\$5.7681	\$17.7576		\$7.0442
AVERAGE	\$7.0335	\$6.6256	\$9.1218		\$7.2473
<b>LOSS CALCULATION</b>					
Water Received (kGal)	366,219	215,580	209,632		791,431
Qtrly Losses (Gains)	44,506	13,777	106,015		164,298
% Qtrly Losses (Gains)	12.15%	6.39%	50.57%		20.76%
YTD CUMM LOSSES (GAINS)	12.15%	10.02%	20.76%		20.76%

# WASTEWATER CONSUMPTION

Financial Status - Unaudited // FY2021

	QTR 1	QTR 2	QTR 3	QTR 4	TOTAL
<b>REVENUES</b>					
All Retail	\$1,534,347	1,474,592	1,546,600		4,555,539
Municipal/Effluent*	133,093	33,241	0		166,333
Misc./Backcharges	2,150	0	0		2,150
TOTAL	\$1,669,590	1,507,833	1,546,600		\$4,724,022
<b>TREATED: THOUSAND GALLONS</b>					
Los Alamos	72,802	70,461	69,123		212,386
White Rock	30,559	28,756	26,556		85,871
TOTAL	103,361	99,217	95,679		298,257
REVENUE/TREATED	\$16.13	\$15.20	\$16.16		\$15.83

NOTE : \* Effluent revenue is reported on the financial statements under Water Production