

<b>DOCKETED</b>	
<b>Docket Number:</b>	85-AFC-03C
<b>Project Title:</b>	Compliance - Application for Certification for Midway-Sunset Cogeneration Project
<b>TN #:</b>	231187
<b>Document Title:</b>	2018 Annual Compliance Report (Part 1)
<b>Description:</b>	N/A
<b>Filer:</b>	Mary Dyas
<b>Organization:</b>	California Energy Commission
<b>Submitter Role:</b>	Energy Commission
<b>Submission Date:</b>	12/12/2019 10:58:18 AM
<b>Docketed Date:</b>	12/12/2019



January 22, 2019

CC-2110

Ms. Mary Dyas  
Compliance Project Manager  
California Energy Commission  
1516 Ninth Street, MS-2000  
Sacramento, CA 95814

**Subject: Midway Sunset Cogeneration Company Project 85-AFC-3C  
Annual Operating Report for 2018**

Dear Ms. Dyas:

The Final Decision has several conditions requiring annual reports of various operational conditions. As in prior years MSCC is continuing to use the calendar basis for submitting our twenty-ninth annual operating report covering January through December 2018.

The conditions being met by this submittal are:

**1. Power Plant Efficiency (Table 1; Appendix B)**

- Monthly fuel use, evidenced by one invoice
- Monthly electrical sales, evidenced by one invoice
- Monthly steam sales, evidenced by one invoice
- Monthly rate of feedwater

**2. Power Plant Reliability (Table 2)**

- Operating hours
- Outage hours
- Description of forced outages
- Description of planned outages and curtailments
- Annual plant availability and capacity factors

**3. Public/Worker Safety (Appendix C; Appendix E; Appendix F)**

- KCFD inspection of fire protection program
- Spill Report
- Transportation Permits

**4. 230kV Line Safety and Nuisance (Appendix D)**

- Annual inspection for compliance with laws, ordinances, regulations and standards
- Bi-annual inspections and fire protection activities

**5. Waste Management (Table 3; Table 4)**

- Quantity of waste generated
- Waste handling methodology
- Quantity of waste recycled
- Waste disposal contractor and site

**6. Water Resources (Table 5)**

- Reclaimed water usage
- Fresh water usage

**7. Biological Resources (Appendix A)**

**8. MSCC Owners and Regularly Used Contractors (Appendix G)**

If there are any questions about this report, please contact Ray Smith at (661) 768-3016.

Sincerely,



Dave Faiella  
Executive Director

RTS/skh

Attachments

cc: File CC-2110  
G. Jans  
R. Smith  
A. Anderson (Aera)

**MIDWAY SUNSET COGENERATION COMPANY**

**ANNUAL OPERATING REPORT  
2018**

**SUBMITTED: JANUARY 30, 2018**



## MIDWAY SUNSET COGENERATION COMPANY

### 2018 ANNUAL REPORT OF OPERATIONS

The year 2018 was the twenty-ninth full calendar year of operation for the Midway Sunset Cogeneration Company (MSCC) plant. The plant fulfilled all requirements as set forth by the California Energy Commission (CEC) in the 85-3 Authority for Certification.

Aera Energy LLC (Aera) and San Joaquin Energy, Inc. worked very hard to meet or exceed the requirements of the conditions set by the Commission both in letter and spirit. MSCC's owners will continue to operate MSCC in the future to meet the CEC's high standards.

#### A. UPDATE OF IN-PROGRESS COMPLIANCE ISSUES

##### 1. Third Party Steam Sales

All steam was sold to Aera Energy during 2018.

##### 2. Air Quality

Title V of the Federal Clean Air Act six month and annual compliance certifications were submitted to the USEPA and the SJVAPCD.

MSCC has compiled 2018 greenhouse gas emissions data in preparation for the required EPA and CARB reports.

##### Certification

I certify that the CEMS reports included in the 2018 Quarterly Air Quality Reports submitted to the CEC contain all periods of reduced load, startups, and shutdowns occurring during 2018 and, as such, fulfill the verification requirement for the 2018 annual operating report of the same information.



---

Dave Faiella  
Executive Director

3. Biological Mitigation

2018 was the twenty-fourth year of the reduced endangered species-monitoring plan. Monitoring of the seven (7) artificial Kit Fox dens continued on a semi-annual basis. Worker training and all monitoring related to construction and maintenance activities continued. Per a conditional agreement with the CEC, aerial photos were not taken in 2018. The condition of this agreement is that the CEC can, at their discretion, reinstitute the aerial photo requirement anytime in the future. Copies of 2018 Biological reports are in Appendix A.

MSCC and its plant personnel continue to support the awareness and protection of the environment.

B. 2018 OPERATIONS

1. Power Plant Efficiency

As recorded in the Final Decision (page 35), during the citing phase MSCC submitted an objective for thermodynamic energy efficiency of 76.7. Staff's assessment was slightly lower at 75.8%. This objective is no longer relevant at the plant level due to the recent change in operation to a hybrid operation, as noted in B.3 below. However, the Thermodynamic Efficiency for the cogeneration unit will continue to be reported. As shown on the Thermodynamic Efficiency Assessment included on the following pages as Table 1, the cogeneration units' actual efficiency for 2018 was 79.42%

2. Power Plant Reliability

Total hours of operation as of December 31, 2018 were Unit A, 218,557.10; Unit B, 204,831.90; and Unit C, 245,708.20. 19 outages were required in 2018. Table 2 on the following pages shows the date, cause and hours associated with each outage.

MSCC had an availability percentage of 96.08% MSCC's capacity factor was 99.67%

### 3. Change of Operation

In November of 2013, MSCC received approval from the CEC to replace Unit A and Unit B combustion systems with GE, DLN1+ Turndown Enhance combustion systems allowing Unit A and Unit B to operate as either cogeneration units or peaker units that meet MSCC's permitted NOx emission's limit. In December 2013, MSCC received Authorities to Construct (ATC) from the San Joaquin Air Pollution Control District (APCD) allowing MSCC to replace Unit A and Unit B combustion systems with GE, DLN1+ Turndown Enhance combustion systems allowing Unit A and Unit B to operate as either cogeneration units or peaker units that meet MSCC's permitted NOx emission's limit. MSCC initiated Unit B's ATC on January 13, 2015. Unit B was fully tested and commissioned by March 27, 2015.

Unit A's ATC was initiated March 23, 2015 and Unit A was fully tested and commissioned by May 4, 2015. Since June 1, 2015, Units A and B have been available to operate primarily as peaker units or, if needed, as backup cogeneration units for Unit C. Unit C remains as a cogeneration unit only. This change of operation is reflected in the tabulated fuel usage, power sales, steam production, operating hours and efficiencies of the units.

On June 14, 2016 the California Energy Commission approved the transfer of ownership of the remaining portion of Midway Sunset Cogenerations steam distribution line to its steam host, Aera Energy LLC.

### 4. Public/Worker Safety

There were no lost time accidents in 2018. Quarterly safety training and semi-annual environmental, health, and safety committee meetings were held.

Kern County Fire Department inspection information is located in Appendix C.

### 5. 230 kV Line Safety

Quarterly 230 kV line inspections were completed in 2018. Internal inspections were performed for 3 quarters during the year. A third party inspection was performed during the 2<sup>nd</sup> quarter. Copies of the inspection reports are located in Appendix D.

6. Waste Management

The types of waste, quantities and methods of disposal are provided in Tables 3 and 4.

All brine water is underground injected through Aera Energy to Valley Water under the approval of the EPA, DOG and California Regional Water Quality Control Board. Waste from on-site water treatment is neutralized and combined with Aera's neutralized waste and disposed of by Valley Water using underground injection and/or evaporation ponds.

An inventory of all hazardous materials stored and used on site is on file and updated annually with the Kern County Environmental Health Services Department (KCEHSD) administrators of the state's Department of Health programs enacted by right-to-know legislation passed since our Decision was finalized.

7. Water Resources

All water used for boiler feedwater comes to the cogeneration facility from Aera. MSCC's monthly water usage provided in Table 5 shows that 100% of our boiler feedwater is reclaimed, which is approximately 25% better than the 75% estimated during the citing phase. MSCC used zero fresh water for boiler feedwater during 2018 compared to 23,000 barrels/day prior to cogeneration.

8. Spill Reports

No Spill Reports were required for 2018.

9. Transportation Permits

No Transportation Permits were requested for 2018.

**Appendix A**  
**Biological Resources**

**BIOLOGICAL RESOURCES ANNUAL  
COMPLIANCE REPORT FOR THE  
MIDWAY SUNSET COGENERATION COMPANY**

**APRIL 1, 2017 - MARCH 31, 2018**

**Prepared by:**

**Thomas V. Mull  
462 Diamond Peak  
Beaumont, California 92223**

**BIOLOGICAL RESOURCES ANNUAL  
COMPLIANCE REPORT FOR THE  
MIDWAY SUNSET COGENERATION COMPANY**

**APRIL 1, 2017 - MARCH 31, 2018**

**Submitted to:**

Midway Sunset Cogeneration Company  
3466 West Crocker Springs Road  
Fellows, California 93224-0457

**Prepared by:**

Thomas V. Mull  
462 Diamond Peak  
Beaumont, California 92223

April 30, 2018

Contract No. MSCC-010

## TABLE OF CONTENTS

<b>SECTION 1.0</b>	<b>INTRODUCTION AND SUMMARY.....</b>	<b>1</b>
<b>SECTION 2.0</b>	<b>CONDITIONS OF CERTIFICATION COMPLIANCE VERIFICATION..</b>	<b>2</b>
<b>Condition 1</b>	<b>Designated Biologist.....</b>	<b>2</b>
<b>Condition 2</b>	<b>Biological Resources Mitigation Implementation Plan (BRMIP) .....</b>	<b>2</b>
<b>Condition 2a</b>	<b>Generator Lead Line Sensitive Plants.....</b>	<b>2</b>
<b>Condition 2b</b>	<b>Revegetation of Heavily Disturbed Areas.....</b>	<b>2</b>
<b>Condition 2c</b>	<b>Lightly Disturbed Areas .....</b>	<b>2</b>
<b>Condition 2d</b>	<b>Worker Education .....</b>	<b>2</b>
<b>Condition 2e</b>	<b>Worker/Wildlife Interactions .....</b>	<b>2</b>
<b>Condition 2f</b>	<b>Blunt-nosed Leopard Lizard and San Joaquin Antelope Squirrel Protection and Exclusion Zones.....</b>	<b>2</b>
<b>Condition 2g</b>	<b>Giant Kangaroo Rat Protection.....</b>	<b>2</b>
<b>Condition 2h</b>	<b>Pre-construction Surveys and Kit Fox Exclusion Zones .....</b>	<b>2</b>
<b>Condition 2i</b>	<b>Construction or Operation Activities in Kit Fox Den Exclusion Zones.....</b>	<b>2</b>
<b>Condition 2j</b>	<b>Kit Fox Den Closures.....</b>	<b>2</b>
<b>Condition 2k</b>	<b>Kit Fox Den Replacement .....</b>	<b>3</b>
<b>Condition 2l</b>	<b>Habitat Improvement and Protection.....</b>	<b>3</b>
<b>Condition 2m</b>	<b>Cogeneration Plant Site Pre-construction Survey .....</b>	<b>3</b>
<b>Condition 2n</b>	<b>Endangered Species Mortalities .....</b>	<b>3</b>
<b>Condition 2o</b>	<b>Generator Lead Line Mitigation .....</b>	<b>3</b>
<b>Condition 2p</b>	<b>Pre-construction Surveys and Kit Fox Protection Requirements .....</b>	<b>3</b>
<b>Condition 3</b>	<b>Periodic and Annual MSCC Reports.....</b>	<b>3</b>
<b>Condition 4</b>	<b>CEC Access to Facilities .....</b>	<b>3</b>
<b>Condition 5</b>	<b>Habitat Compensation.....</b>	<b>3</b>
<b>Condition 6</b>	<b>Map of Kit Fox Den and Signs.....</b>	<b>3</b>
<b>Condition 7</b>	<b>Monitoring.....</b>	<b>3</b>
<b>Condition 8</b>	<b>New Road Construction .....</b>	<b>3</b>
<b>Condition 9</b>	<b>Aera Energy LLC Annual Reports .....</b>	<b>4</b>



<b>Condition 10</b>	<b>Aerial Photos .....</b>	<b>4</b>
<b>Condition 11</b>	<b>Decommissioning Plan .....</b>	<b>4</b>
<b>Condition 12</b>	<b>Habitat Compensation for the Dickenson Trust Steam Line.....</b>	<b>4</b>
<b>Condition 13</b>	<b>Dickenson Steam Line Extension .....</b>	<b>4</b>
<b>Condition 14</b>	<b>Sale of Steam to Third Parties .....</b>	<b>4</b>
<b>SECTION 3.0</b>	<b>BIOLOGICAL RESOURCES MITIGATION IMPLEMENTATION PLAN COMPLIANCE VERIFICATION (BRMIP) .....</b>	<b>5</b>
<b>Section 1</b>	<b>Designated Biologist.....</b>	<b>5</b>
<b>Section 2a</b>	<b>Generator Lead Line Corridor Surveys .....</b>	<b>5</b>
<b>Section 2b</b>	<b>Revegetation of Heavily Disturbed Areas, Artificial Burrows, and Prey Monitoring .....</b>	<b>5</b>
<b>Section 2c</b>	<b>Lightly Disturbed Area Monitoring.....</b>	<b>5</b>
<b>Section 2d</b>	<b>Worker Education .....</b>	<b>5</b>
<b>Section 2e</b>	<b>Worker/Wildlife Interactions .....</b>	<b>5</b>
<b>Section 2f</b>	<b>San Joaquin Antelope Squirrel and Blunt-nosed Leopard Lizard Pre- construction Surveys .....</b>	<b>5</b>
<b>Section 2g</b>	<b>Giant Kangaroo Rat Colonies.....</b>	<b>5</b>
<b>Section 2h</b>	<b>Pre-construction Surveys .....</b>	<b>6</b>
<b>Section 2i</b>	<b>Temporary Kit Fox Den Closure.....</b>	<b>6</b>
<b>Section 2j</b>	<b>Permanent Kit Fox Den Closure .....</b>	<b>6</b>
<b>Section 2k</b>	<b>Artificial Kit Fox Dens.....</b>	<b>6</b>
<b>Section 2l</b>	<b>Habitat Improvement .....</b>	<b>6</b>
<b>Section 2m</b>	<b>Plant Site Kit Fox Den Pre-construction and Annual Surveys.....</b>	<b>6</b>
<b>Section 2n</b>	<b>Endangered Species Mortalities .....</b>	<b>6</b>
<b>Section 2o</b>	<b>Generator Lead Line Biological Surveys.....</b>	<b>6</b>
<b>Section 2p</b>	<b>Lost Hills Saltmat Monitoring .....</b>	<b>6</b>

## **APPENDICES**

<b>APPENDIX A</b>	<b>Kit Fox Den Monitoring at the Midway Sunset Cogeneration Company (MSCC) Facility (May 2017) .....</b>	<b>7</b>
<b>APPENDIX B</b>	<b>Biological Survey of the Natural Gas Pipeline for the Midway Sunset Cogeneration Company (MSCC) (May 2017) .....</b>	<b>8</b>
<b>APPENDIX C</b>	<b>Biological Survey of the Steamline for the Midway Sunset Cogeneration Company (MSCC) (May 2017) .....</b>	<b>9</b>
<b>APPENDIX D</b>	<b>Biological Resources Survey along the Generator Lead Line for the Midway Sunset Cogeneration Company (MSCC) (April 2017).....</b>	<b>10</b>
<b>APPENDIX E</b>	<b>Biological Resources Survey along the Generator Lead Line for the Midway Sunset Cogeneration Company (MSCC) (May 2017) .....</b>	<b>11</b>
<b>APPENDIX F</b>	<b>Biological Resources Survey along the Generator Lead Line for the Midway Sunset Cogeneration Company (MSCC) (Oct 2017).....</b>	<b>12</b>
<b>APPENDIX G</b>	<b>Kit Fox Den Monitoring at the Midway Sunset Cogeneration Company (MSCC) Facility (Oct 2017).....</b>	<b>13</b>

## SECTION 1.0 INTRODUCTION AND SUMMARY

Midway Sunset Cogeneration Company (MSCC) constructed a 234-megawatt (MW) cogeneration plant in the Midway Oilfields near Fellows in western Kern County, California. Plant construction began in October 1987 and was completed in the spring of 1989. The project also included completion of a steam distribution line and a 19.5-mile generator lead line in 1988. The California Energy Commission (CEC) approved the project with specific Conditions of Certification. Biological Resource Condition 1 specified that a Biological Resources Mitigation Implementation Plan (BRMIP) for construction activities be developed and approved by CEC. The BRMIP addressed mitigation measures required for biological resources protection. This annual report documents biological resources surveys and protection from April 1, 2017 through March 31, 2018 in compliance with the CEC Conditions of Certification.

On May 9, 2017, Tom Mull (MSCC Designated Biologist) inspected seven artificial San Joaquin kit fox (*Vulpes macrotis mutica*) dens (AD-1 through AD-7) and monitored the dens on May 10 and 11 for kit fox activity. No kit fox sign (dens, tracks, scat) was observed at the dens. (See Appendix A)

On May 9 and 10, 2017, Tom Mull conducted a survey along the MSCC natural gas pipeline route to identify any listed and other sensitive species west of Highway 33. No listed or sensitive species were found. Two potential kit fox pipe dens, previously identified in past reports as CEC 2-47 and CEC 2-94 are still present along the pipeline. Neither dens showed any use by a kit fox. (See Appendix B)

On May 9 and 10, 2017, Tom Mull conducted a survey along the MSCC steamline route to identify any listed and other sensitive species west of Highway 33. No listed or sensitive species were found. One inactive bird nest and one active common raven (*Corvus corax*) nest were observed on two electrical poles within 100 feet of each other above the steam line. (See Appendix C)

On April 19, 2017, Tom Mull conducted two surveys of generator lead line pole structures 4/2 and 14/6 for sensitive biological resources. One active bird nest was found at 4/2; maintenance was delayed until the nest was inactive. No sensitive biological resources were observed at 14/6. (See Appendix D)

On May 10 and 11, 2017, Tom Mull conducted a survey along the MSCC generator lead line to identify any nesting migratory birds, listed species, and other sensitive species adjacent to the power poles where removal of vegetation was being planned. Three active bird nests were observed on three pole structures (1/6, 4/2, and 15/4). This included two common ravens and one red-tailed hawk (*Buteo jamaicensis*). San Joaquin antelope squirrels (*Ammospermophilus nelsoni*) were observed about 200-300 feet north of pole structures 9/7, 10/3, 10/6, 12/1, and 14/6. Active giant kangaroo rat (*Dipodomys ingens*) burrows and fresh scat were observed at burrow entrances between the main access road leading to pole structures 13/4, 13/6, 14/2, 14/6, 14/7, and 15/3. No active burrows were observed adjacent to the pole structures. All active giant kangaroo rat burrows were flagged for avoidance. (See Appendix E)

On October 10, 2017, Tom Mull, surveyed all pole structures along the 19.5 mile generator lead line by driving a vehicle and walking along existing access roads to each structure to look for migratory bird nests and other listed and sensitive biological resources. Three inactive nests were observed on pole structures (1/6, 4/2, and 6/3). San Joaquin antelope squirrels were observed running on two main access roads about 200 feet north of Pole 6/2 and 13/3. (See Appendix F)

On October 9, 2017, Tom Mull inspected seven artificial San Joaquin kit fox dens (AD-1 through AD-7) and monitored the dens on October 10 and 11 for kit fox activity. San Joaquin antelope squirrel tracks were observed at the entrances of AD-2 and AD-4. No other federal or state listed or sensitive wildlife species was observed. (See Appendix G)

## **SECTION 2.0 CONDITIONS OF CERTIFICATION COMPLIANCE VERIFICATION**

This section of the annual compliance report documents MSCC actions previously complied with or recent compliance with the Conditions of Certification for protection of biological resources. More detailed verification is covered in Section 3.0.

**Condition 1 – Designated Biologist.** Thomas V. Mull is the designated biologist.

**Condition 2 – Biological Resources Mitigation Implementation Plan (BRMIP).** The BRMIP was approved by the CEC. Verification of the BRMIP compliance is addressed in Section 3.0.

**Condition 2a – Generator Lead Line Sensitive Plants.** Mitigation requirements have been already met.

**Condition 2b – Revegetation of Heavily Disturbed Areas.** Revegetated areas were acceptable to CEC during the original construction of the plant and associated facilities. This condition of compliance has been documented in past annual compliance reports.

**Condition 2c – Lightly Disturbed Areas.** Lightly disturbed areas met the 95% BRMIP requirements; this condition has been met.

**Condition 2d – Worker Education.** Construction personnel, plant personnel, and site visitors are required to view the worker education program video. The video shows sensitive biological resources and describes how to avoid impacts to them. MSCC reported that 225 visitors/employees viewed the video.

**Condition 2e – Worker/Wildlife Interactions.** No worker/wildlife direct interactions occurred for this monitoring period.

**Condition 2f – Blunt-nosed Leopard Lizard and San Joaquin Antelope Squirrel Protection and Exclusion Zones.** Compliance with this condition was met during plant construction and was documented in past annual reports.

**Condition 2g – Giant Kangaroo Rat Protection.** Active giant kangaroo rat burrows were observed along the generator lead line near a number of pole structures. Pin flags were used to mark the location of active burrows for avoidance prior to scheduled clearing of vegetation leading to pole structures. (See Appendices D, E, and F)

**Condition 2h – Pre-construction Surveys and Kit Fox Exclusion Zones.** No pre-construction activities were planned in the vicinity of established kit fox exclusion zones; thus, no pre-construction surveys were required.

**Condition 2i – Construction or Operation Activities in Kit Fox Exclusion Zones.** No construction activities or operations were conducted in any designated kit fox exclusion zones.

**Condition 2j – Kit Fox Den Closures.** No kit fox dens were closed.

**Condition 2k – Kit Fox Den Replacement.** This condition was completed with the installation of the seven artificial kit fox dens.

**Condition 2l – Habitat Improvement and Protection.** This condition has been met as described in Section 2.0, Conditions 2b and 2c. MSCC continues to protect habitat and biological resources in Crocker Springs Canyon and the surrounding area to the north and west by maintaining exclusion zones surrounding seven artificial kit fox dens with posted sensitive biological resource signs.

**Condition 2m – Cogeneration Plant Site Pre-construction Survey.** This condition was met.

**Condition 2n – Endangered Species Mortalities.** No mortalities or interactions occurred.

**Condition 2o – Generator Lead line Mitigation.** This condition was met.

**Condition 2p – Pre-construction Surveys and Kit Fox Protection Requirements.** Pre-construction surveys were not accomplished because no construction activities were conducted. Kit fox protection requirements were implemented during all biological surveys when applicable. (See Appendices A, B, C, D, E, F, and G)

**Condition 3 – Periodic and Annual MSCC Reports.** MSCC has complied with the mitigation measures and monitoring requirements as described in the BRMIP, the Conditions of Certification, and in accordance with the CEC modification of the Endangered Species Monitoring Plan. MSCC has submitted all required reports. This is the 28<sup>th</sup> annual compliance report following commercial operation of the MSCC facility.

**Condition 4 – CEC Access to Facilities.** MSCC allows CEC access to its facilities when requested.

**Condition 5 – Habitat Compensation.** Habitat fees have been paid in full as stated in the 1992 annual compliance report.

**Condition 6 – Map of Kit Fox Dens and Sign.** The locations of the seven artificial kit fox dens are found in Appendices A and G.

**Condition 7 – Monitoring.** MSCC continues its monitoring efforts for the artificial kit fox dens and other sensitive resources found during surveys and continues implementation of required mitigation measures when applicable. All required monitoring reports for this period have been completed (See Appendices A through G). MSCC continues to conduct a reduced level of monitoring for routine operations in accordance with the CEC modifications of the Endangered Species Monitoring Plan.

**Condition 8 – New Road Construction.** No new road construction occurred during this monitoring period.

**Condition 9 – Aera Energy LLC Annual Reports.** MSCC continues to provide annual reports to the CEC regarding Aera Energy LLC endangered species protection program.

**Condition 10 – Aerial photos.** MSCC is no longer required to submit aerial photos to the CEC.

**Condition 11 – Decommissioning Plan.** MSCC will submit a decommissioning plan, as required, one year prior to actual abandonment of its plant and facilities.

**Condition 12 – Habitat Compensation for the Dickenson Trust Steam Line.** This condition has been met.

**Condition 13 – Dickenson Steam Line Extension.** This condition was completed in 1990.

**Condition 14 – Sale of Steam to Third Parties.** In the past, MSCC notified the CEC through formal written correspondence regarding selling steam to third parties and will continue to do so.

### **SECTION 3.0 BIOLOGICAL RESOURCES MITIGATION IMPLEMENTATION PLAN COMPLIANCE VERIFICATION (BRMIP)**

The BRMIP was initially issued in April 1987, amended twice on January 12, 1988 and on October 24, 1994. This section documents the status of the mitigation measures completed or in progress. The majority of the BRMIP conditions describe specific mitigation measures required before or during construction of the MSCC plant, Generation Lead Line, and the steam line. Compliance with the majority of these items has been reported in previous annual compliance reports. Therefore, this section will include less detail for items previously completed and documented in past annual reports.

**Section 1 – Designated Biologist.** Mr. Thomas V. Mull is the designated biologist.

**Section 2a – Generator Lead Line Corridor Surveys.** Generator lead line corridor surveys were conducted for this monitoring period. (See Appendices D, E, and F)

**Section 2b – Revegetation of Heavily Disturbed Areas, Artificial Burrows, and Prey Monitoring.** Revegetation of heavily disturbed areas was completed following construction of the MSCC plant.

Note: The CEC agreed that the installation of artificial burrows for California ground squirrel (*Spermophilus beecheyi*) were not necessary since the squirrels and other small mammals began digging their own burrows in the cut slopes shortly after the slopes were graded during construction activities.

In addition, there are small mammals available as a prey base for the kit fox in the area surrounding the artificial dens. Therefore, prey monitoring is not warranted.

**Section 2c – Lightly Disturbed Area Monitoring.** This requirement has been completed; the CEC no longer requires monitoring these areas.

**Section 2d – Worker Education.** The requirement for construction workers and new employees to view the endangered species education video is an ongoing program and is accomplished during the annual compliance period and reported in the annual report.

**Section 2e – Worker/Wildlife Interactions.** MSCC maintains records of reports for endangered species sightings by workers and their employees in the vicinity of the plant and its associated facilities. There were no worker/endangered species interactions in the vicinity of the plant and associated facilities.

**Section 2f – San Joaquin Antelope Squirrel and Blunt-nosed Leopard Lizard Pre-construction Surveys.** Surveys were conducted for these species prior to scheduled removal of vegetation. (See Appendices B, C, D, E, and F)

**Section 2g – Giant Kangaroo Rat Colonies.** Giant kangaroo rat colonies were observed during this monitoring period along the generator lead line. (See Appendices D, E, and F)



**Section 2h – Pre-construction Surveys.** Pre-construction surveys were completed along the steamline, natural gas pipeline, and generator lead line for removal of dense vegetation to prevent the spread of fire. (See Appendices B, C, D, E, and F)

**Section 2i – Temporary Kit Fox Den Closure.** No kit fox dens were temporarily closed during this compliance period.

**Section 2j – Permanent Kit Fox Den Closure.** No kit fox dens were permanently closed during this compliance period.

**Section 2k – Artificial Kit Fox Dens.** The seven artificial dens (AD) were monitored semi-annually. No kit fox activity or sign was observed. San Joaquin antelope squirrel tracks were observed at entrance of AD-2 and AD-4 in October 2017. (See Appendix G)

**Section 2l – Habitat Improvement.** Habitat improvement following initial construction of the MSCC plant and associated facilities has been completed.

**Section 2m – Plant Site Kit Fox Den Pre-construction and Annual Surveys.** Pre-construction surveys of kit fox dens were completed prior to construction of the plant and associated facilities. Annual surveys are conducted when required. (Appendices A, B, C, D, E, F, and G)

**Section 2n – Endangered Species Mortalities.** There were no threatened and endangered species mortalities during this compliance period.

**Section 2o – Generator Lead Line Biological Surveys.** Biological surveys were conducted during this compliance period prior to MSCC removal of four inactive bird nests on pole structures 1/6, 4/2, 6/3, and 15/4, and scheduled removal of vegetation adjacent to pole structures. (See Appendices D, E, and F)

**Section 2p – Lost Hills Saltmat Monitoring.** All requirements concerning Generation Lead Line construction within the vicinity of a Lost Hills saltmat (*Atriplex vallicola*) plant population was completed and is documented in past annual reports.



**APPENDIX A**  
**Kit Fox Den Monitoring at the Midway Sunset**  
**Cogeneration Company (MSCC) Facility (May 2017)**

Thomas V. Mull

462 Diamond Peak  
Beaumont, California 92223-7562  
Cell (951) 500-4020

Mr. Ray Smith  
Midway Sunset Cogeneration Company  
3466 West Crocker Springs Road  
P.O. Box 457  
Fellows, CA 93224-0457

May 15, 2017

**RE:** Kit Fox Den Monitoring at the Midway Sunset Cogeneration Company (MSCC) Facility,  
MSCC Contract No. MSCC-010 Task 3.

Dear Mr. Smith:

This report details the methods and results of the artificial San Joaquin kit fox (*Vulpes macrotis mutica*) den inspections and monitoring that was conducted from May 9-11, 2017. This report and monitoring are conditions of compliance for the first semi-annual monitoring inspection of seven artificial dens (AD-1 through AD-7) for the 1 April 2017 through 31 March 2018 monitoring period, as required by the California Energy Commission.

#### Methods

Seven artificial kit fox dens (AD-1 through AD-7) are initially inspected for kit fox use one day prior to monitoring. Den entrances were cleaned out to a depth of about two to three feet using a narrow shovel and hoe. Areas immediately surrounding den entrances were cleared of vegetation prior to applying a thin layer of tracking medium (flour) adjacent to and just inside den entrances. This method of applying flour is referred to as "dusting the dens." Grass clippings from the surrounding area were placed across den entrances to determine if an animal enters or exits the den. Dens were dusted about one hour before sunset and inspected on the following two consecutive mornings at sunrise. Animal tracks and other wildlife sign (scat, tail drags) at the dens were identified if possible to determine species. Wire cable and posts and sensitive species area signs making up the exclusion zone surrounding the dens were inspected for stability and whether the signs were still in place. Incidental wildlife observations were recorded during monitoring of the dens.

#### Results

Figure 1 shows the locations of the dens in proximity to the MSCC facility. All dens were structurally intact during the initial den inspection on May 9, 2017. All den entrances were open for small mammal occupation; however, den entrances and the ground were 100% covered by high grass and shrub species. Grass and shrub height ranged from two to three feet within the seven exclusion zones. There was no evidence that construction activities occurred in any of the exclusion zones. The exclusion zone barriers remain intact. Biological sensitive warning signs attached to the steel cable are still present at all exclusion zones.

The seven artificial dens were monitored for kit fox activity during the early mornings of May 10 and 11. None of the dens showed evidence of use or site visits by kit fox. California ground squirrel (*Citellus beecheyi*) tracks were observed on the floor at AD-2. Unknown species tracks of kangaroo rats and mice were also observed at AD-1, AD-3, AD-4, AD-5, AD-6, and AD-7. Black-tailed jackrabbit (*Lepus californicus*) tracks were recorded at AD-4. Other animal tracks and sign included one ground beetle. Table 1 lists the monitoring results.

**Table 1. Monitoring Results of Artificial Kit Fox Dens**

Date and Other Data	Den Number	Animal Tracks	Entered Den
May 10, 2017	AD-1	No tracks	N/A
0700; 57° F. Clear skies Wind 3-5 mph	AD-2	California ground squirrel	Yes
	AD-3	Ground beetle	No
	AD-4	Black-tailed jackrabbit	No
	AD-5	Mice	No
	AD-6	Kangaroo rat	No
	AD-7	Mice	No
May 11, 2017	AD-1	Kangaroo rat	No
0600; 55° F. 5% cloud cover No wind	AD-2	California ground squirrel	Yes
	AD-3	Mice	No
	AD-4	Black-tailed jackrabbit. mice	No
	AD-5	No tracks	N/A
	AD-6	Kangaroo rat, mice	No
	AD-7	Mice	No

Note: N/A=Not applicable; Mice and Kangaroo rat= unknown species.

### Wildlife Species Observed

#### Birds

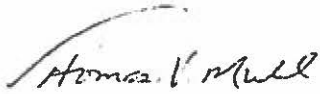
Common raven (*Corvus corax*)  
Mourning dove (*Zenaida macroura*)  
Western kingbird (*Tyrannus verticalis*)  
Western meadowlark (*Sturnella neglecta*)  
House finch (*Carpodacus mexicanus*)

#### Mammals

Black-tailed jackrabbit (*Lepus californicus*)

Thank you for giving me the opportunity to assist you with your monitoring requirements.

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas V. Mull". The signature is fluid and cursive, with a long horizontal stroke at the beginning.

Thomas V. Mull  
MSCC Designated Biologist

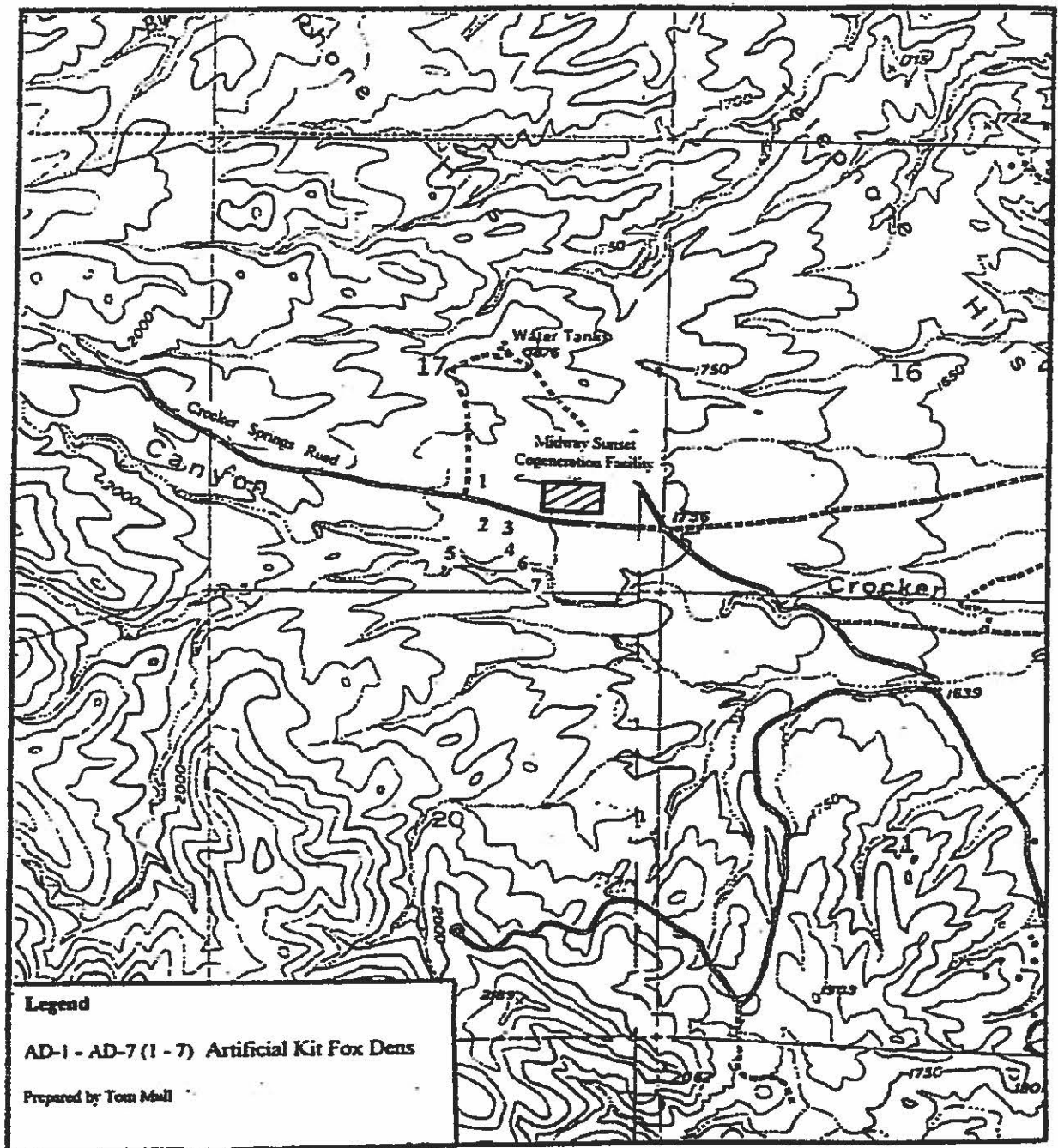


Figure 1. Locations of Seven Artificial Kit Fox Dens at the Midway Sunset Cogeneration Facility, Kern County, Fellows, California. (T31S, R22E, Section 17, MDB & M; Panorama Hills and Fellows USGS 7.5 minute Quadrangle Maps). Scale not indicated.

**APPENDIX B**  
**Biological Survey of the Natural Gas Pipeline for the**  
**Midway Sunset Cogeneration Company (MSCC) (May 2017)**

Thomas V. Mull

462 Diamond Peak  
Beaumont, California 92223-7562  
Cell phone: (951) 500-4020

Mr. Ray Smith  
Midway Sunset Cogeneration Company  
3466 West Crocker Springs Road  
P.O. Box 457  
Fellows, CA 93224-0457

May 16, 2017

**RE:** Biological Survey of the Natural Gas Pipeline for Midway Sunset Cogeneration Company (MSCC), MSCC Contract No. MSCC-010, Miscellaneous Task.

Dear Mr. Smith:

This report documents a biological survey regarding plans to remove vegetation under and immediately adjacent to the natural gas pipe from the MSCC facility located on Crocker Springs Road and east to State Highway 33 because the overgrown vegetation poses a fire hazard. This biological survey and report complies with the requirements of the Biological Resources Mitigation Implementation Plan (BRMIP), as required by the California Energy Commission (CEC).

The purpose of the survey was to identify any Federal and State listed plant and animal species including animal sign (e.g., burrows, tracks, scat, prey remains) from San Joaquin kit fox (*Vulpes macrotis mutica*), the San Joaquin antelope squirrel (*Ammospermophilus nelsoni*), and any other sensitive resources that could potentially occur within 50 feet of the natural gas pipeline.

#### **Methods**

On May 9 and 10, 2017, Thomas Mull, MSCC Designated Biologist, walked adjacent to the above ground portions of the gas pipeline and surveyed a 50-foot buffer north and south and east and west of the pipeline at 25-foot intervals from the centerline of the pipeline. All observed biological resources were recorded in the field on an aerial photo. All burrows and open pipes with a diameter of 5-inches or more were inspected for the presence of San Joaquin kit fox, San Joaquin antelope squirrel, burrowing owl (*Athene cunicularia*) and their scat, prey remains, whitewash, and tracks. Common plants, sensitive species, and other wildlife observations (temperature, cloud cover, and wind speed) were also recorded.

#### **Results**

The pipeline route comprises ruderal habitat, intersecting roads, oil wells and pumpers, tanks, and pipes carrying natural gas, wastewater, water, and steam. The pipeline route is heavily disturbed from continuous oil field activities and maintenance operations. Figure 1 is an aerial

photo showing the aboveground and underground portions of the pipeline. (Note: Vegetation would not be removed above the underground portions of the pipeline). Common vegetation includes Russian thistle (*Salsola iberica*), stands of sunflowers (*Helianthus sp.*), red brome (*Bromus madritensis*), filaree (*Erodium cicutarium*), all-scale (*Atriplex polycarpa*), and spiny saltbush (*Atriplex spinifera*). No sensitive plants were observed.

No threatened or endangered species or their sign was observed during this survey. One inactive and one active migratory bird nest was observed on two wooden structures transferring electricity to portions of the oil field above the underground natural gas pipeline. Common ravens (*Corvus corax*) are nesting in the active nest. One kit fox pipe den (CEC 2-94) recorded in past reports is still present under an access road within 30 feet of the gas pipeline route (See Figure 1). The pipe den is still inactive and shows no use by a kit fox.

Wind speed was estimated at 1-2 mph under 85% clear skies during the survey. Temperatures ranged from 68° F to 81° F over two days.

## **Wildlife observations**

### **Birds**

California quail (*Callipepla californica*)  
Mourning dove (*Zenaida macroura*)  
Common raven (*Corvus corax*)  
Say's phoebe (*Sayornis saya*)  
Northern mockingbird (*Mimus polyglottos*)  
Western meadowlark (*Sturnella neglecta*)  
European starling (*Sturnus vulgaris*)  
Bewick's wren (*Thryomanes bewickii*)  
Lark sparrow (*Chondestes grammacus*)  
Sage sparrow (*Amphispiza belli*)

### **Mammals**

Desert cottontail (*Sylvilagus auduboni*)  
Black-tailed jackrabbit (*Lepus californicus*)

### **Discussion**

Even though there is one active bird nest located about 36 feet above the underground gas pipe, there would be no disturbance to the nesting birds since the vegetation above the underground portions of the natural gas pipe would not be removed during maintenance activities.

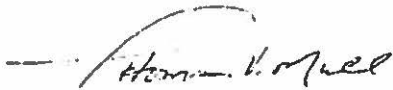


Since no federal or state listed plant and animal species was observed along the route, no impacts are expected during the clearing of the vegetation under and immediately adjacent to the above ground portions of the gas pipe.

The CEC kit fox pipe den, CEC 2-94, is located about 30 feet from the gas pipeline route and shows no recent use by a kit fox. There is no vegetation near the pipe den and any removal of vegetation on the pipeline route would be about 30 feet south of the inactive kit fox pipe den. Figure 1 shows the locations of pipe den CEC 2-94 and the natural gas pipe. The kit fox pipe den has not been occupied for more than 12 years. Therefore, no impacts to the pipe den are expected during removal of vegetation under the gas pipe.

If you have any questions, please let me know.

Sincerely,

A handwritten signature in cursive script, appearing to read "Thomas V. Mull".

Thomas V. Mull  
MSCC Designated Biologist

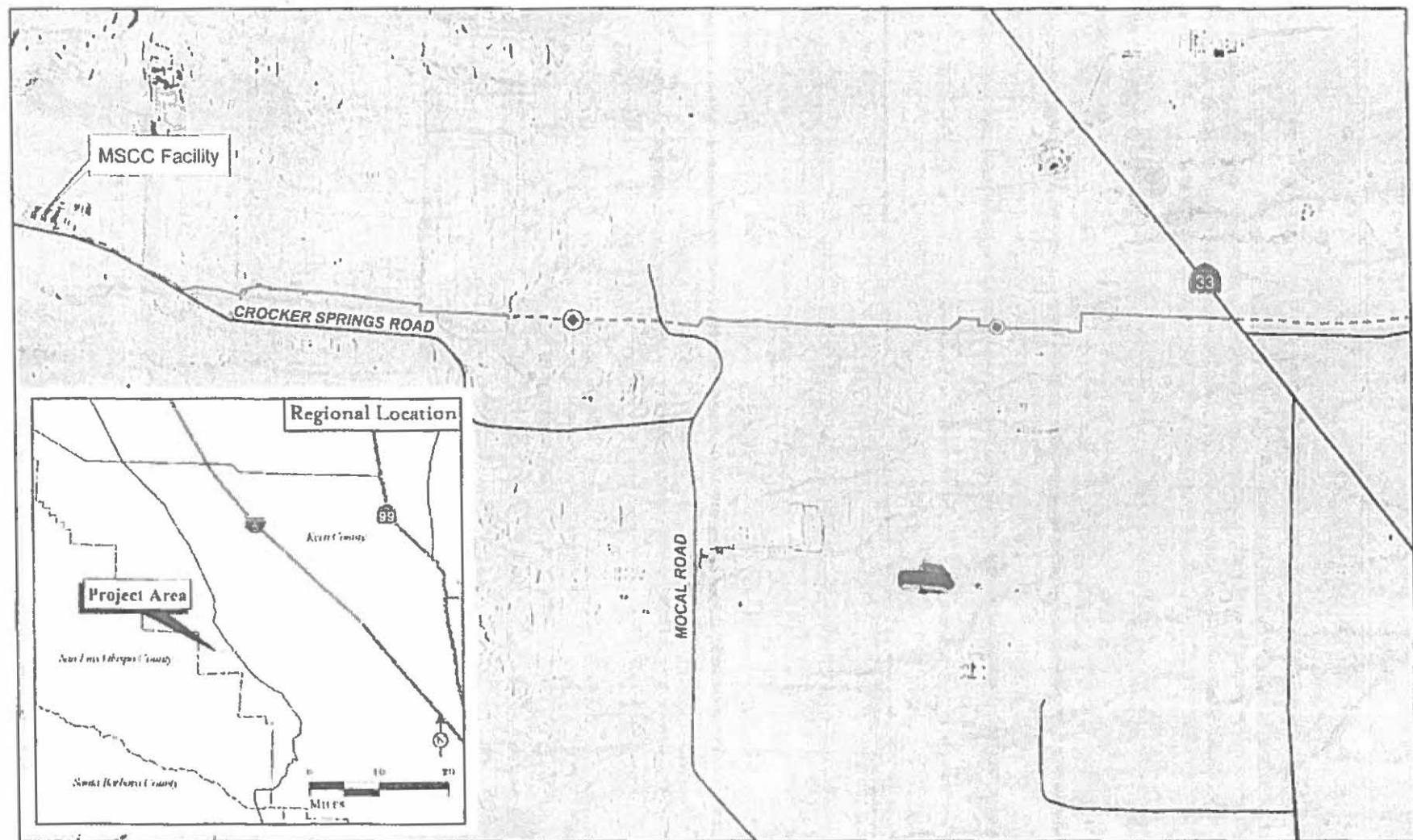
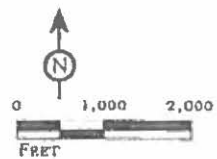


FIGURE 1

LSA



- Active Raven Nest
- CEC 2-94 Potential Kit Fox Pipe Den
- Natural Gas Pipeline Aboveground
- - - Natural Gas Pipeline Underground

Midway Sunset Cogeneration Company  
Biological Survey

Regional and Project Location

SOURCE: Bing Aerial, 2011

E:\PS1170\Reports\NatGas\_pipeline Loc 05-17-17.mxd (5/17/2017)

**APPENDIX C**  
**Biological Survey of the Steamline for the Midway**  
**Sunset Cogeneration Company (MSCC) (May 2017)**

Thomas V. Mull

462 Diamond Peak  
Beaumont, California 92223-7562  
Cell Phone: (951) 500-4020

Mr. Ray Smith  
Midway Sunset Cogeneration Company  
3466 West Crocker Springs Road  
P.O. Box 457  
Fellows, CA 93224-0457

May 16, 2017

**RE:** Biological Survey of the Steam Line for Midway Sunset Cogeneration Company (MSCC). MSCC Contract No. MSCC-010, Miscellaneous Task.

Dear Mr. Smith:

This report documents a biological survey regarding MSCC plans to remove large shrubs and other vegetation from under and immediately adjacent to the steam pipe because the overgrown vegetation potentially poses a fire hazard. This biological survey and report complies with the requirements of the Biological Resources Mitigation Implementation Plan (BRMIP), as required by the California Energy Commission (CEC).

The purpose of the survey was to identify any Federal and State listed plant and animal species including animal sign (e.g., burrows, tracks, scat, prey remains) from San Joaquin kit fox (*Vulpes macrotis mulica*), San Joaquin antelope squirrel (*Ammospermophilus nelsoni*), and any other sensitive resources that could potentially occur within 50 feet of the steam line.

#### Methods

On May 9 and 10, 2017, Thomas Mull, MSCC Designated Biologist, walked adjacent to the steam line and surveyed a 50-foot buffer north and south and east and west of the steam line at 25-foot intervals from the centerline of the steam line. Biological resources were recorded in the field. All burrows and open pipes with a diameter of 5-inches or more were mapped and inspected for the presence or use by San Joaquin kit fox, San Joaquin antelope squirrel, or burrowing owl (*Athene cunicularia*). Temperature, cloud cover, and wind speed were recorded as well as a list of observed common plants and wildlife.

#### Results

The steam line route comprises ruderal habitat, intersecting roads, oil wells, natural gas pipes, steam pipes, wastewater, and water pipes to support oil field activities and operations. Numerous dirt and paved roads run adjacent to and intersect with the steam line. Figure 1 is an aerial map showing the main steam line route.

Common vegetation included Russian thistle (*Salsola iberica*), horehound (*Marrubium vulgare*), foxtail fescue (*Festuca megalura*), sunflower (*Helianthus sp.*), red brome (*Bromus madritensis* ssp. *rubens*), rip-gut brome (*Bromus diandrus*), filaree (*Erodium cicutarium*), fiddleneck (*Amsinckia menziesii*), all-scale (*Atriplex polycarpa*), and spiny saltbush (*Atriplex spinifera*). No sensitive plants were observed along the survey route.

No threatened or endangered plant or animal species was observed during this survey. One inactive and one active bird nest was observed on two wooden structures carrying electrical power 36 feet above the steam line pipe. Common ravens (*Corvus corax*) are nesting in the active nest. Figure 1 shows the location of the inactive and active nest on the steam line route.

Temperatures ranged from 68° F to 81° F. Wind speed was estimated at 1 - 2 mph under 85% clear skies.

### **Wildlife observations**

#### **Birds**

California quail (*Callipepla californica*)  
Mourning dove (*Zenaidura macroura*)  
Common raven (*Corvus corax*)  
Say's phoebe (*Sayornis saya*)  
Northern mockingbird (*Mimus polyglottos*)  
Western meadowlark (*Sturnella neglecta*)  
European starling (*Sturnus vulgaris*)  
Bewick's wren (*Thryomanes bewickii*)  
Lark sparrow (*Chondestes grammacus*)  
Sage sparrow (*Amphispiza belli*)

#### **Mammals**

Desert cottontail (*Sylvilagus auduboni*)  
Black-tailed jackrabbit (*Lepus californicus*)

#### **Discussion**

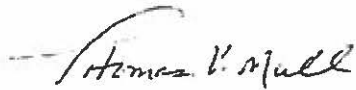
Since no federal or state listed plant and animal species was observed along the route, no impacts are expected during the clearing of the vegetation under and immediately adjacent to the steam line pipe.

However, there is one active migratory bird nest located about 36 feet above the steam line pipe. Removal of vegetation may occur within close proximity of the structure containing the active nest. I recommend that no removal of vegetation along the steam line be accomplished within

200 feet of the active raven nest until the young fledge or are close to leaving the nest sometime in early July. If you implement this recommendation, no impacts to the birds are expected to occur. There are no other biological concerns.

If you have any questions, please let me know.

Sincerely,

A handwritten signature in cursive script that reads "Thomas V. Mull". The signature is written in dark ink and is positioned to the left of the printed name.

Thomas V. Mull  
MSCC Designated Biologist

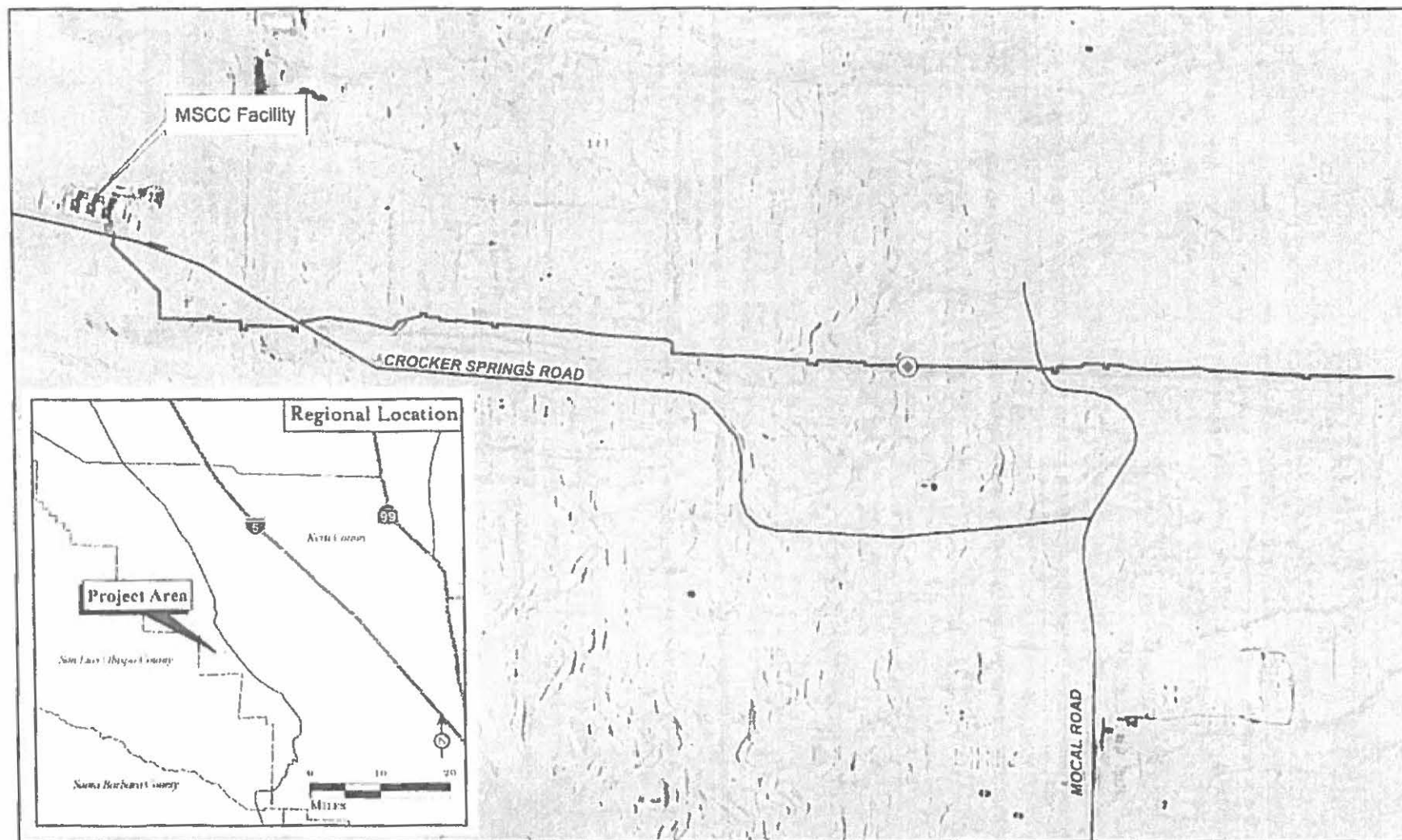
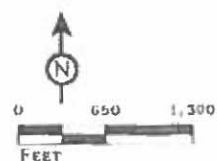


FIGURE 1

LSA



- ⊕ Active Raven Nest
- Steam Line

Midway Sunset Cogeneration Company  
Biological Survey

Regional and Project Location

SOURCE: USRI World Imagery, 2014

I:\PS11704\Reports\steamline Loc 05-17-17.mxd (5/17/2017)

**APPENDIX D**  
**Biological Resources Survey along the Generator Lead Line for the**  
**Midway Sunset Cogeneration Company (MSCC) (April 2017)**



Thomas V. Mull

462 Diamond Peak  
Beaumont CA 92223-7562  
Home: 951 797-0819  
Cell: 951 500-4020

April 26, 2017

Mr. Ray Smith  
Midway Sunset Cogeneration Company  
3466 West Crocker Springs Road  
P.O. Box 457  
Fellows CA 93224-0457

**RE:** Biological Resources Survey along the Generator Lead Line for the Midway Sunset Cogeneration Company (MSCC) under MSCC Contract No. MSCC-010 Miscellaneous Task

Dear Mr. Smith:

This report details the methods and results of a biological survey along the Generator Lead Line that runs from Buttonwillow, California to the MSCC Facility on Crocker Springs Road. MSCC plans to conduct maintenance on one structure the week of April 24, 2017. The purpose of the survey was to determine if any nesting migratory birds were observed on the structure and whether any sensitive biological resources (burrows and dens) occurred on the ground leading to and surrounding the structure.

The biological survey was conducted to ensure compliance with the Migratory Bird Treaty Act, California Endangered Species Act, and reporting requirements in accordance with the Biological Resources Mitigation Implementation Plan conditions of certification approved by the California Energy Commission.

## **METHODS**

On April 19, 2017, Thomas Mull, Designated Biologist for MSCC, surveyed one structure by walking along the existing access road to look for active migratory bird nests and other sensitive biological resources on the ground. Bird nests, if observed, were recorded as inactive or active. Sensitive species burrows were noted and recorded leading to and adjacent to structures. Temperature, cloud cover, and other wildlife observed were also recorded.

## **RESULTS**

One active bird nest was observed on structure 4/2. The active nest contained one red-tailed hawk (*Buteo jamaicensis*) apparently sitting on eggs. No other threatened or endangered species or their sign (i.e. burrows, scat, prey remains) were observed. Wildlife observed near the vicinity of the power pole included one red-tailed hawk.

Temperature recorded was 61 degrees F. Cloud cover was estimated at 35%.

## **DISCUSSION AND RECOMMENDATIONS**

Since structure 4/2 contains one active bird nest, maintenance at this location should be delayed until the young birds fledge the nest sometime in June. I recommend an additional survey be conducted prior to MSCC rescheduling maintenance on 4/2 to ensure the nest is inactive.

If you have any questions, please let me know.

Sincerely,

A handwritten signature in cursive script, reading "Thomas V. Mull".

Thomas V. Mull  
MSCC Designated Biologist

Thomas V. Mull

462 Diamond Peak  
Beaumont CA 92223-7562  
Home: 951 797-0819  
Cell: 951 500-4020

April 26, 2017

Mr. Ray Smith  
Midway Sunset Cogeneration Company  
3466 West Crocker Springs Road  
P.O. Box 457  
Fellows CA 93224-0457

**RE:** Biological Resources Survey along the Generator Lead Line for the Midway Sunset Cogeneration Company (MSCC) under MSCC Contract No. MSCC-010 Miscellaneous Task

Dear Mr. Smith:

This report details the methods and results of a biological survey along the Generator Lead Line that runs from Buttonwillow, California to the MSCC Facility on Crocker Springs Road. MSCC plans to conduct maintenance on one structure the week of April 24, 2017. The purpose of the survey was to determine if any nesting migratory birds were observed on the structure and whether any sensitive biological resources (burrows and dens) occurred on the ground leading to and surrounding the structure.

The biological survey was conducted to ensure compliance with the Migratory Bird Treaty Act, California Endangered Species Act, and reporting requirements in accordance with the Biological Resources Mitigation Implementation Plan conditions of certification approved by the California Energy Commission.

## **METHODS**

On April 19, 2017, Thomas Mull, Designated Biologist for MSCC, surveyed one structure by walking along the existing access road near Buttonwillow, California to look for active migratory bird nests and other sensitive biological resources on the ground. Bird nests, if observed, were recorded as inactive or active. Sensitive species burrows were noted and recorded leading to and adjacent to structures. Temperature, cloud cover, and other wildlife observed were also recorded.

## **RESULTS**

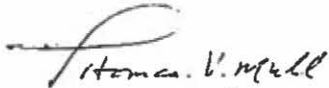
No bird nests were observed on structure 14/6. No other threatened or endangered species or their sign (i.e. burrows, scat, prey remains) were observed. Temperature recorded was 61 degrees F. Cloud cover was estimated at 35%.

## DISCUSSION AND RECOMMENDATIONS

Since there were no bird nests or other sensitive wildlife found at structure 14/6 or along the access road leading to 14/6, maintenance at this location is not expected to result in any violation of the Migratory Bird Treaty Act or California Endangered Species Act.

If you have any questions, please let me know.

Sincerely,

A handwritten signature in cursive script, appearing to read "Thomas V. Mull".

Thomas V. Mull

MSCC Designated Biologist

**APPENDIX E**  
**Biological Resources Survey along the Generator Lead Line for the**  
**Midway Sunset Cogeneration Company (MSCC) (May 2017)**

Thomas V. Mull

---

462 Diamond Peak  
Beaumont CA 92223-7562  
Home: 951 797-0819  
Cell: 951 500-4020

May 16, 2017

Mr. Ray Smith  
Midway Sunset Cogeneration Company  
3466 West Crocker Springs Road  
P.O. Box 457  
Fellows CA 93224-0457

**RE:** Biological Resources Survey along the Generator Lead Line for the Midway Sunset Cogeneration Company (MSCC) under MSCC Contract No. MSCC-010 Miscellaneous Task

Dear Mr. Smith:

This report details the methods and results of a biological survey along the Generator Lead Line that runs from Buttonwillow, California to the MSCC Facility located on Crocker Springs Road. MSCC plans to cut down the vegetation surrounding the base of the wooden poles (structures) to protect the structures from burning during a potential wild fire. The purpose of the survey was to determine if any active migratory bird nests were observed on the structures and whether any sensitive biological resources (threatened and endangered species burrows and dens) were found leading to and surrounding the structures.

The biological survey was conducted to ensure compliance with the Migratory Bird Treaty Act, California Endangered Species Act, and reporting requirements in accordance with the Biological Resources Mitigation Implementation Plan conditions of certification approved by the California Energy Commission.

## **METHODS**

On May 10 and 11, 2017 Thomas Mull, Designated Biologist for MSCC, surveyed the power poles by driving and walking along existing access roads to each pole to look for active migratory bird nests and other sensitive biological resources. Active and inactive bird nests were recorded. Threatened and endangered species and their burrows and dens (if found) were also recorded. Temperature, cloud cover, and other wildlife observed were noted as well.

## **RESULTS**

Three active bird nests were observed on five structures (1/6, 4/2, and 15/4). This included two common ravens (*Corvus corax*), and one red-tailed hawk (*Buteo jamaicensis*). One inactive nest was observed on structure 6/3.

No San Joaquin kit fox (*Vulpes macrotis mutica*) dens or sign (tracks, scat, or prey remains) were observed. No blunt-nosed leopard lizards (*Gambelia silus*) or their burrows were observed.

Multiple sightings of San Joaquin antelope squirrel (*Ammospermophilus nelsoni*) (SJAS) were observed some distances 200 – 300 feet from structures 9/7, 10/3, 10/6, 12/1, and 14/6 along the main access road. One salmon colored pin flag was marked as SJAS and placed adjacent to one occupied San Joaquin antelope squirrel burrow along the main access road approximately 250 feet north of structure 10/6.

Active giant kangaroo rat (*Dipodomys ingens*) (GKR) burrows and their sign (fresh scat) were observed during the survey within the vicinity of structures 13/4, 13/6, 14/2, 14/6, 14/7, and 15/3. Salmon colored pin flags were marked as GKR and placed adjacent to the active burrows. All were located along and adjacent to the small access roads that lead to the structures from the main access road. No GKR burrows were observed adjacent to the structures.

Wildlife observed included prairie falcon (*Falco mexicanus*), red-tailed hawk, American kestrel (*Falco sparverius*), house finch (*Carpodacus mexicanus*), mourning dove (*Zenaida macroura*), common raven, red-winged blackbird (*Agelaius phoeniceus*), western kingbird (*Tyrannus verticalis*), loggerhead shrike (*Lanius ludovicianus*), European starling (*Sturnus vulgaris*), killdeer (*Charadrius vociferous*), greater roadrunner (*Geococcyx californianus*), western meadowlark (*Sturnella neglecta*), horned lark (*Eremophila alpestris*), California quail (*Callipepla californica*), San Joaquin antelope squirrel, black tailed jackrabbit (*Lepus californicus*), and desert cottontail (*Sylvilagus auduboni*).

Temperatures ranged in the morning to the afternoon from 54 - 81 degrees F. Cloud cover ranged from 0 - 10%.

## DISCUSSION AND RECOMMENDATIONS

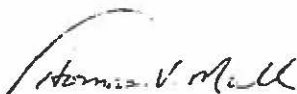
There are three migratory birds nesting (sitting on eggs) on structures (1/6, 4/2, and 15/4). Removal of vegetation at these structures should be delayed until the young birds fledge or about to fledge from the nests (early July).

One flagged San Joaquin antelope squirrel burrow along the main access road 250 feet north of structure 10/6 and multiple giant kangaroo rat burrows near structures 13/4, 13/6, 14/2, 14/6, 14/7, and 15/3 should be avoided and not crushed by vehicles driving over them. In addition, the speed limit should be 10 mph on the main access road.

If these recommendations are accepted, no biological monitor would be required.

If you have any questions or decide that you need a biological monitor, let me know.

Sincerely,



Thomas V. Mull  
MSCC Designated Biologist

**APPENDIX F**  
**Biological Resources Survey along the Generator Lead Line for the**  
**Midway Sunset Cogeneration Company (MSCC) (Oct 2017)**



Thomas V. Mull

462 Diamond Peak  
Beaumont CA 92223  
Home: 951 797-0819  
Cell: 951 500-4020

October 16, 2017

Mr. Ray Smith  
Midway Sunset Cogeneration Company  
3466 West Crocker Springs Road  
P.O. Box 457  
Fellows CA 93224-0457

**RE:** Biological Resources Nest Survey along the Generator Lead Line for the Midway Sunset Cogeneration Company (MSCC) under MSCC Contract No. MSCC-010 Miscellaneous Task.

Dear Mr. Smith:

This report details the methods and results of a nest survey along the Generator Lead Line that runs from the town of Buttonwillow to the MSCC facility on Crocker Springs Road in Kern County, California. The purpose was to determine if any nests on the wooden (H) structures were occupied by a nesting bird. MSCC plans to remove all inactive nests on the pole structure to prevent the potential for an electrical fault which could result in a power failure at the MSCC facility. A helicopter would be used to lower a man onto the wooden structure to knock down the nest allowing the nest to fall to the ground. For large nests, the nesting material may be collected by someone who would walk to the power pole from the access road and pick up the nesting material and remove it from the area.

The biological survey was conducted to ensure compliance with the Migratory Bird Treaty Act (MBTA) and reporting requirements in accordance with the Biological Resources Mitigation Implementation Plan conditions of certification required and approved by the California Energy Commission (CEC).

## **METHODS**

On October 10, 2017, Thomas V. Mull, CEC Designated Biologist for MSCC, surveyed all of the power structures by driving along existing access roads and walking to each pole that contained a nest to look for active migratory bird nests. Nests on power structures were recorded as inactive or active. Sensitive species burrows were flagged for avoidance if found near power poles where a nest occurred. Incidental wildlife observed was recorded as well.

## **RESULTS**

Three inactive nests were observed on three pole structures (Pole 1/6, 4/2, and 6/3). Pole 1/6 was a partial nest that showed no use by migratory birds. Migratory birds nested at Pole 4/2 and 6/3. No San Joaquin kit fox (*Vulpes macrotis mutica*), giant kangaroo rat (*Dipodomys ingens*), San Joaquin antelope squirrel (*Ammospermophilus nelsoni*), and blunt-nosed leopard lizard

**APPENDIX G**  
**Kit Fox Den Monitoring at the Midway Sunset**  
**Cogeneration Company (MSCC) Facility (Oct 2017)**

Thomas V. Mull

462 Diamond Peak  
Beaumont, California 92223-7562  
Cell Phone (951) 500-4020

Mr. Ray Smith  
Midway Sunset Cogeneration Company  
3466 West Crocker Springs Road  
P.O. Box 457  
Fellows, CA 93224-0457

October 13, 2017

**RE:** Kit Fox Den Monitoring at the Midway Sunset Cogeneration Company (MSCC) Facility,  
MSCC Contract No. MSCC-010 Task 3.

Dear Mr. Smith:

This report details the methods and results of the artificial San Joaquin kit fox (*Vulpes macrotis mulica*) den monitoring that was conducted from October 9 - 11, 2017. This report and monitoring are conditions of compliance for the second semi-annual monitoring inspection of seven artificial dens (AD-1 through AD-7) and associated exclusion zones for the April 1, 2017 through March 31, 2018 monitoring period, as required by the California Energy Commission.

#### **Methods**

Seven artificial kit fox dens (AD-1 through AD-7) are initially inspected for kit fox use one day prior to monitoring. Den entrances are cleaned out to a depth of about two feet using a shovel and hoe. Areas immediately surrounding den entrances are cleared of vegetation prior to applying a thin layer of tracking medium (flour) adjacent to and just inside den entrances. This method is referred to as "dusting the dens." Grass clippings from the surrounding area are placed across den entrances to determine if an animal enters or exits the den. Dens are dusted about one hour or less before sunset and inspected on the following two consecutive mornings at first daylight. Animal tracks and other wildlife sign (scat, tail dragging, prey remains) at the dens are identified and recorded if observed. Wire cable and posts and sensitive species area signs making up the exclusion zones surrounding the dens are inspected for stability and whether the signs are still in place. Incidental wildlife observations are also recorded.

#### **Results**

Figure 1 shows the den locations in proximity to the MSCC facility. During the initial den inspection on October 9, all dens were structurally intact. There was no evidence that construction activities occurred in any of the exclusion zones. The exclusion zone barriers with steel cable remain intact and upright. Biological sensitive warning signs attached to the steel cable are still present and readable. Vegetation cover is 100% at 6 of the 7 dens and 70% at AD-6. One den entrance (AD-3) was plugged with dirt on the initial inspection and plugged again during the first monitoring morning.



Thomas V. Mull

---

462 Diamond Peak  
Beaumont CA 92223-7562  
Home: 951 797-0819  
Cell: 951 500-4020

May 17, 2018

Mr. Ray Smith  
Midway Sunset Cogeneration Company  
3466 West Crocker Springs Road  
P.O. Box 457  
Fellows CA 93224-0457

**RE:** Biological Resources Survey along the Generator Lead Line for the Midway Sunset Cogeneration Company (MSCC) under MSCC Contract No. MSCC-010 Miscellaneous Task

Dear Mr. Smith:

This report details the methods, results, and discussion/recommendations of a biological survey along the Generator Lead Line that runs from Buttonwillow, California to the MSCC Facility located on Crocker Springs Road in Kern County, California. MSCC plans to cut down the vegetation surrounding the base of the wooden poles (structures) to reduce the risk of burning the structures from a potential wild fire.

The purpose of the survey was to determine if any active migratory bird nests were observed on the structures. In addition, the survey included searching for the presence of any potential burrows that were occupied by any listed threatened and endangered species along the access road leading to the structures and areas surrounding the structures.

The biological survey was conducted to ensure compliance with the Migratory Bird Treaty Act, California Endangered Species Act, and reporting requirements in accordance with the Biological Resources Mitigation Implementation Plan conditions of certification approved by the California Energy Commission.

## **METHODS**

On May 9, 2018 Thomas Mull, Designated Biologist for MSCC, surveyed the power poles by driving the main access roads and walking to each structure to look for active migratory bird nests and other sensitive biological resources. Active bird nests were recorded. Threatened and endangered species and their burrows and potential dens (if found) were also recorded and flagged with orange and red pin flags for avoidance. Temperature, cloud cover, wind speed, and other wildlife observed were noted.

## **RESULTS**

Three active bird nests were observed on three structures (1/6, 3/2, and 7/6). This included two common ravens (*Corvus corax*) and one red-tailed hawk (*Buteo jamaicensis*).

No San Joaquin kit fox (*Vulpes macrotis mutica*) dens or sign (tracks, scat, or prey remains) were observed. No blunt-nosed leopard lizards (*Gambelia silus*) or their burrows were observed.

Multiple sightings of San Joaquin antelope squirrel (*Ammospermophilus nelsoni*) were observed at various distances from structures 9/1 (350 feet), 10/5 (140 feet), 10/8 (100 and 500 feet), and 13/3 (100 feet) along main access roads. No burrows of San Joaquin antelope squirrels were observed adjacent to the structures.

Active giant kangaroo rat (*Dipodomys ingens*) (GKR) burrows and their sign (fresh scat) were observed during the survey within the vicinity of 16 structures 10/5, 11/2, 11/3, 12/2, 12/4, 12/5, 12/6, 12/7, 13/1, 13/2, 13/3, 13/4, 13/5, 13/6, 14/2, and 14/3. Forty-one pin flags were marked as GKR and placed adjacent to active burrows. One pin flag may represent more than one active burrow. All burrows were located along and adjacent to the small access roads that lead to the structures and near the main access roads.

Birds observed included red-tailed hawk, turkey vulture (*Cathartes aura*), American kestrel (*Falco sparverius*), house finch (*Carpodacus mexicanus*), mourning dove (*Zenaida macroura*), common raven, red-winged blackbird (*Agelaius phoeniceus*), northern mockingbird (*Mimus polyglottos*), western kingbird (*Tyrannus verticalis*), loggerhead shrike (*Lanius ludovicianus*), European starling (*Sturnus vulgaris*), greater roadrunner (*Geococcyx californianus*), western meadowlark (*Sturnella neglecta*), horned lark (*Eremophila alpestris*), and California quail (*Callipepla californica*). Mammals observed included San Joaquin antelope squirrel, blacktail jackrabbit (*Lepus californicus*), and desert cottontail (*Sylvilagus auduboni*). One reptile was observed, the western whiptail (*Cnemidophorus tigris*).

Temperatures ranged from 75 - 88 degrees F. Cloud cover was estimated at 80%. Wind speed was recorded at zero at the beginning of the survey.

## DISCUSSION AND RECOMMENDATIONS

There are three birds nesting on structures (1/6, 3/2, and 7/6). Removal of vegetation at these structures should be delayed until the young birds fledge from the nests.

Multiple giant kangaroo rat burrows with 41 pin flags near structures 10/5, 11/2, 11/3, 12/2, 12/4, 12/5, 12/6, 12/7, 13/1, 13/2, 13/3, 13/4, 13/5, 13/6, 14/2, and 14/3 should be avoided and not crushed by vehicles driving over them. I recommend walking into the 16 structures to cut out the vegetation to avoid any impacts to the GKR burrows from the main access roads. In addition, the speed limit should be no more than 10 mph on all main access roads within the vicinity of the structures.

If these recommendations are accepted, no biological monitor would be required.

If you have any questions or decide that you need a biological monitor, let me know.

Sincerely,



Thomas V. Mull

MSCC Designated Biologist

Thomas V. Mull

462 Diamond Peak  
Beaumont, California 92223-7562  
Cell (951) 500-4020

Mr. Ray Smith  
Midway Sunset Cogeneration Company  
3466 West Crocker Springs Road  
P.O. Box 457  
Fellows, CA 93224-0457

May 15, 2018

**RE:** Kit Fox Den Monitoring at the Midway Sunset Cogeneration Company (MSCC) Facility,  
MSCC Contract No. MSCC-010 Task 3.

Dear Mr. Smith:

This report details the methods and results of the artificial San Joaquin kit fox (*Vulpes macrotis mutica*) den inspections and monitoring that was conducted from May 7-9, 2018. This report and monitoring are conditions of compliance for the first semi-annual monitoring inspection of seven artificial dens (AD-1 through AD-7) for the April 1, 2018 through March 31, 2019 monitoring period, as required by the California Energy Commission.

## Methods

Seven artificial kit fox dens (AD-1 through AD-7) are initially inspected for kit fox use one day prior to monitoring. Den entrances are cleaned out to a depth of about two to three feet using a narrow shovel and hoe. Areas immediately surrounding den entrances are cleared of vegetation prior to applying a thin layer of tracking medium (flour) adjacent to and just inside den entrances. This method of applying flour is referred to as "dusting the dens." Grass clippings from the surrounding area are placed across den entrances to determine if an animal enters or exits the den. Dens are dusted about one hour before sunset and inspected on the following two consecutive mornings just after sunrise. Animal tracks and other wildlife sign (scat, tail drags) at the dens are identified to determine species, if possible. Wire cable and posts and sensitive species area signs making up the exclusion zones surrounding the dens are inspected for stability and whether the signs are still in place. Incidental wildlife observations are recorded during monitoring of the dens.

## Results

Figure 1 shows the locations of the dens in proximity to the MSCC facility. All dens were structurally intact during the initial den inspection on May 7, 2018. Most den entrances were open for small mammal occupation. However, two den entrances at AD-2 and one entrance at AD-3 were plugged with dirt. One entrance at AD-3 was completely buried and was dug up and cleaned out before dusting the entrance to the den. AD-1, AD-3, and AD-7 within the exclusion zone exhibited about 90% vegetative cover. The remaining exclusion zones exhibited significantly less than 90% vegetative cover. Coyote scat (*Canis latrans*) was observed at AD-1

and AD-4. There was no evidence that construction activities occurred in any of the exclusion zones. The exclusion zone barriers remain intact. Biological sensitive warning signs attached to the steel cable surrounding exclusion zones were still present.

The seven artificial dens were monitored for kit fox activity during the early mornings of May 8 and 9. None of the dens showed evidence of use or site visits by kit fox. San Joaquin antelope squirrel (*Ammospermophilus nelsoni*) tracks were observed at AD-4. Most animal tracks at the den entrances were comprised of desert cottontail (*Sylvilagus auduboni*) and unknown species of kangaroo (*Dipodomys*) rats. Blacktail jackrabbit (*Lepus californicus*) tracks were recorded at AD-6. Table 1 lists the monitoring results.

**Table 1 Monitoring Results of Artificial Kit Fox Dens**

Date and Other Data	Den Number	Animal Tracks	Entered Den
May 8, 2018 0655; 64° F. Clear skies No wind	AD-1	Desert cottontail	Yes
	AD-2	Desert cottontail, kangaroo rat	Yes
	AD-3	Desert cottontail	Yes
	AD-4	San Joaquin antelope squirrel, kangaroo rat	No
	AD-5	No tracks	N/A
	AD-6	Desert cottontail, kangaroo rat	Yes
	AD-7	Kangaroo rat	Yes
May 9, 2018 0700; 63° F. Clear skies No wind	AD-1	Desert cottontail, kangaroo rat	No
	AD-2	Desert cottontail, kangaroo rat	Yes
	AD-3	Desert cottontail, kangaroo rat	Yes
	AD-4	Desert cottontail	Yes
	AD-5	No tracks	N/A
	AD-6	Blacktail jackrabbit	No
	AD-7	Desert cottontail, kangaroo rat	Yes

Note: N/A=Not applicable

### Wildlife Observed

#### Birds

Common raven (*Corvus corax*)

Mourning dove (*Zenaida macroura*)

Western meadowlark (*Sturnella neglecta*)

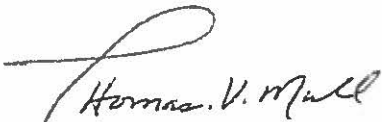


**Mammals**

Desert cottontail (*Sylvilagus auduboni*)  
Blacktail jackrabbit (*Lepus californicus*)

Thank you for giving me the opportunity to assist you with your monitoring requirements.

Sincerely,



Thomas V. Mull  
MSCC Designated Biologist

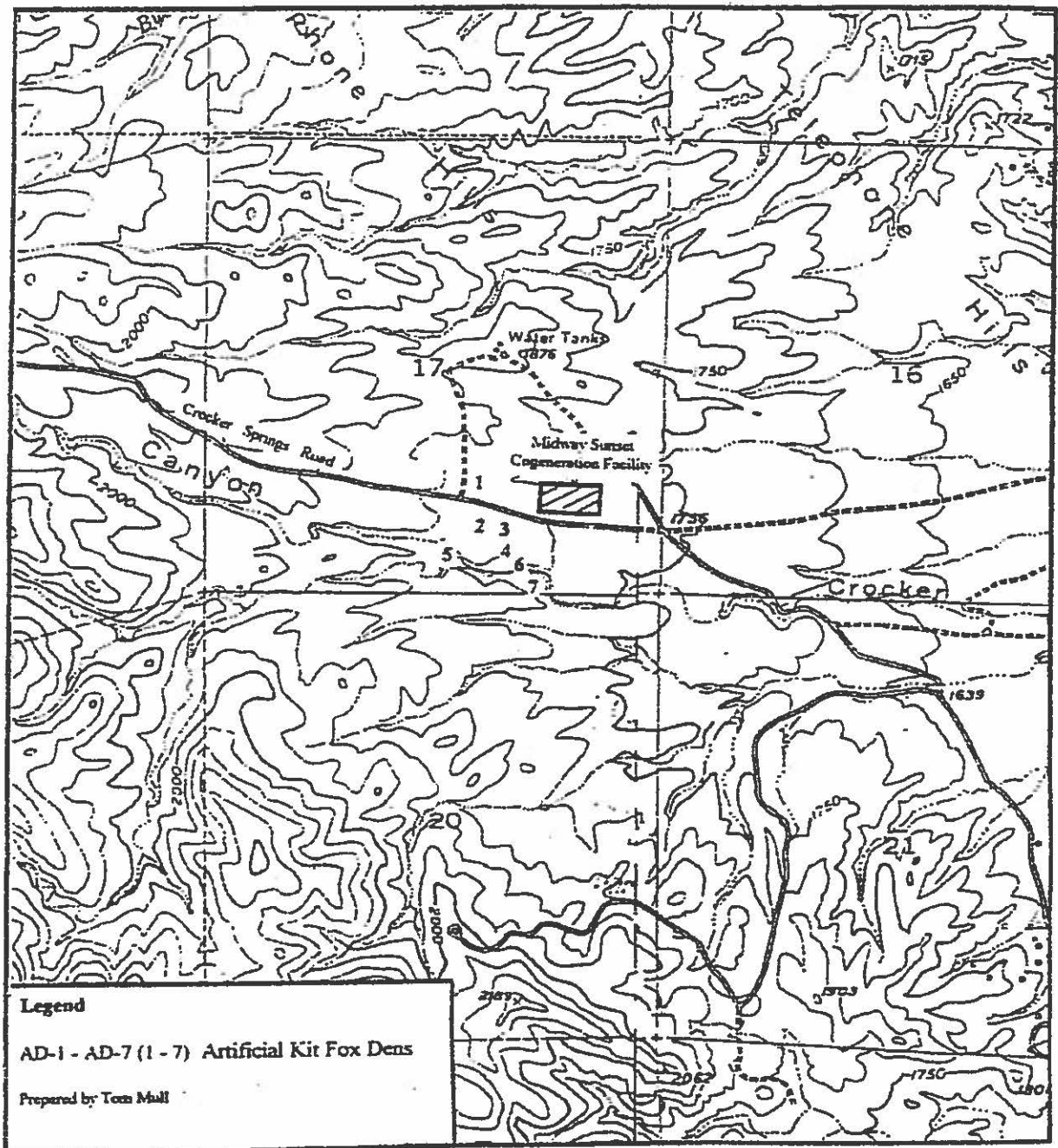


Figure 1. Locations of Seven Artificial Kit Fox Dens at the Midway Sunset Cogeneration Facility, Kern County, Fellows, California. (T31S, R22E, Section 17, MDB & M; Panorama Hills and Fellows USGS 7.5 minute Quadrangle Maps). Scale not indicated.



Thomas V. Mull

462 Diamond Peak  
Beaumont, California 92223-7562  
Cell (951) 500-4020

Mr. Ray Smith  
Midway Sunset Cogeneration Company  
3466 West Crocker Springs Road  
P.O. Box 457  
Fellows, CA 93224-0457

May 15, 2018

**RE:** Kit Fox Den Monitoring at the Midway Sunset Cogeneration Company (MSCC) Facility,  
MSCC Contract No. MSCC-010 Task 3.

Dear Mr. Smith:

This report details the methods and results of the artificial San Joaquin kit fox (*Vulpes macrotis mutica*) den inspections and monitoring that was conducted from May 7-9, 2018. This report and monitoring are conditions of compliance for the first semi-annual monitoring inspection of seven artificial dens (AD-1 through AD-7) for the April 1, 2018 through March 31, 2019 monitoring period, as required by the California Energy Commission.

## Methods

Seven artificial kit fox dens (AD-1 through AD-7) are initially inspected for kit fox use one day prior to monitoring. Den entrances are cleaned out to a depth of about two to three feet using a narrow shovel and hoe. Areas immediately surrounding den entrances are cleared of vegetation prior to applying a thin layer of tracking medium (flour) adjacent to and just inside den entrances. This method of applying flour is referred to as "dusting the dens." Grass clippings from the surrounding area are placed across den entrances to determine if an animal enters or exits the den. Dens are dusted about one hour before sunset and inspected on the following two consecutive mornings just after sunrise. Animal tracks and other wildlife sign (scat, tail drags) at the dens are identified to determine species, if possible. Wire cable and posts and sensitive species area signs making up the exclusion zones surrounding the dens are inspected for stability and whether the signs are still in place. Incidental wildlife observations are recorded during monitoring of the dens.

## Results

Figure 1 shows the locations of the dens in proximity to the MSCC facility. All dens were structurally intact during the initial den inspection on May 7, 2018. Most den entrances were open for small mammal occupation. However, two den entrances at AD-2 and one entrance at AD-3 were plugged with dirt. One entrance at AD-3 was completely buried and was dug up and cleaned out before dusting the entrance to the den. AD-1, AD-3, and AD-7 within the exclusion zone exhibited about 90% vegetative cover. The remaining exclusion zones exhibited significantly less than 90% vegetative cover. Coyote scat (*Canus latrans*) was observed at AD-1

and AD-4. There was no evidence that construction activities occurred in any of the exclusion zones. The exclusion zone barriers remain intact. Biological sensitive warning signs attached to the steel cable surrounding exclusion zones were still present.

The seven artificial dens were monitored for kit fox activity during the early mornings of May 8 and 9. None of the dens showed evidence of use or site visits by kit fox. San Joaquin antelope squirrel (*Ammospermophilus nelsoni*) tracks were observed at AD-4. Most animal tracks at the den entrances were comprised of desert cottontail (*Sylvilagus auduboni*) and unknown species of kangaroo (*Dipodomys*) rats. Blacktail jackrabbit (*Lepus californicus*) tracks were recorded at AD-6. Table 1 lists the monitoring results.

**Table 1 Monitoring Results of Artificial Kit Fox Dens**

Date and Other Data	Den Number	Animal Tracks	Entered Den
May 8, 2018 0655; 64° F. Clear skies No wind	AD-1	Desert cottontail	Yes
	AD-2	Desert cottontail, kangaroo rat	Yes
	AD-3	Desert cottontail	Yes
	AD-4	San Joaquin antelope squirrel, kangaroo rat	No
	AD-5	No tracks	N/A
	AD-6	Desert cottontail, kangaroo rat	Yes
	AD-7	Kangaroo rat	Yes
May 9, 2018 0700; 63° F. Clear skies No wind	AD-1	Desert cottontail, kangaroo rat	No
	AD-2	Desert cottontail, kangaroo rat	Yes
	AD-3	Desert cottontail, kangaroo rat	Yes
	AD-4	Desert cottontail	Yes
	AD-5	No tracks	N/A
	AD-6	Blacktail jackrabbit	No
	AD-7	Desert cottontail, kangaroo rat	Yes

Note: N/A=Not applicable

### Wildlife Observed

#### Birds

Common raven (*Corvus corax*)

Mourning dove (*Zenaida macroura*)

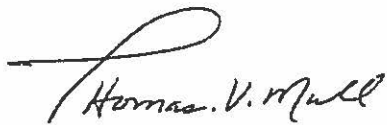
Western meadowlark (*Sturnella neglecta*)

**Mammals**

Desert cottontail (*Sylvilagus auduboni*)  
Blacktail jackrabbit (*Lepus californicus*)

Thank you for giving me the opportunity to assist you with your monitoring requirements.

Sincerely,

A handwritten signature in black ink, reading "Thomas V. Mull". The signature is written in a cursive style with a large, looping initial 'T'.

Thomas V. Mull  
MSCC Designated Biologist

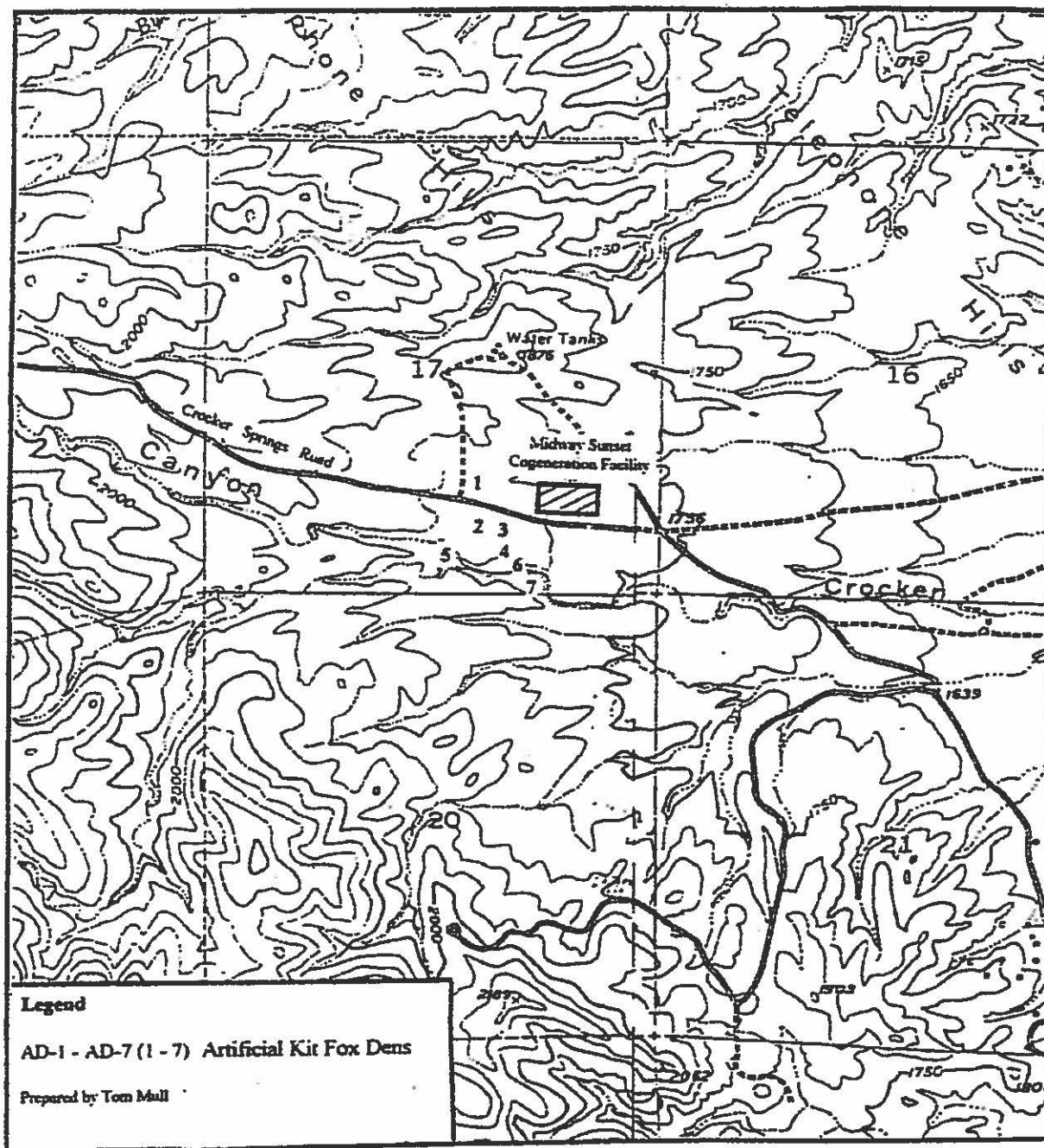


Figure 1. Locations of Seven Artificial Kit Fox Dens at the Midway Sunset Cogeneration Facility, Kern County, Fellows, California. (T31S, R22E, Section 17, MDB & M; Panorama Hills and Fellows USGS 7.5 minute Quadrangle Maps). Scale not indicated.







Thomas V. Mull

462 Diamond Peak  
Beaumont, California 92223-7562  
Cell phone: (951) 500-4020

Mr. Ray Smith  
Midway Sunset Cogeneration Company  
3466 West Crocker Springs Road  
P.O. Box 457  
Fellows, CA 93224-0457

May 16, 2018

**RE:** Biological Survey of the Natural Gas Pipeline for Midway Sunset Cogeneration Company (MSCC), MSCC Contract No. MSCC-010, Miscellaneous Task.

Dear Mr. Smith:

This report documents a biological survey regarding plans to remove vegetation under and immediately adjacent to the aboveground natural gas pipe from the MSCC facility located on Crocker Springs Road and east to State Highway 33. Overgrown vegetation poses a fire hazard. Vegetation would not be removed above the underground portions of the pipeline. The biological survey and report complies with the requirements of the Biological Resources Mitigation Implementation Plan (BRMIP) and is required by the California Energy Commission (CEC).

The purpose of the survey was to identify any Federal and State listed plant and animal species including San Joaquin kit fox (*Vulpes macrotis mutica*), San Joaquin antelope squirrel (*Ammospermophilus nelsoni*), and any other sensitive biological resources that could potentially occur along the natural gas pipeline route.

## Methods

On May 8 and 9, 2018, Thomas Mull, MSCC Designated Biologist, walked adjacent to the above ground portions of the gas pipeline and surveyed a 25-foot buffer north and south and east and west of the pipeline. Biological resources were recorded in the field on an aerial map. Burrows and open pipes with a diameter of 5-inches or more were inspected for the presence of San Joaquin kit fox, San Joaquin antelope squirrel, and their scat, prey remains, and tracks. Common plants, sensitive species, and other wildlife observations were recorded. Temperature, cloud cover, and wind speed were noted at the beginning of the survey.

## Results

The pipeline route is comprised of ruderal habitat identified by intersecting roads, oil wells and pumpers, tanks, construction of new oil wells, and various diameter pipes carrying natural gas, wastewater, water, and steam. The pipeline route is heavily disturbed from continuous oil field

activities and maintenance operations. Figure 1 is an aerial photo representation showing the aboveground and underground portions of the natural gas pipeline. Common vegetation still includes Russian thistle (*Salsola iberica*), few stands of sunflowers (*Helianthus sp.*), some red brome (*Bromus madritensis*), filaree (*Erodium cicutarium*), and mostly all-scale (*Atriplex polycarpa*), and spiny saltbush (*Atriplex spinifera*). No sensitive plants were observed.

No threatened or endangered species was observed during this survey. No migratory bird nests were observed. One kit fox pipe den (CEC 2-94) recorded in past reports is still present under an access road within 30 feet of a portion of the gas pipe. See Figure 1 for the location of the CEC 2-94 pipe den. The pipe den remains inactive and shows no use by a kit fox.

Wind speed was estimated from 0 to 2 miles per hour. No clouds were visible in the sky. Temperatures ranged from 72° F to 77° F.

## **Wildlife observations**

### **Birds**

American kestrel (*Falco sparverius*)  
California quail (*Callipepla californica*)  
Greater roadrunner (*Geococcyx californianus*)  
Mourning dove (*Zenaida macroura*)  
Common raven (*Corvus corax*)  
Western kingbird (*Tyrannus verticalis*)  
Northern mockingbird (*Mimus polyglottos*)  
Western meadowlark (*Sturnella neglecta*)  
Loggerhead shrike (*Lanius ludovicianus*)  
Bewick's wren (*Thryomanes bewickii*)  
House finch (*Carpodacus mexicanus*)

### **Mammals**

Desert cottontail (*Sylvilagus auduboni*)  
Blacktail jackrabbit (*Lepus californicus*)

### **Reptiles**

Western whiptail (*Cnemidophorus tigris*)

## **Discussion**

Since no federal or state listed plant and animal species was observed along the route, no impacts are expected during the clearing of the vegetation under and immediately adjacent to the above ground portions of the gas pipe.

The CEC kit fox pipe den, CEC 2-94, is located about 30 feet from the gas pipe and shows no recent use by a kit fox. There is no vegetation near the pipe den and any removal of vegetation on the pipeline route would be about 30 feet south of the inactive kit fox pipe den. The kit fox pipe den has not been occupied by a kit fox for more than 13 years. Therefore, no impacts to the pipe den are expected during removal of vegetation under the gas pipe at that location.

If you have any questions, please let me know.

Sincerely,

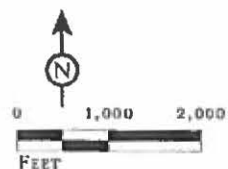
A handwritten signature in black ink, appearing to read "Thomas V. Mull". The signature is fluid and cursive, with a large initial 'T' and 'M'.

Thomas V. Mull  
MSCC Designated Biologist



FIGURE 1

LSA



- CEC 2-94 Potential Kit Fox Pipe Den
- Natural Gas Pipeline Aboveground
- - - Natural Gas Pipeline Underground

SOURCE: Bing Aerial, 2016

I:\SH1704\Reports\NatGas\_pipeline\_Loc\_2018.mxd (5/17/2018)

Midway Sunset Cogeneration Company  
Biological Survey

Regional and Project Location



Thomas V. Mull

---

462 Diamond Peak  
Beaumont CA 92223-7562  
Home: 951 797-0819  
Cell: 951 500-4020

May 17, 2018

Mr. Ray Smith  
Midway Sunset Cogeneration Company  
3466 West Crocker Springs Road  
P.O. Box 457  
Fellows CA 93224-0457

**RE:** Biological Resources Survey along the Generator Lead Line for the Midway Sunset Cogeneration Company (MSCC) under MSCC Contract No. MSCC-010 Miscellaneous Task

Dear Mr. Smith:

This report details the methods, results, and discussion/recommendations of a biological survey along the Generator Lead Line that runs from Buttonwillow, California to the MSCC Facility located on Crocker Springs Road in Kern County, California. MSCC plans to cut down the vegetation surrounding the base of the wooden poles (structures) to reduce the risk of burning the structures from a potential wild fire.

The purpose of the survey was to determine if any active migratory bird nests were observed on the structures. In addition, the survey included searching for the presence of any potential burrows that were occupied by any listed threatened and endangered species along the access road leading to the structures and areas surrounding the structures.

The biological survey was conducted to ensure compliance with the Migratory Bird Treaty Act, California Endangered Species Act, and reporting requirements in accordance with the Biological Resources Mitigation Implementation Plan conditions of certification approved by the California Energy Commission.

## **METHODS**

On May 9, 2018 Thomas Mull, Designated Biologist for MSCC, surveyed the power poles by driving the main access roads and walking to each structure to look for active migratory bird nests and other sensitive biological resources. Active bird nests were recorded. Threatened and endangered species and their burrows and potential dens (if found) were also recorded and flagged with orange and red pin flags for avoidance. Temperature, cloud cover, wind speed, and other wildlife observed were noted.

## **RESULTS**

Three active bird nests were observed on three structures (1/6, 3/2, and 7/6). This included two common ravens (*Corvus corax*) and one red-tailed hawk (*Buteo jamaicensis*).



No San Joaquin kit fox (*Vulpes macrotis mutica*) dens or sign (tracks, scat, or prey remains) were observed. No blunt-nosed leopard lizards (*Gambelia silus*) or their burrows were observed.

Multiple sightings of San Joaquin antelope squirrel (*Ammospermophilus nelsoni*) were observed at various distances from structures 9/1 (350 feet), 10/5 (140 feet), 10/8 (100 and 500 feet), and 13/3 (100 feet) along main access roads. No burrows of San Joaquin antelope squirrels were observed adjacent to the structures.

Active giant kangaroo rat (*Dipodomys ingens*) (GKR) burrows and their sign (fresh scat) were observed during the survey within the vicinity of 16 structures 10/5, 11/2, 11/3, 12/2, 12/4, 12/5, 12/6, 12/7, 13/1, 13/2, 13/3, 13/4, 13/5, 13/6, 14/2, and 14/3. Forty-one pin flags were marked as GKR and placed adjacent to active burrows. One pin flag may represent more than one active burrow. All burrows were located along and adjacent to the small access roads that lead to the structures and near the main access roads.

Birds observed included red-tailed hawk, turkey vulture (*Cathartes aura*), American kestrel (*Falco sparverius*), house finch (*Carpodacus mexicanus*), mourning dove (*Zenaida macroura*), common raven, red-winged blackbird (*Agelaius phoeniceus*), northern mockingbird (*Mimus polyglottos*), western kingbird (*Tyrannus verticalis*), loggerhead shrike (*Lanius ludovicianus*), European starling (*Sturnus vulgaris*), greater roadrunner (*Geococcyx californianus*), western meadowlark (*Sturnella neglecta*), horned lark (*Eremophila alpestris*), and California quail (*Callipepla californica*). Mammals observed included San Joaquin antelope squirrel, blacktail jackrabbit (*Lepus californicus*), and desert cottontail (*Sylvilagus auduboni*). One reptile was observed, the western whiptail (*Cnemidophorus tigris*).

Temperatures ranged from 75 - 88 degrees F. Cloud cover was estimated at 80%. Wind speed was recorded at zero at the beginning of the survey.

## DISCUSSION AND RECOMMENDATIONS

There are three birds nesting on structures (1/6, 3/2, and 7/6). Removal of vegetation at these structures should be delayed until the young birds fledge from the nests.

Multiple giant kangaroo rat burrows with 41 pin flags near structures 10/5, 11/2, 11/3, 12/2, 12/4, 12/5, 12/6, 12/7, 13/1, 13/2, 13/3, 13/4, 13/5, 13/6, 14/2, and 14/3 should be avoided and not crushed by vehicles driving over them. I recommend walking into the 16 structures to cut out the vegetation to avoid any impacts to the GKR burrows from the main access roads. In addition, the speed limit should be no more than 10 mph on all main access roads within the vicinity of the structures.

If these recommendations are accepted, no biological monitor would be required.

If you have any questions or decide that you need a biological monitor, let me know.

Sincerely,



Thomas V. Mull

MSCC Designated Biologist





The seven artificial dens were monitored for kit fox activity during the early mornings of October 10 and 11. One kit fox track and scat were observed at the entrance of AD-6. The kit fox did not enter the den. One San Joaquin antelope squirrel (*Ammospermophilus nelsoni*) was observed running and entering a burrow about 25 feet south of the exclusion zone surrounding AD-6. San Joaquin antelope squirrel tracks were observed at entrances of AD-2 and AD-4. Kangaroo rat (*Dipodomys* sp.) and other animal tracks are listed in Table 1.

**Table 1. Monitoring Results of Artificial Kit Fox Dens**

Date	Den Number	Animal Tracks	Entered Den
Oct 10, 2018 0700; 61° F. Clear skies; Wind 2-3 mph	AD-1	Mice, K-rat	Yes
	AD-2	San Joaquin antelope squirrel, K-rat	Yes
	AD-3	Mice, K-rat	Yes
	AD-4	San Joaquin antelope squirrel, K-rat	Yes
	AD-5	Mice, K-rat	No
	AD-6	Mice, K-rat	Yes
	AD-7	K-rat	Yes
Oct 11, 2018 0630; 55° F. Clear skies; Wind 3-4 mph	AD-1	Desert cottontail, K-rat	Yes
	AD-2	Desert cottontail, K-rat	Yes
	AD-3	Black-tailed jackrabbit, K-rat	Yes
	AD-4	San Joaquin antelope squirrel, K-rat, coyote	Yes No
	AD-5	Mice, K-rat	Yes
	AD-6	San Joaquin kit fox	No
	AD-7	Snake	Yes

Notes: mph=miles per hour; desert cottontail (*Sylvilagus auduboni*), black-tailed jackrabbit (*Lepus californica*); K-rat=kangaroo rat (*Dipodomys* sp.), coyote (*Canis latrans*).

#### **Wildlife Species Observed During Artificial Kit Fox Den Monitoring**

**Birds:** Red-tailed hawk (*Buteo jamaicensis*).

**Mammals:** Black-tailed jackrabbit, San Joaquin antelope squirrel, Desert cottontail.

If you have any questions regarding this report, please let me know.

Sincerely,



Thomas V. Mull  
MSCC Designated Biologist

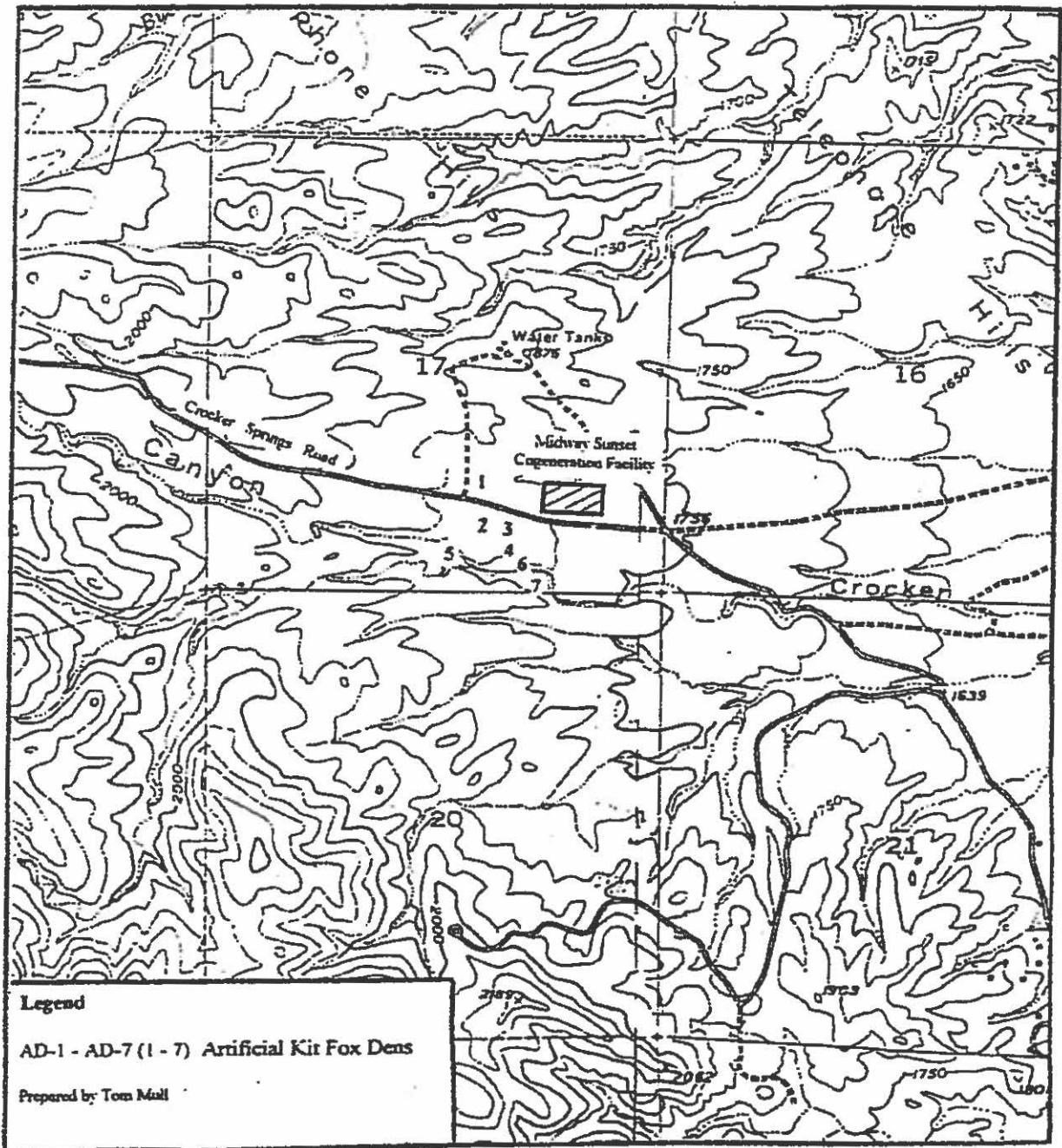


Figure 1. Locations of Seven Artificial Kit Fox Dens at the Midway Sunset Cogeneration Facility, Kern County, Fellows, California. (T31S, R22E, Section 17, MDB & M; Panorama Hills and Fellows USGS 7.5 minute Quadrangle Maps). Scale not indicated.



Thomas V. Mull

---

462 Diamond Peak  
Beaumont CA 92223-7562  
Home: 951 797-0819  
Cell: 951 500-4020

October 16, 2018

Mr. Ray Smith  
Midway Sunset Cogeneration Company  
3466 West Crocker Springs Road  
P.O. Box 457  
Fellows CA 93224-0457

**RE:** Biological Resources Nest Survey along the Generator Lead Line for the Midway Sunset Cogeneration Company (MSCC) under MSCC Contract No. MSCC-010 Miscellaneous Task.

Dear Mr. Smith:

This report details the methods and results of a nest survey along the Generator Lead Line that runs from the town of Buttonwillow to the MSCC facility on Crocker Springs Road in Kern County, California. The purpose was to determine if any nests on all wooden (H) structures were still occupied by a nesting bird. MSCC plans to remove inactive nests on all structures to prevent the potential for an electrical fault which could result in a power failure at the MSCC facility. A helicopter would be used to lower a man onto the wooden structure to knock down the nest allowing the nest to fall to the ground. For large nests, nesting material may be collected by someone who would walk to the structure from the access road and pick up the nest material and remove it from the area.

The biological survey was conducted to ensure compliance with the Migratory Bird Treaty Act (MBTA) and reporting requirements in accordance with the Biological Resources Mitigation Implementation Plan conditions of certification required and approved by the California Energy Commission (CEC).

## **METHODS**

On October 9 and 10, 2018, Thomas V. Mull, CEC Designated Biologist for MSCC, surveyed all of the wooden structures by driving along existing access roads and walking to each structure that contained a nest to look for active bird nests. Nests on wooden structures were recorded as inactive or active. Sensitive species burrows were flagged for avoidance if found near structures where a nest occurred. Temperatures recorded were 81 degrees Fahrenheit (F) the afternoon of October 9 and 70 degrees F. in late morning on October 10. Wind speed ranged from no wind to 3 miles per hour. Incidental wildlife observed was recorded as well.

## RESULTS

Three nests were observed on three wooden structures (1/6, 3/2, and 7/6). A nest on 1/6 was active in May 2018 by common ravens (*Corvus corax*) and is currently inactive. A red-tailed hawk was observed sitting on eggs at 3/2; the nest is currently inactive. The nest on structure 7/6 was active in May 2018 but no bird species was identified at that time. Food pellets were found on the ground below structures 1/6, 3/2, and 7/6 indicating all three nests were occupied by nesting birds; all nests are currently inactive.

No San Joaquin kit fox (*Vulpes macrotis mutica*), giant kangaroo rat (*Dipodomys ingens*) and blunt-nosed leopard lizard (*Gambelia silus*) sightings or their sign were observed at any of the three structures that contained inactive nests. San Joaquin antelope squirrel (*Ammospermophilus nelsoni*) was observed running on the main access road about 200 feet north of structure 10/4. No other threatened and/or endangered species or their sign was observed on both survey days.

## OTHER WILDLIFE OBSERVED


California quail (*Callipepla californica*)  
Red-tailed hawk (*Buteo jamaicensis*)  
Common raven (*Corvus corax*)  
Horned lark (*Eremophila alpestris*)  
Western meadowlark (*Sturnella neglecta*)  
White crowned sparrow (*Zonotrichia leucophrys*)

## DISCUSSION

Removal of the three nests manually using a helicopter will not result in non-compliance with the MBTA because the nests are inactive. No threatened or endangered or sensitive species burrows were observed on the ground below the inactive nests or along the access roads leading to the wooden structures. Large nest material would be removed by walking from the main access road to the wooden structure to pick up nest material. Due to the absence of sensitive species burrows and the method of removing nest material on the ground is not expected to result in non-compliance with the California Endangered Species Act.

MSCC shall ensure all field personnel who plan on removing inactive nests and carrying out nest material review the MSCC endangered species video. Personnel who drive a vehicle on the main access road to remove nest material from structures 1/6, 3/2 and 7/6 shall limit vehicle travel to the main access road and obey any posted speed limit signs.

Sincerely,



Thomas V. Mull  
MSCC Designated Biologist





Thomas V. Mull

462 Diamond Peak  
Beaumont CA 92223-7562  
Home: 951 797-0819  
Cell: 951 807-5681

Mr. Ray Smith  
Midway Sunset Cogeneration Company  
3466 West Crocker Springs Road  
P.O. Box 457  
Fellows CA 93224-0457

Jan 14, 2019

RE: Red-tailed hawk finding and disposition at Midway Sunset Cogeneration Company (MSCC). MSCC Contract No. MSCC-010 Miscellaneous Task.

Dear Mr. Smith:

This report details the finding and disposition of a red-tailed hawk (*Buteo jamaicensis*) found injured inside the MSCC facility on Oct 23, 2018. The raptor (bird) had sustained black oil from the oil fields in the area on its feathers and other parts of the body. The bird was vulnerable to possibly dying from its situation. The oil prevented the bird from flying and being able to survive very long with the amount of oil on its body. The bird had also sustained some injuries; MSCC immediately contacted California Living Museum (CALM) in Bakersfield for guidance. CALM personnel were not able to retrieve the bird from the MSCC facility; however, they instructed MSCC on how to transport it to CALM.

MSCC transported the bird safely and without harm to CALM on October 23, 2018; CALM personnel took custody of the raptor for the purpose of rehabilitating it which included oil removal, feeding, housing, and potential release back into the wild.

CALM personnel kept the hawk for about 10 weeks removing the oil, feeding it, and keeping the bird in a protected pen to ensure it would be able to survive in the wild following future release. I called CALM every two weeks to find out how the bird was doing. I reported to MSCC the progress of its rehabilitation. According to CALM, release of rehabilitated birds is typically within 10 miles of where the injured bird is found. Finally, the bird was released by CALM personnel within 10 miles of the MSCC facility during the first week of January 2019.

I would like to thank MSCC personnel and management for handling this delicate situation in a professional and timely manner regarding an injured protected migratory bird species.

If you have any questions regarding my finding, please contact me.



Thomas V. Mull  
MSCC Designated Biologist

## Appendix B

Monthly Fuel Usage

Monthly Electrical Sales

Monthly Steam Sales

Monthly Rate of Feedwater





# SHELL ENERGY NORTH AMERICA (US), L.P.

1000 MAIN STREET, LEVEL 12  
HOUSTON, TX 77002

## Net Invoice

<b>Company info</b> MIDWAY SUNSET COGENERATION COMPANY <b>Address:</b> 3466 W CROCKER SPRINGS RD FELLOWS, CA 93224  <b>Attention of:</b> Sandra Henriksen <b>Phone:</b> 661-665-5963 <b>Email:</b> <a href="mailto:SHenriksen@midwaysunset.com">SHenriksen@midwaysunset.com</a> <b>Fax:</b> 16617684570	<b>Remit Wire Details:</b> <b>Bank Name:</b> Citibank, N.A. <b>Account Number:</b> 30603902 <b>ABA:</b> 021000089	<b>Fax Payment Details to:</b> <b>Receivables Department</b> <b>Fax:</b> 713-265-1701 <b>Email:</b> <a href="mailto:Receivables@Shell.com">Receivables@Shell.com</a>  <b>SENA General Information</b> <b>Cust ID:</b> MIDSUN CO <b>Customer Account #:</b> 0002266171 <b>Fed#:</b> 760480645 / <b>GST#:</b> 836320259	<b>Invoice Number:</b> 3104206 <b>Contract Number:</b> 013-NC-BS-21441 <b>Delivery Period:</b> Jul-18 <b>Invoice Date:</b> 08/13/2018 <b>Due Date:</b> 08/27/2018  <b>Shell Contact:</b> Customer Support <b>Toll Free:</b> 1-866-818-5501 <b>Email:</b> <a href="mailto:SENA.CustomerSupport@Shell.com">SENA.CustomerSupport@Shell.com</a> <b>Fax:</b> 713-265-1718
--	--	---	---

Interest on past due amounts shall be calculated as per contract terms.

### Summary

Description	Amount	Quantity (MMBTU)
Sales	USD	839,500
Purchases	USD	
Net Total	USD	
Total Due to: SHELL ENERGY NORTH AMERICA (US), L.P.		

MIDWAY SUNSET COGENERATION CO.		
PROJ. #	ACCOUNT #	AMOUNT
	500-13010-1	
RECEIVED BY		DATE
<i>S. Henriksen</i>		8/15/18
AUTHORIZED BY		DATE
<i>D. Jacobs</i>		8/15/18

8/13/2018



Bill To:  
MIDWAY SUNSET COGENERATION COMPANY

Vendor:  
SHELL ENERGY NORTH AMERICA (US), L.P

Statement Information:  
Invoice Number: 3104206  
Contract Number: 013-NG-BS-21441  
Invoice Date: 08/13/2018  
Due Date: 8/27/2018

Date Range	Deal	Unit	Trader	Price Type	Description	Market	Quantity (MMBTU)	Price	Amount Billed (USD)	Tax
<b>Current Month</b>										
<b>SALE</b>										
07/01 - 07/31	11991322	S	gulkerson	NGI_SOCAL	CROCKER SPRINGS - AERA	025018	665,500			
07/01 - 07/31	11991324	S	gulkerson	GDD_KERN_DELIVERED	CROCKER SPRINGS - AERA	025018	101,000			
07/23 - 07/23	12043786	S	gulkerson	Fixed	CROCKER SPRINGS - AERA	025018	12,000			
Total CROCKER SPRINGS - AERA:							839,500			
Total KERN RIVER Sales:							839,500			
<b>NET SALES</b>										
<b>Current- Total Sales</b>										
<b>Current- Total Purchases</b>										
<b>Current Total</b>										
<b>Total - Net Invoice</b>										

# GAS VOLUME STATEMENT

July, 2018

Kern River Gas Transmission

Meter #: 25018DK

Closed Data

Pressure Bas			Temperature Ba			HV Cond:			Meter Type: EFM			Contract Hr.: 7 AM		
Status			V Technique:						WV Method:					
CO2	N2	H2O	H2S	O2	He	C1	C2	C3	I-C4	N-C4	I-C5	N-C5	C6+	

Tube I.D.	Interval	Tap Location	Tap Type	Atmos. Pressure	Calc. Method	Fpv Method
	1 Day					

Day	Differential (In. H2O)	Pressure (psi)	Temperature (*F)	Hours Flow	Relative Density	Plate (Inches)	Volume (Mcf)	Heating Value (Btu/scf)	Energy (MMBtu)	Edited
1				0.00			25,090	1037.03	26,019	No
2				0.00			25,529	1036.47	26,460	No
3				0.00			20,607	1036.93	21,368	No
4				0.00			20,789	1036.41	21,546	No
5				0.00			28,570	1036.58	29,615	No
6				0.00			26,839	1036.89	27,829	No
7				0.00			27,813	1038.79	28,892	No
8				0.00			25,905	1039.80	26,936	No
9				0.00			25,832	1042.39	26,927	No
10				0.00			25,628	1045.19	26,786	No
11				0.00			27,475	1043.09	28,659	No
12				0.00			28,284	1044.83	29,552	No
13				0.00			25,410	1043.72	26,521	No
14				0.00			20,261	1041.76	21,107	No
15				0.00			25,426	1041.73	26,487	No
16				0.00			22,526	1040.26	23,433	No
17				0.00			21,883	1040.53	22,770	No
18				0.00			21,806	1042.28	22,728	No
19				0.00			21,541	1042.20	22,450	No
20				0.00			20,252	1041.97	21,102	No
21				0.00			24,135	1043.71	25,190	No
22				0.00			22,392	1043.81	23,373	No
23				0.00			36,058	1042.04	37,574	No
24				0.00			30,033	1040.95	31,263	No
25				0.00			31,833	1040.43	33,120	No
26				0.00			28,903	1041.45	30,101	No
27				0.00			27,601	1041.67	28,751	No
28				0.00			28,763	1041.02	29,943	No
29				0.00			27,650	1039.60	28,745	No
30				0.00			31,933	1038.36	33,158	No
31				0.00			30,295	1038.88	31,473	No
TOTAL				0.00			607,062		839,878	

1880 1881 1882 1883 1884 1885 1886 1887 1888 1889 1890 1891 1892 1893 1894 1895 1896 1897 1898 1899 1900

1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921

1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942

1943 1944 1945 1946 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963

1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984

1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005

2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026

2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047

2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068

2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089

2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100 2101 2102 2103 2104 2105 2106 2107 2108 2109 2110

2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131

2132 2133 2134 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144 2145 2146 2147 2148 2149 2150 2151 2152

2153 2154 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164 2165 2166 2167 2168 2169 2170 2171 2172 2173

2174 2175 2176 2177 2178 2179 2180 2181 2182 2183 2184 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194

2195 2196 2197 2198 2199 2200 2201 2202 2203 2204 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214 2215

2216 2217 2218 2219 2220 2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236

2237 2238 2239 2240 2241 2242 2243 2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254 2255 2256 2257

2258 2259 2260 2261 2262 2263 2264 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274 2275 2276 2277 2278

2279 2280 2281 2282 2283 2284 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294 2295 2296 2297 2298 2299

2300 2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320

2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341

2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362

2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383

2384 2385 2386 2387 2388 2389 2390 2391 2392 2393 2394 2395 2396 2397 2398 2399 2400 2401 2402 2403 2404

2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2421 2422 2423 2424 2425

2426 2427 2428 2429 2430 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444 2445 2446

2447 2448 2449 2450 2451 2452 2453 2454 2455 2456 2457 2458 2459 2460 2461 2462 2463 2464 2465 2466 2467

2468 2469 2470 2471 2472 2473 2474 2475 2476 2477 2478 2479 2480 2481 2482 2483 2484 2485 2486 2487 2488

2489 2490 2491 2492 2493 2494 2495 2496 2497 2498 2499 2500 2501 2502 2503 2504 2505 2506 2507 2508 2509

2510 2511 2512 2513 2514 2515 2516 2517 2518 2519 2520 2521 2522 2523 2524 2525 2526 2527 2528 2529 2530

2531 2532 2533 2534 2535 2536 2537 2538 2539 2540 2541 2542 2543 2544 2545 2546 2547 2548 2549 2550 2551

Date Mailed

08/09/2018

ACCOUNT NUMBER 134-118-2900 8

Page 1

Midway-Sunset Cogeneration Company  
Sandy Henriksen  
P.O. Box 457  
Fellows, CA 93224

SoCalGas  
P.O. BOX C  
MONT. PK., CA 91756

PLEASE PAY THIS AMOUNT

80 1341182900 00220600 89

1341182900 0022060089

Customer Name	Midway-Sunset Cogeneration Company	Last Payment	
Service Address	22685 Crocker Springs Rd Fellows CA 93224	Date	07/17/2018
Account Number	134-118-2900 8		
OCC	M14		
Billing Period:	From To	Therms Used	0
	07/01/2018 08/01/2018		

## SUMMARY OF BILLING CHARGES:

Description Of Charges	Amount
Monthly Minimum Charge	
RS Reservation Charge	0.00
Transmission Charge	0.00
Imbalance Charge	0.00
Noncompliance Charges	0.00
TOTAL CURRENT CHARGE	Past Due If Not Paid By 08/28/18
PREVIOUS BALANCE	
TOTAL AMOUNT DUE	0.7% Late Payment Charge Due If Paid After 08/30/18

500-11040-1  
FOR QUESTIONS REGARDING THIS BILL, PLEASE CALL ANITA GUTIERREZ AT (213) 244-3445

YOUR ACCOUNT EXECUTIVE IS ALWAYS AVAILABLE TO PROVIDE SERVICE AND INFORMATION  
REGARDING YOUR ENERGY NEEDS. PLEASE CALL ROBERT DECKER AT (661) 393-1960

Date Mailed

08/09/2018

ACCOUNT NUMBER 134-118-2900 8

Page 2

## BILLING SCHEDULE:

Tariff	Therms
GT4BV	0

## MONTHLY MINIMUM CHARGE:

Description	Amount
Minimum Charge Amount	
<b>Total Monthly Minimum Charge</b>	

## IMBALANCE CHARGE:

Description	Jun Therms	Jul Therms
Carry Over	0	0
Current Transportation Deliveries	0	0
Transportation Adjustments	0	0
Total Transportation Deliveries	0	0
Transportation Usage	0	0
Total Imbalances	0	0
Tolerance (1% of Usage)	0	0
Adjusted Imbalances	0	0
Imbalance Trading	0	0
Subject to Imbalance Charges	0	0

## CURRENT TRANSPORTATION DELIVERIES:

OCC ID	Mkt ID	Receipt Point / Supply Source	Description	Therms
M14				0
<b>Total Transportation Deliveries</b>				<b>0</b>

## METER INFORMATION:

Meter Number	Effective Date	Total CCF	Billing Factor	Total Therms
10697213	07/01/2018	0	0.000	0
<b>Total</b>		<b>0</b>		<b>0</b>

Date Mailed  
08/09/2018

ACCOUNT NUMBER 134-118-2900 8

Page 3

HISTORY:

Period	Season	Therms Used	Amount
Current	Summer	0	
Jun 2018	Summer	0	
May 2018	Summer	0	
Apr 2018	Summer	0	
Mar 2018	Winter	0	
Feb 2018	Winter	0	
Jan 2018	Winter	0	
Dec 2017	Winter	0	
Nov 2017	Summer	0	
Oct 2017	Summer	0	
Sep 2017	Summer	0	
Aug 2017	Summer	0	

MESSAGES:

WIRE TRANSFER BILL INSTRUCTIONS:

Payee Bank: UNION BANK OF CALIFORNIA  
Bank Address: 445 SO. FIGUEROA ST.  
LOS ANGELES, CA 90013  
Bank Aba Number: 122000496  
Payee Name: SOUTHERN CALIFORNIA GAS CO.  
Payee Account No: 10001-27805  
Reference: CUSTOMER BILL ACCOUNT NUMBER (134-118-2900)

*Please send remittance advice (including payment details) to:  
SCGRemittanceProcessing@semprautilities.com*

Providing safe and reliable energy to our customers for nearly 140 years.

MINIMUM BILL COMPARISON

Description	Default	Min Bill
Minimum Charge	0.00	
Reservation Charge	0.00	0.00
Transmission Charge	0.00	0.00
TCA Credit	0.00	0.00
CARB Credit	0.00	0.00
Cap-&-Trade Exemption	0.00	0.00
Total	0.00	

the 1990s, the number of people in the world who are undernourished has increased from 600 million to 800 million (FAO 1996).

There are a number of reasons for this increase. First, the world population has increased from 5 billion in 1987 to 6 billion in 1996, and is projected to reach 8 billion by 2025 (FAO 1996). Second, the world population is ageing, and the proportion of the population aged 65 and over is increasing in all countries (FAO 1996). Third, the world population is becoming more urban, and the proportion of the population living in urban areas is increasing in all countries (FAO 1996).

There are a number of reasons for this increase. First, the world population has increased from 5 billion in 1987 to 6 billion in 1996, and is projected to reach 8 billion by 2025 (FAO 1996).

Second, the world population is ageing, and the proportion of the population aged 65 and over is increasing in all countries (FAO 1996).

Third, the world population is becoming more urban, and the proportion of the population living in urban areas is increasing in all countries (FAO 1996).

There are a number of reasons for this increase. First, the world population has increased from 5 billion in 1987 to 6 billion in 1996, and is projected to reach 8 billion by 2025 (FAO 1996).

Second, the world population is ageing, and the proportion of the population aged 65 and over is increasing in all countries (FAO 1996).

Third, the world population is becoming more urban, and the proportion of the population living in urban areas is increasing in all countries (FAO 1996).

There are a number of reasons for this increase. First, the world population has increased from 5 billion in 1987 to 6 billion in 1996, and is projected to reach 8 billion by 2025 (FAO 1996).

Second, the world population is ageing, and the proportion of the population aged 65 and over is increasing in all countries (FAO 1996).

Third, the world population is becoming more urban, and the proportion of the population living in urban areas is increasing in all countries (FAO 1996).

There are a number of reasons for this increase. First, the world population has increased from 5 billion in 1987 to 6 billion in 1996, and is projected to reach 8 billion by 2025 (FAO 1996).

Second, the world population is ageing, and the proportion of the population aged 65 and over is increasing in all countries (FAO 1996).

Third, the world population is becoming more urban, and the proportion of the population living in urban areas is increasing in all countries (FAO 1996).

There are a number of reasons for this increase. First, the world population has increased from 5 billion in 1987 to 6 billion in 1996, and is projected to reach 8 billion by 2025 (FAO 1996).

Second, the world population is ageing, and the proportion of the population aged 65 and over is increasing in all countries (FAO 1996).

Third, the world population is becoming more urban, and the proportion of the population living in urban areas is increasing in all countries (FAO 1996).



PACIFIC GAS AND ELECTRIC COMPANY  
INVOICE FOR ENERGY SALES

Contract # 33B126

MIDWAY SUNSET COGENERATION COMPANY (2013 CHP RFO-2)

TO:

AUTOMATIC CLEARING HOUSE PAYMENT  
CITIBANK, NA DELAWARE  
ACCT: 3866-0039  
ABA: 031100209  
REF: MIDWAY SUNSET COGEN CO.

INVOICE NUMBER:

33B126 07318

VENDOR NUMBER:

1000573

STATEMENT DATE: 7/31/18

DUE DATE: 8/27/18

INVOICE

PAYMENT PERIOD:

07/01/18 - 07/31/18

TOTAL AMOUNT DUE:

Invoice Date	Invoice Number	Vendor Number	Amount	Account No.	Business Area	Allocation Data
7/31/18	33B126 07318	1000573		2320314		33B126

Please note, no invoice will be sent by US mail. Please remit to:

Payments by Mail:

Pacific Gas and Electric Company

P.O. Box 770000, MC N12F

San Francisco, CA 94177

Attn: Manager - Bilateral Contract Settlements

Telephone: 415.973.6510

Fax: 415.973.2151

Payments by Wire Transfer:

Mellon Trust of New England, N. A.

Account Title: PG and E

Account Number: 059994

ABA Number: Routing 011001234

Prepared by: Minh Tran

Department: ELECTRIC CONTRACT SETTLEMENTS

Phone: (415)973-7423 ext.

Fax: (415)973-9505 ext.

PACIFIC GAS AND ELECTRIC COMPANY  
INVOICE FOR ENERGY SALES

33B126

MIDWAY SUNSET COGENERATION COMPANY (2013 CHP RFO-2)

**MAILING ADDRESS:**

MIDWAY-SUNSET COGEN. CO.  
ATTN: MANAGER  
3466 CROCKER SPRINGS RD.  
P.O. BOX 457  
FELLOWS, CA 93224

<b>STATEMENT DATE:</b> 7/31/18		<b>DUE DATE:</b> 8/27/18	
<b>CUST. ACCOUNT NO.:</b>	<b>INVOICE:</b> 33B12607318	<b>VENDOR NO.:</b> 1000573	
<b>LOG NO.:</b> 33B126	<b>CHANNEL:</b> 33B126	<b>CONTRACT NO.:</b> 33B126	
<b>SUMMARY OF PAYMENT CALCULATION</b>			
<b>Payment Period:</b>		7/1/18 - 7/31/18	
<b>Total Energy:</b>			
<b>Total Curtailment Payments:</b>			
<b>Total Capacity:</b>			
<b>Total Adjustments:</b>			
<b>GRAND TOTAL:</b>			

Payment computations are in accordance with the Power Purchase Agreement between PG&E and:

MIDWAY SUNSET COGENERATION COMPANY (201

Dated: 12/15/09

Please call 1-800-756-PAID if you have 1) not received your check for said amount shown on the statement four (4) days from the "DUE DATE" or 2) any general questions regarding the check.

Please direct any questions regarding the computations relating to this statement or PG&E's application of the provisions set forth in the Power Purchase Agreement to:

Contact: Minh Tran

Dept: ELECTRIC CONTRACT SETTLEMENTS

Phone: (415)973-7423 ext.

Fax: (415)973-9505 ext.

**PACIFIC GAS AND ELECTRIC COMPANY  
INVOICE FOR ENERGY SALES**

**33B126 MIDWAY SUNSET COGENERATION COMPANY (2013 CHP RFO-2)**

**ADJUSTMENTS**

Adj Type	Del. Month	Adj Qty	Adj Amount
1 ENERGY \$ Remark: CAISO PASS-THRU JULY 2018 T+12	Jul-18	0	
1 ENERGY \$ Remark: CAISO T+55 TRUE UP MAY 2018	Jul-18	0	
2 CAPACITY \$ Remark: CAPACITY JULY 2018	Jul-18	0	
8 GHG \$ Remark: CARBON DIOXIDE EMISSIONS PAYMENT JULY 2018	Jul-18	0	
GHG METRIC TONS Remark: EMISSIONS QUANTITY JULY 2018	Jul-18		
4 ENERGY QTY Remark: ENERGY DELIVERED JULY 2018	Jul-18	61,754,010	
1 ENERGY \$ Remark: MVP BASELOAD UNIT JULY 2018	Jul-18	0	
1 ENERGY \$ Remark: MVP DISPATCH UNITS JULY 2018	Jul-18	0	
1 ENERGY \$ Remark: START UP FUEL PAYMENT JULY 2018	Jul-18	0	
1 ENERGY \$ Remark: SUCCESSFUL SCHEDULED START UP PAYMENT JULY 2018	Jul-18	0	
1 ENERGY \$ Remark: UIE GMCT+12 JULY 2018	Jul-18	0	

**S**

**A**

**P**

Lognum: 33B126

Ref. No.: 33B126-8222018-22175320

Channel: 33B126

CIS Acct:

Vendnum: 1000573

PACIFIC GAS AND ELECTRIC COMPANY  
INVOICE FOR ENERGY SALES

33B126 MIDWAY SUNSET COGENERATION COMPANY (2013 CHP RFO-2)

Energy Payment Continued...

ADJUSTMENTS				
	Adj Type	Del. Month	Adj Qty	Adj Amount
1 ENERGY \$		Jun-18	0	
Remark: UIE GMC T+12 JUN 2018				
ADJUSTMENT TOTAL:				

The maintenance hours for 2017 will be adjusted on subsequent statements.

Beginning November 1, 2016, the CAISO began settling charge codes for the Flexible Ramp Product. PG&E is currently reviewing this new product. PG&E reserves its right to adjust invoices for deliveries beginning November 1, 2016, forward to reflect this product.

F.O.C., maintenance hours and test energy for the delivery month of November 2016 will be settled (true up) on a subsequent statement.

Forced outage compensation and MFP calculations to be enforced on the March 2018 invoice after confirmation of outages.

Any discrepancies can be corrected in subsequent invoice(s).

CAISO related charges or credits are subject to true-up based on CAISO payment calendar.

Per Section 6.4 Disputes Adjustment of Invoices, PG&E reserves its rights to review and revise the "Failed Start Penalty" per section 4.5 for the period of June 2015 through May 2016.

S

A

P

the 1990s, the number of people in the world who are under 15 years of age has increased by 1.2 billion, from 1.1 billion in 1980 to 2.3 billion in 1999 (United Nations 2000).

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 112 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education by the year 2015'.

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 112 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education by the year 2015'.

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 112 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education by the year 2015'.

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 112 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education by the year 2015'.

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 112 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education by the year 2015'.

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 112 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education by the year 2015'.

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 112 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education by the year 2015'.

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 112 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education by the year 2015'.

There is a growing awareness of the need to address the needs of children in the 21st century. The United Nations Convention on the Rights of the Child (1989) has been signed by 112 countries, and the United Nations Millennium Declaration (2000) has set out a commitment to 'ensure that all children, everywhere, have access to primary education by the year 2015'.



August 16, 2018

MSC-2993

Aera Energy, LLC  
29235 Hwy 33  
Maricopa, CA 93252

Attn: Mike Anders

**Re: July 2018 Invoice for Electricity Purchased**

Enclosed are the statement and invoice for electricity purchased by Aera Energy, LLC for the period of July 1, 2018 through July 31, 2018 under the above-mentioned agreement.

The measurement of electricity delivered to Aera Energy, LLC during the period was taken from the meters located at the Western Substation and AFS.

If you should have any questions, please contact Connic-Marie King at 661-768-3017.

Sincerely,

A handwritten signature in dark ink, appearing to read "D. Faiella", is written over a light blue horizontal line.

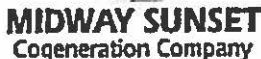
Dave Faiella  
Executive Director

/cmk

Attachments

cc: File MSC-2993

S. Henriksen (w/attachments) 2 copies



**3466 W. Crocker Springs Road  
P.O. Box 457, Fellows, CA 93224-0457  
(661) 768-3000**

Maricopa, CA 93252

**INVOICE DATE:** 8/16/2018

PAYMENT DATE	9/15/2018
--------------	-----------

DESCRIPTION	INVOICE AMOUNT
For electricity delivered for the period of July 1, 2018 through July31, 2018	\$
<b>TOTAL DUE</b>	<b>\$</b>

**WIRE TRANSFER INSTRUCTIONS:**

FOR THE ACCOUNT OF MIDWAY SUNSET COGENERATION COMPANY

Pay to: Wells Fargo Bank, N.A.

Bank Address: 420 Montgomery  
San Francisco, CA 94104

ABA: 121000248

**Beneficiary:** Midway Sunset Cogeneration Company

Account: 4471513853

<b>Ref:</b>	<b>Vendor's Name and Invoice Number</b>
-------------	---



**MIDWAY SUNSET**  
Cogeneration Company

**AERA**  
**STATEMENT OF ENERGY AND CAPACITY PURCHASED**  
**JULY 2018**

**ENERGY PAYMENT**

<u>KWH</u>	<u>X</u>	<u>ENERGY PRICE</u>	<u>=</u>	<u>ENERGY PAYMENT</u>
7,303,084.83	X	\$		\$

**CAPACITY PAYMENT**

<u>ANNUAL CONTRACT CAPACITY</u>	<u>KWH</u>	<u>FIRM CAPACITY PRICE</u>	<u>=</u>	<u>CAPACITY PAYMENT</u>
98	744	7,291,200.00	X \$	\$

**TOTAL PAYMENT DUE**

\$

**GREENHOUSE GAS EMISSIONS**

<u>MWH</u>	<u>X</u>	<u>MMBTU / MWH</u>	<u>X</u>	<u>GHG EMISSIONS RATE</u> (MT/MMBTU)	<u>EMISSIONS QUANTITY</u>
7,303.08		7.75		0.053072	3,003.82



DATE	BEGINNING HOUR	ENDING HOUR	VICTORY MWH	AFS MWH	TOTAL MWH
7/1/2018	0:00	1:00	3.6160	6.0316	9.6476
7/1/2018	1:00	2:00	3.6200	6.0832	9.7032
7/1/2018	2:00	3:00	3.6200	6.1471	9.7671
7/1/2018	3:00	4:00	3.6480	6.1830	9.8310
7/1/2018	4:00	5:00	3.6520	6.2429	9.8949
7/1/2018	5:00	6:00	3.6560	6.3028	9.9588
7/1/2018	6:00	7:00	3.6520	6.3707	10.0227
7/1/2018	7:00	8:00	3.6480	6.4386	10.0866
7/1/2018	8:00	9:00	3.6680	6.4479	10.1159
7/1/2018	9:00	10:00	3.7560	6.2979	10.0539
7/1/2018	10:00	11:00	3.7480	6.2391	9.9871
7/1/2018	11:00	12:00	3.6920	6.2283	9.9203
7/1/2018	12:00	13:00	3.6800	6.1735	9.8535
7/1/2018	13:00	14:00	3.6600	6.1267	9.7867
7/1/2018	14:00	15:00	3.6440	6.0759	9.7199
7/1/2018	15:00	16:00	3.6560	5.9971	9.6531
7/1/2018	16:00	17:00	3.6640	5.9587	9.6227
7/1/2018	17:00	18:00	3.6640	6.0038	9.6678
7/1/2018	18:00	19:00	3.6560	6.0593	9.7153
7/1/2018	19:00	20:00	3.6680	6.0948	9.7628
7/1/2018	20:00	21:00	3.6400	6.1702	9.8102
7/1/2018	21:00	22:00	3.6600	6.1977	9.8577
7/1/2018	22:00	23:00	3.5920	6.3132	9.9052
7/1/2018	23:00	0:00	3.5680	6.3847	9.9527
7/2/2018	0:00	1:00	3.5800	6.4433	10.0233
7/2/2018	1:00	2:00	3.5960	6.5916	10.1876
7/2/2018	2:00	3:00	3.6080	6.6829	10.2909
7/2/2018	3:00	4:00	3.6520	6.5809	10.2329
7/2/2018	4:00	5:00	3.6360	6.5389	10.1749
7/2/2018	5:00	6:00	3.6480	6.4689	10.1169
7/2/2018	6:00	7:00	3.6200	6.4389	10.0589
7/2/2018	7:00	8:00	3.6000	6.4009	10.0009
7/2/2018	8:00	9:00	3.6480	6.2949	9.9429
7/2/2018	9:00	10:00	3.5880	6.2994	9.8874

7/2/2018	10:00	11:00	3.4760	6.3640	9.8400
7/2/2018	11:00	12:00	3.4640	6.3293	9.7933
7/2/2018	12:00	13:00	3.4520	6.2946	9.7466
7/2/2018	13:00	14:00	3.4600	6.2399	9.6999
7/2/2018	14:00	15:00	3.4680	6.1852	9.6532
7/2/2018	15:00	16:00	3.4360	6.1705	9.6065
7/2/2018	16:00	17:00	3.4280	6.1318	9.5598
7/2/2018	17:00	18:00	3.4120	6.1107	9.5227
7/2/2018	18:00	19:00	3.3640	6.1513	9.5153
7/2/2018	19:00	20:00	3.3920	6.1180	9.5100
7/2/2018	20:00	21:00	3.3440	6.1606	9.5046
7/2/2018	21:00	22:00	3.3400	6.1593	9.4993
7/2/2018	22:00	23:00	3.3280	6.1659	9.4939
7/2/2018	23:00	0:00	3.3280	6.1606	9.4886
7/3/2018	0:00	1:00	3.3360	6.1473	9.4833
7/3/2018	1:00	2:00	3.3600	6.1289	9.4889
7/3/2018	2:00	3:00	3.3720	6.1487	9.5207
7/3/2018	3:00	4:00	3.3800	6.1736	9.5536
7/3/2018	4:00	5:00	3.4000	6.1865	9.5865
7/3/2018	5:00	6:00	3.4280	6.1914	9.6194
7/3/2018	6:00	7:00	3.4240	6.2283	9.6523
7/3/2018	7:00	8:00	3.3280	6.3572	9.6852
7/3/2018	8:00	9:00	3.4320	6.2861	9.7181
7/3/2018	9:00	10:00	3.4040	6.3559	9.7599
7/3/2018	10:00	11:00	3.4160	6.4038	9.8198
7/3/2018	11:00	12:00	3.4320	6.4483	9.8803
7/3/2018	12:00	13:00	3.5360	6.4048	9.9408
7/3/2018	13:00	14:00	3.5240	6.4773	10.0013
7/3/2018	14:00	15:00	3.4720	6.5897	10.0617
7/3/2018	15:00	16:00	3.4640	6.6582	10.1222
7/3/2018	16:00	17:00	3.4800	6.7027	10.1827
7/3/2018	17:00	18:00	3.5680	6.6135	10.1815
7/3/2018	18:00	19:00	3.5800	6.5131	10.0931
7/3/2018	19:00	20:00	3.5560	6.4479	10.0039
7/3/2018	20:00	21:00	3.5400	6.3748	9.9148
7/3/2018	21:00	22:00	3.5520	6.2737	9.8257
7/3/2018	22:00	23:00	3.6160	6.1206	9.7366
7/3/2018	23:00	0:00	3.6280	6.0195	9.6475
7/4/2018	0:00	1:00	3.6520	5.9063	9.5583
7/4/2018	1:00	2:00	3.6720	5.8482	9.5202
7/4/2018	2:00	3:00	3.7200	5.8183	9.5383
7/4/2018	3:00	4:00	3.6920	5.8644	9.5564
7/4/2018	4:00	5:00	3.6440	5.9306	9.5746
7/4/2018	5:00	6:00	3.6560	5.9367	9.5927
7/4/2018	6:00	7:00	3.6720	5.9389	9.6109
7/4/2018	7:00	8:00	3.6800	5.9490	9.6290
7/4/2018	8:00	9:00	3.7000	5.9472	9.6472

7/4/2018	9:00	10:00	3.6400	6.0253	9.6653
7/4/2018	10:00	11:00	3.6320	6.0515	9.6835
7/4/2018	11:00	12:00	3.6160	6.0856	9.7016
7/4/2018	12:00	13:00	3.6280	6.0918	9.7198
7/4/2018	13:00	14:00	3.6240	6.1140	9.7380
7/4/2018	14:00	15:00	3.6120	6.1441	9.7561
7/4/2018	15:00	16:00	3.5880	6.1863	9.7743
7/4/2018	16:00	17:00	3.5960	6.1965	9.7925
7/4/2018	17:00	18:00	3.5960	6.2184	9.8144
7/4/2018	18:00	19:00	3.5880	6.2508	9.8388
7/4/2018	19:00	20:00	3.5800	6.2831	9.8631
7/4/2018	20:00	21:00	3.5880	6.2995	9.8875
7/4/2018	21:00	22:00	3.6000	6.3119	9.9119
7/4/2018	22:00	23:00	3.5920	6.3443	9.9363
7/4/2018	23:00	0:00	3.5840	6.3766	9.9606
7/5/2018	0:00	1:00	3.6040	6.3809	9.9849
7/5/2018	1:00	2:00	3.6040	6.4018	10.0058
7/5/2018	2:00	3:00	3.6240	6.4008	10.0248
7/5/2018	3:00	4:00	3.6360	6.4078	10.0438
7/5/2018	4:00	5:00	3.6640	6.3988	10.0628
7/5/2018	5:00	6:00	3.6280	6.4539	10.0819
7/5/2018	6:00	7:00	3.6080	6.4929	10.1009
7/5/2018	7:00	8:00	3.6120	6.5079	10.1199
7/5/2018	8:00	9:00	3.6720	6.4650	10.1370
7/5/2018	9:00	10:00	3.6960	6.4094	10.1054
7/5/2018	10:00	11:00	3.6960	6.3567	10.0527
7/5/2018	11:00	12:00	3.6720	6.3280	10.0000
7/5/2018	12:00	13:00	3.6600	6.2873	9.9473
7/5/2018	13:00	14:00	3.6560	6.2387	9.8947
7/5/2018	14:00	15:00	3.5440	6.2980	9.8420
7/5/2018	15:00	16:00	3.5720	6.2173	9.7893
7/5/2018	16:00	17:00	3.7120	6.0259	9.7379
7/5/2018	17:00	18:00	3.6920	6.0246	9.7166
7/5/2018	18:00	19:00	3.7200	5.9878	9.7078
7/5/2018	19:00	20:00	3.6840	6.0151	9.6991
7/5/2018	20:00	21:00	3.7000	5.9904	9.6904
7/5/2018	21:00	22:00	3.7360	5.9457	9.6817
7/5/2018	22:00	23:00	3.7240	5.9490	9.6730
7/5/2018	23:00	0:00	3.7120	5.9523	9.6643
7/6/2018	0:00	1:00	3.7000	5.9590	9.6590
7/6/2018	1:00	2:00	3.7000	5.9881	9.6881
7/6/2018	2:00	3:00	3.7160	6.0102	9.7262
7/6/2018	3:00	4:00	3.7160	6.0483	9.7643
7/6/2018	4:00	5:00	3.7240	6.0784	9.8024
7/6/2018	5:00	6:00	3.7200	6.1205	9.8405
7/6/2018	6:00	7:00	3.7080	6.1705	9.8785
7/6/2018	7:00	8:00	3.7000	6.2166	9.9166

7/6/2018	8:00	9:00	3.7320	6.2199	9.9519
7/6/2018	9:00	10:00	3.7200	6.2407	9.9607
7/6/2018	10:00	11:00	3.7400	6.2230	9.9630
7/6/2018	11:00	12:00	3.8120	6.1533	9.9653
7/6/2018	12:00	13:00	3.8680	6.0996	9.9676
7/6/2018	13:00	14:00	3.8440	6.1259	9.9699
7/6/2018	14:00	15:00	3.8640	6.1082	9.9722
7/6/2018	15:00	16:00	3.8640	6.1105	9.9745
7/6/2018	16:00	17:00	3.8640	6.1087	9.9727
7/6/2018	17:00	18:00	3.8760	6.0687	9.9447
7/6/2018	18:00	19:00	3.8960	6.0160	9.9120
7/6/2018	19:00	20:00	3.8880	5.9914	9.8794
7/6/2018	20:00	21:00	3.8520	5.9947	9.8467
7/6/2018	21:00	22:00	3.8480	5.9660	9.8140
7/6/2018	22:00	23:00	3.7960	5.9853	9.7813
7/6/2018	23:00	0:00	3.8040	5.9447	9.7487
7/7/2018	0:00	1:00	3.8000	5.9254	9.7254
7/7/2018	1:00	2:00	3.7640	5.9778	9.7418
7/7/2018	2:00	3:00	3.7520	6.0108	9.7628
7/7/2018	3:00	4:00	3.7840	5.9997	9.7837
7/7/2018	4:00	5:00	3.7880	6.0166	9.8046
7/7/2018	5:00	6:00	3.7800	6.0455	9.8255
7/7/2018	6:00	7:00	3.7800	6.0665	9.8465
7/7/2018	7:00	8:00	3.7640	6.1034	9.8674
7/7/2018	8:00	9:00	3.8360	6.0464	9.8824
7/7/2018	9:00	10:00	3.7640	6.1159	9.8799
7/7/2018	10:00	11:00	3.7800	6.0964	9.8764
7/7/2018	11:00	12:00	3.7760	6.0969	9.8729
7/7/2018	12:00	13:00	3.8280	6.0414	9.8694
7/7/2018	13:00	14:00	3.8320	6.0338	9.8658
7/7/2018	14:00	15:00	3.8280	6.0343	9.8623
7/7/2018	15:00	16:00	3.8080	6.0508	9.8588
7/7/2018	16:00	17:00	3.7760	6.0749	9.8509
7/7/2018	17:00	18:00	3.7880	6.0424	9.8304
7/7/2018	18:00	19:00	3.7880	6.0212	9.8092
7/7/2018	19:00	20:00	3.7720	6.0159	9.7879
7/7/2018	20:00	21:00	3.7600	6.0066	9.7666
7/7/2018	21:00	22:00	3.7360	6.0093	9.7453
7/7/2018	22:00	23:00	3.7520	5.9721	9.7241
7/7/2018	23:00	0:00	3.7640	5.9388	9.7028
7/8/2018	0:00	1:00	3.7560	5.9420	9.6980
7/8/2018	1:00	2:00	3.7160	6.0066	9.7226
7/8/2018	2:00	3:00	3.7040	6.0439	9.7479
7/8/2018	3:00	4:00	3.7120	6.0611	9.7731
7/8/2018	4:00	5:00	3.7280	6.0703	9.7983
7/8/2018	5:00	6:00	3.7320	6.0915	9.8235
7/8/2018	6:00	7:00	3.7520	6.0968	9.8488

7/8/2018	7:00	8:00	3.7240	6.1500	9.8740
7/8/2018	8:00	9:00	3.6760	6.2179	9.8939
7/8/2018	9:00	10:00	3.7400	6.1649	9.9049
7/8/2018	10:00	11:00	3.7640	6.1518	9.9158
7/8/2018	11:00	12:00	3.7320	6.1946	9.9266
7/8/2018	12:00	13:00	3.7600	6.1774	9.9374
7/8/2018	13:00	14:00	3.7640	6.1843	9.9483
7/8/2018	14:00	15:00	3.7280	6.2311	9.9591
7/8/2018	15:00	16:00	3.7440	6.2260	9.9700
7/8/2018	16:00	17:00	3.7640	6.2138	9.9778
7/8/2018	17:00	18:00	3.7640	6.2166	9.9806
7/8/2018	18:00	19:00	3.7560	6.2274	9.9834
7/8/2018	19:00	20:00	3.7320	6.2542	9.9862
7/8/2018	20:00	21:00	3.7120	6.2770	9.9890
7/8/2018	21:00	22:00	3.6920	6.2998	9.9918
7/8/2018	22:00	23:00	3.7240	6.2706	9.9946
7/8/2018	23:00	0:00	3.7120	6.2854	9.9974
7/9/2018	0:00	1:00	3.7240	6.2588	9.9828
7/9/2018	1:00	2:00	3.7080	6.2395	9.9475
7/9/2018	2:00	3:00	3.6960	6.2161	9.9121
7/9/2018	3:00	4:00	3.7080	6.1687	9.8767
7/9/2018	4:00	5:00	3.7120	6.1293	9.8413
7/9/2018	5:00	6:00	3.7040	6.1020	9.8060
7/9/2018	6:00	7:00	3.7000	6.0706	9.7706
7/9/2018	7:00	8:00	3.6920	6.0433	9.7353
7/9/2018	8:00	9:00	3.7200	6.0082	9.7282
7/9/2018	9:00	10:00	3.7560	5.9891	9.7451
7/9/2018	10:00	11:00	3.7480	6.0140	9.7620
7/9/2018	11:00	12:00	3.7680	6.0109	9.7789
7/9/2018	12:00	13:00	3.7600	6.0359	9.7959
7/9/2018	13:00	14:00	3.7160	6.0968	9.8128
7/9/2018	14:00	15:00	3.7160	6.1137	9.8297
7/9/2018	15:00	16:00	3.7560	6.0905	9.8465
7/9/2018	16:00	17:00	3.7720	6.0496	9.8216
7/9/2018	17:00	18:00	3.7600	6.0045	9.7645
7/9/2018	18:00	19:00	3.7680	5.9394	9.7074
7/9/2018	19:00	20:00	3.7560	5.8943	9.6503
7/9/2018	20:00	21:00	3.7200	5.8732	9.5932
7/9/2018	21:00	22:00	3.7520	5.7841	9.5361
7/9/2018	22:00	23:00	3.7360	5.7431	9.4791
7/9/2018	23:00	0:00	3.7280	5.6945	9.4225
7/10/2018	0:00	1:00	3.7000	5.7102	9.4102
7/10/2018	1:00	2:00	3.7000	5.7295	9.4295
7/10/2018	2:00	3:00	3.7160	5.7328	9.4488
7/10/2018	3:00	4:00	3.7160	5.7521	9.4681
7/10/2018	4:00	5:00	3.7080	5.7794	9.4874
7/10/2018	5:00	6:00	3.7160	5.7907	9.5067

7/10/2018	6:00	7:00	3.7320	5.7940	9.5260
7/10/2018	7:00	8:00	3.6960	5.8488	9.5448
7/10/2018	8:00	9:00	3.7160	5.8223	9.5383
7/10/2018	9:00	10:00	3.7000	5.8180	9.5180
7/10/2018	10:00	11:00	3.6560	5.8417	9.4977
7/10/2018	11:00	12:00	3.7560	5.7213	9.4773
7/10/2018	12:00	13:00	3.7080	5.7490	9.4570
7/10/2018	13:00	14:00	3.7480	5.6886	9.4366
7/10/2018	14:00	15:00	3.7600	5.6563	9.4163
7/10/2018	15:00	16:00	3.7120	5.6853	9.3973
7/10/2018	16:00	17:00	3.7040	5.7061	9.4101
7/10/2018	17:00	18:00	3.7160	5.7203	9.4363
7/10/2018	18:00	19:00	3.7080	5.7544	9.4624
7/10/2018	19:00	20:00	3.6960	5.7926	9.4886
7/10/2018	20:00	21:00	3.6280	5.8868	9.5148
7/10/2018	21:00	22:00	3.6520	5.8890	9.5410
7/10/2018	22:00	23:00	3.5840	5.9832	9.5672
7/10/2018	23:00	0:00	3.5640	6.0268	9.5908
7/11/2018	0:00	1:00	3.5800	6.0484	9.6284
7/11/2018	1:00	2:00	3.5760	6.0895	9.6655
7/11/2018	2:00	3:00	3.5800	6.1225	9.7025
7/11/2018	3:00	4:00	3.6000	6.1396	9.7396
7/11/2018	4:00	5:00	3.5920	6.1847	9.7767
7/11/2018	5:00	6:00	3.6040	6.2097	9.8137
7/11/2018	6:00	7:00	3.5920	6.2588	9.8508
7/11/2018	7:00	8:00	3.5880	6.2956	9.8836
7/11/2018	8:00	9:00	3.6480	6.2251	9.8731
7/11/2018	9:00	10:00	3.7280	6.1235	9.8515
7/11/2018	10:00	11:00	3.7440	6.0859	9.8299
7/11/2018	11:00	12:00	3.7480	6.0602	9.8082
7/11/2018	12:00	13:00	3.8520	5.9346	9.7866
7/11/2018	13:00	14:00	3.8200	5.9450	9.7650
7/11/2018	14:00	15:00	3.8000	5.9434	9.7434
7/11/2018	15:00	16:00	3.8040	5.9195	9.7235
7/11/2018	16:00	17:00	3.8080	5.9081	9.7161
7/11/2018	17:00	18:00	3.8240	5.8869	9.7109
7/11/2018	18:00	19:00	3.8440	5.8618	9.7058
7/11/2018	19:00	20:00	3.8040	5.8967	9.7007
7/11/2018	20:00	21:00	3.7520	5.9435	9.6955
7/11/2018	21:00	22:00	3.7520	5.9384	9.6904
7/11/2018	22:00	23:00	3.7080	5.9773	9.6853
7/11/2018	23:00	0:00	3.7120	5.9667	9.6787
7/12/2018	0:00	1:00	3.6920	5.9971	9.6891
7/12/2018	1:00	2:00	3.7160	5.9807	9.6967
7/12/2018	2:00	3:00	3.7560	5.9482	9.7042
7/12/2018	3:00	4:00	3.7680	5.9438	9.7118
7/12/2018	4:00	5:00	3.7840	5.9353	9.7193

7/12/2018	5:00	6:00	3.7760	5.9509	9.7269
7/12/2018	6:00	7:00	3.7720	5.9625	9.7345
7/12/2018	7:00	8:00	3.7560	5.9773	9.7333
7/12/2018	8:00	9:00	3.8040	5.8942	9.6982
7/12/2018	9:00	10:00	3.7600	5.8997	9.6597
7/12/2018	10:00	11:00	3.7560	5.8652	9.6212
7/12/2018	11:00	12:00	3.8000	5.7827	9.5827
7/12/2018	12:00	13:00	3.8240	5.7202	9.5442
7/12/2018	13:00	14:00	3.8880	5.6176	9.5056
7/12/2018	14:00	15:00	3.8760	5.5911	9.4671
7/12/2018	15:00	16:00	3.8400	5.6025	9.4425
7/12/2018	16:00	17:00	3.7360	5.7196	9.4556
7/12/2018	17:00	18:00	3.7760	5.6948	9.4708
7/12/2018	18:00	19:00	3.7640	5.7221	9.4861
7/12/2018	19:00	20:00	3.7480	5.7534	9.5014
7/12/2018	20:00	21:00	3.7400	5.7766	9.5166
7/12/2018	21:00	22:00	3.7240	5.8079	9.5319
7/12/2018	22:00	23:00	3.6480	5.8992	9.5472
7/12/2018	23:00	0:00	3.6440	5.9324	9.5764
7/13/2018	0:00	1:00	3.6440	5.8861	9.5301
7/13/2018	1:00	2:00	3.6560	5.8528	9.5088
7/13/2018	2:00	3:00	3.6720	5.8154	9.4874
7/13/2018	3:00	4:00	3.6960	5.7701	9.4661
7/13/2018	4:00	5:00	3.7240	5.7207	9.4447
7/13/2018	5:00	6:00	3.7320	5.6914	9.4234
7/13/2018	6:00	7:00	3.7200	5.6821	9.4021
7/13/2018	7:00	8:00	3.6520	5.7582	9.4102
7/13/2018	8:00	9:00	3.6320	5.8337	9.4657
7/13/2018	9:00	10:00	3.6480	5.8739	9.5219
7/13/2018	10:00	11:00	3.6000	5.9781	9.5781
7/13/2018	11:00	12:00	3.5800	6.0543	9.6343
7/13/2018	12:00	13:00	3.6040	6.0865	9.6905
7/13/2018	13:00	14:00	3.6560	6.0907	9.7467
7/13/2018	14:00	15:00	3.6560	6.1469	9.8029
7/13/2018	15:00	16:00	3.7520	6.0429	9.7949
7/13/2018	16:00	17:00	3.6800	6.0391	9.7191
7/13/2018	17:00	18:00	3.6920	5.9513	9.6433
7/13/2018	18:00	19:00	3.6640	5.9035	9.5675
7/13/2018	19:00	20:00	3.6240	5.8677	9.4917
7/13/2018	20:00	21:00	3.6080	5.8079	9.4159
7/13/2018	21:00	22:00	3.5960	5.7440	9.3400
7/13/2018	22:00	23:00	3.5600	5.7061	9.2661
7/13/2018	23:00	0:00	3.5280	5.8158	9.3438
7/14/2018	0:00	1:00	3.5280	5.9898	9.5178
7/14/2018	1:00	2:00	3.5560	6.0438	9.5998
7/14/2018	2:00	3:00	3.5560	6.0354	9.5914
7/14/2018	3:00	4:00	3.5600	6.0166	9.5766



7/14/2018	4:00	5:00	3.5760	5.9857	9.5617
7/14/2018	5:00	6:00	3.5840	5.9629	9.5469
7/14/2018	6:00	7:00	3.5960	5.9360	9.5320
7/14/2018	7:00	8:00	3.5840	5.9332	9.5172
7/14/2018	8:00	9:00	3.6600	5.8424	9.5024
7/14/2018	9:00	10:00	3.7360	5.7681	9.5041
7/14/2018	10:00	11:00	3.6800	5.8651	9.5451
7/14/2018	11:00	12:00	3.7080	5.8797	9.5877
7/14/2018	12:00	13:00	3.7960	5.8343	9.6303
7/14/2018	13:00	14:00	3.8000	5.8728	9.6728
7/14/2018	14:00	15:00	3.7800	5.9354	9.7154
7/14/2018	15:00	16:00	3.7840	5.9740	9.7580
7/14/2018	16:00	17:00	3.8040	5.9966	9.8006
7/14/2018	17:00	18:00	3.7920	6.0128	9.8048
7/14/2018	18:00	19:00	3.7800	5.9750	9.7550
7/14/2018	19:00	20:00	3.7680	5.9368	9.7048
7/14/2018	20:00	21:00	3.7320	5.9226	9.6546
7/14/2018	21:00	22:00	3.6840	5.9204	9.6044
7/14/2018	22:00	23:00	3.6880	5.8662	9.5542
7/14/2018	23:00	0:00	3.6800	5.8240	9.5040
7/15/2018	0:00	1:00	3.6840	5.7698	9.4538
7/15/2018	1:00	2:00	3.7120	5.7414	9.4534
7/15/2018	2:00	3:00	3.7160	5.8036	9.5196
7/15/2018	3:00	4:00	3.7040	5.8822	9.5862
7/15/2018	4:00	5:00	3.7280	5.9247	9.6527
7/15/2018	5:00	6:00	3.7440	5.9753	9.7193
7/15/2018	6:00	7:00	3.7360	6.0498	9.7858
7/15/2018	7:00	8:00	3.7320	6.1203	9.8523
7/15/2018	8:00	9:00	3.7840	6.1349	9.9189
7/15/2018	9:00	10:00	3.8200	6.1365	9.9565
7/15/2018	10:00	11:00	3.7960	6.1684	9.9644
7/15/2018	11:00	12:00	3.7760	6.1963	9.9723
7/15/2018	12:00	13:00	3.8320	6.1482	9.9802
7/15/2018	13:00	14:00	3.8200	6.1681	9.9881
7/15/2018	14:00	15:00	3.8040	6.1920	9.9960
7/15/2018	15:00	16:00	3.7920	6.2118	10.0038
7/15/2018	16:00	17:00	3.7960	6.2156	10.0116
7/15/2018	17:00	18:00	3.7920	6.1969	9.9889
7/15/2018	18:00	19:00	3.7960	6.1473	9.9433
7/15/2018	19:00	20:00	3.8040	6.0936	9.8976
7/15/2018	20:00	21:00	3.7760	6.0760	9.8520
7/15/2018	21:00	22:00	3.7400	6.0664	9.8064
7/15/2018	22:00	23:00	3.7040	6.0568	9.7608
7/15/2018	23:00	0:00	3.6880	6.0271	9.7151
7/16/2018	0:00	1:00	3.6840	5.9858	9.6698
7/16/2018	1:00	2:00	3.7000	5.9722	9.6722
7/16/2018	2:00	3:00	3.7320	5.9775	9.7095



7/16/2018	3:00	4:00	3.7520	5.9947	9.7467
7/16/2018	4:00	5:00	3.7440	6.0399	9.7839
7/16/2018	5:00	6:00	3.7320	6.0891	9.8211
7/16/2018	6:00	7:00	3.7360	6.1224	9.8584
7/16/2018	7:00	8:00	3.7080	6.1876	9.8956
7/16/2018	8:00	9:00	3.7520	6.1805	9.9325
7/16/2018	9:00	10:00	3.7880	6.1713	9.9593
7/16/2018	10:00	11:00	3.7720	6.2087	9.9807
7/16/2018	11:00	12:00	3.6280	6.3741	10.0021
7/16/2018	12:00	13:00	3.7320	6.2916	10.0236
7/16/2018	13:00	14:00	3.7200	6.3250	10.0450
7/16/2018	14:00	15:00	3.7400	6.3265	10.0665
7/16/2018	15:00	16:00	3.7440	6.3439	10.0879
7/16/2018	16:00	17:00	3.7560	6.3524	10.1084
7/16/2018	17:00	18:00	3.7600	6.3378	10.0978
7/16/2018	18:00	19:00	3.7560	6.3161	10.0721
7/16/2018	19:00	20:00	3.7560	6.2904	10.0464
7/16/2018	20:00	21:00	3.7400	6.2807	10.0207
7/16/2018	21:00	22:00	3.7360	6.2590	9.9950
7/16/2018	22:00	23:00	3.7360	6.2332	9.9692
7/16/2018	23:00	0:00	3.7240	6.2195	9.9435
7/17/2018	0:00	1:00	3.6680	6.2506	9.9186
7/17/2018	1:00	2:00	3.6760	6.2402	9.9162
7/17/2018	2:00	3:00	3.7080	6.2166	9.9246
7/17/2018	3:00	4:00	3.6960	6.2369	9.9329
7/17/2018	4:00	5:00	3.7040	6.2372	9.9412
7/17/2018	5:00	6:00	3.6840	6.2655	9.9495
7/17/2018	6:00	7:00	3.6880	6.2698	9.9578
7/17/2018	7:00	8:00	3.6760	6.2901	9.9661
7/17/2018	8:00	9:00	3.6960	6.2792	9.9752
7/17/2018	9:00	10:00	3.7040	6.3027	10.0067
7/17/2018	10:00	11:00	3.7200	6.3285	10.0485
7/17/2018	11:00	12:00	3.7280	6.3623	10.0903
7/17/2018	12:00	13:00	3.6880	6.4440	10.1320
7/17/2018	13:00	14:00	3.6840	6.4898	10.1738
7/17/2018	14:00	15:00	3.7040	6.5116	10.2156
7/17/2018	15:00	16:00	3.6760	6.5814	10.2574
7/17/2018	16:00	17:00	3.6800	6.6140	10.2940
7/17/2018	17:00	18:00	3.7000	6.5533	10.2533
7/17/2018	18:00	19:00	3.6440	6.5428	10.1868
7/17/2018	19:00	20:00	3.6280	6.4922	10.1202
7/17/2018	20:00	21:00	3.5440	6.5097	10.0537
7/17/2018	21:00	22:00	3.5040	6.4832	9.9872
7/17/2018	22:00	23:00	3.5160	6.4047	9.9207
7/17/2018	23:00	0:00	3.4720	6.3821	9.8541
7/18/2018	0:00	1:00	3.4880	6.3116	9.7996
7/18/2018	1:00	2:00	3.5080	6.3194	9.8274

7/18/2018	2:00	3:00	3.5240	6.3468	9.8708
7/18/2018	3:00	4:00	3.5600	6.3541	9.9141
7/18/2018	4:00	5:00	3.5720	6.3855	9.9575
7/18/2018	5:00	6:00	3.5840	6.4169	10.0009
7/18/2018	6:00	7:00	3.5840	6.4602	10.0442
7/18/2018	7:00	8:00	3.5720	6.5156	10.0876
7/18/2018	8:00	9:00	3.5760	6.5490	10.1250
7/18/2018	9:00	10:00	3.5960	6.5273	10.1233
7/18/2018	10:00	11:00	3.6480	6.4664	10.1144
7/18/2018	11:00	12:00	3.6240	6.4816	10.1056
7/18/2018	12:00	13:00	3.6520	6.4447	10.0967
7/18/2018	13:00	14:00	3.6960	6.3919	10.0879
7/18/2018	14:00	15:00	3.7560	6.3230	10.0790
7/18/2018	15:00	16:00	3.8360	6.2342	10.0702
7/18/2018	16:00	17:00	3.8440	6.2199	10.0639
7/18/2018	17:00	18:00	3.8600	6.2126	10.0726
7/18/2018	18:00	19:00	3.8600	6.2238	10.0838
7/18/2018	19:00	20:00	3.8520	6.2429	10.0949
7/18/2018	20:00	21:00	3.8160	6.2900	10.1060
7/18/2018	21:00	22:00	3.8040	6.3131	10.1171
7/18/2018	22:00	23:00	3.7600	6.3682	10.1282
7/18/2018	23:00	0:00	3.7600	6.3793	10.1393
7/19/2018	0:00	1:00	3.7960	6.3447	10.1407
7/19/2018	1:00	2:00	3.8320	6.2595	10.0915
7/19/2018	2:00	3:00	3.8320	6.2032	10.0352
7/19/2018	3:00	4:00	3.8360	6.1428	9.9788
7/19/2018	4:00	5:00	3.8520	6.0705	9.9225
7/19/2018	5:00	6:00	3.8400	6.0261	9.8661
7/19/2018	6:00	7:00	3.8400	5.9698	9.8098
7/19/2018	7:00	8:00	3.7920	5.9614	9.7534
7/19/2018	8:00	9:00	3.8240	5.8897	9.7137
7/19/2018	9:00	10:00	3.8400	5.9016	9.7416
7/19/2018	10:00	11:00	3.7840	5.9926	9.7766
7/19/2018	11:00	12:00	3.8520	5.9597	9.8117
7/19/2018	12:00	13:00	3.8680	5.9787	9.8467
7/19/2018	13:00	14:00	3.8480	6.0338	9.8818
7/19/2018	14:00	15:00	3.7160	6.2009	9.9169
7/19/2018	15:00	16:00	3.8280	6.1239	9.9519
7/19/2018	16:00	17:00	3.8200	6.1540	9.9740
7/19/2018	17:00	18:00	3.8400	6.1149	9.9549
7/19/2018	18:00	19:00	3.8400	6.0929	9.9329
7/19/2018	19:00	20:00	3.8280	6.0828	9.9108
7/19/2018	20:00	21:00	3.7080	6.1808	9.8888
7/19/2018	21:00	22:00	3.6960	6.1708	9.8668
7/19/2018	22:00	23:00	3.7080	6.1367	9.8447
7/19/2018	23:00	0:00	3.7320	6.0907	9.8227
7/20/2018	0:00	1:00	3.7480	6.0646	9.8126

7/20/2018	1:00	2:00	3.7520	6.0822	9.8342
7/20/2018	2:00	3:00	3.7960	6.0615	9.8575
7/20/2018	3:00	4:00	3.8240	6.0568	9.8808
7/20/2018	4:00	5:00	3.8720	6.0322	9.9042
7/20/2018	5:00	6:00	3.8760	6.0515	9.9275
7/20/2018	6:00	7:00	3.8400	6.1108	9.9508
7/20/2018	7:00	8:00	3.8080	6.1661	9.9741
7/20/2018	8:00	9:00	3.8520	6.1273	9.9793
7/20/2018	9:00	10:00	3.8440	6.1109	9.9549
7/20/2018	10:00	11:00	3.8240	6.1060	9.9300
7/20/2018	11:00	12:00	3.8360	6.0692	9.9052
7/20/2018	12:00	13:00	3.8440	6.0363	9.8803
7/20/2018	13:00	14:00	3.8200	6.0354	9.8554
7/20/2018	14:00	15:00	3.8280	6.0026	9.8306
7/20/2018	15:00	16:00	3.8560	5.9497	9.8057
7/20/2018	16:00	17:00	3.8680	5.9453	9.8133
7/20/2018	17:00	18:00	3.8640	5.9882	9.8522
7/20/2018	18:00	19:00	3.8280	6.0631	9.8911
7/20/2018	19:00	20:00	3.7800	6.1499	9.9299
7/20/2018	20:00	21:00	3.7360	6.2328	9.9688
7/20/2018	21:00	22:00	3.7440	6.2637	10.0077
7/20/2018	22:00	23:00	3.7480	6.2986	10.0466
7/20/2018	23:00	0:00	3.7640	6.3214	10.0854
7/21/2018	0:00	1:00	3.7840	6.2789	10.0629
7/21/2018	1:00	2:00	3.7960	6.2088	10.0048
7/21/2018	2:00	3:00	3.8320	6.1148	9.9468
7/21/2018	3:00	4:00	3.8560	6.0328	9.8888
7/21/2018	4:00	5:00	3.8600	5.9707	9.8307
7/21/2018	5:00	6:00	3.8600	5.9127	9.7727
7/21/2018	6:00	7:00	3.8840	5.8307	9.7147
7/21/2018	7:00	8:00	3.8680	5.7896	9.6576
7/21/2018	8:00	9:00	3.8640	5.7914	9.6554
7/21/2018	9:00	10:00	3.8320	5.8527	9.6847
7/21/2018	10:00	11:00	3.8200	5.8939	9.7139
7/21/2018	11:00	12:00	3.6960	6.0471	9.7431
7/21/2018	12:00	13:00	3.6680	6.1043	9.7723
7/21/2018	13:00	14:00	3.6800	6.1215	9.8015
7/21/2018	14:00	15:00	3.6760	6.1548	9.8308
7/21/2018	15:00	16:00	3.6520	6.2056	9.8576
7/21/2018	16:00	17:00	3.6680	6.1534	9.8214
7/21/2018	17:00	18:00	3.6840	6.0730	9.7570
7/21/2018	18:00	19:00	3.6840	6.0086	9.6926
7/21/2018	19:00	20:00	3.6960	5.9322	9.6282
7/21/2018	20:00	21:00	3.6360	5.9277	9.5637
7/21/2018	21:00	22:00	3.6600	5.8393	9.4993
7/21/2018	22:00	23:00	3.6640	5.7709	9.4349
7/21/2018	23:00	0:00	3.6360	5.7409	9.3769

7/22/2018	0:00	1:00	3.6280	5.8313	9.4593
7/22/2018	1:00	2:00	3.6440	5.7976	9.4416
7/22/2018	2:00	3:00	3.6640	5.6824	9.3464
7/22/2018	3:00	4:00	3.6880	5.7511	9.4391
7/22/2018	4:00	5:00	3.7120	5.8198	9.5318
7/22/2018	5:00	6:00	3.7240	5.9005	9.6245
7/22/2018	6:00	7:00	3.7360	5.9811	9.7171
7/22/2018	7:00	8:00	3.7160	6.0938	9.8098
7/22/2018	8:00	9:00	3.7440	6.1585	9.9025
7/22/2018	9:00	10:00	3.7400	6.2122	9.9522
7/22/2018	10:00	11:00	3.6880	6.2059	9.8939
7/22/2018	11:00	12:00	3.6680	6.1624	9.8304
7/22/2018	12:00	13:00	3.6440	6.1229	9.7669
7/22/2018	13:00	14:00	3.6480	6.0554	9.7034
7/22/2018	14:00	15:00	3.6320	6.0079	9.6399
7/22/2018	15:00	16:00	3.6360	5.9404	9.5764
7/22/2018	16:00	17:00	3.6320	5.8809	9.5129
7/22/2018	17:00	18:00	3.6400	5.8458	9.4858
7/22/2018	18:00	19:00	3.6240	5.8924	9.5164
7/22/2018	19:00	20:00	3.6280	5.9197	9.5477
7/22/2018	20:00	21:00	3.6320	5.9470	9.5790
7/22/2018	21:00	22:00	3.6600	5.9504	9.6104
7/22/2018	22:00	23:00	3.6480	5.9937	9.6417
7/22/2018	23:00	0:00	3.6360	6.0370	9.6730
7/23/2018	0:00	1:00	3.6480	6.0564	9.7044
7/23/2018	1:00	2:00	3.6320	6.0927	9.7247
7/23/2018	2:00	3:00	3.6440	6.0915	9.7355
7/23/2018	3:00	4:00	3.6600	6.0863	9.7463
7/23/2018	4:00	5:00	3.6840	6.0731	9.7571
7/23/2018	5:00	6:00	3.6800	6.0879	9.7679
7/23/2018	6:00	7:00	3.6800	6.0986	9.7786
7/23/2018	7:00	8:00	3.6440	6.1454	9.7894
7/23/2018	8:00	9:00	3.6960	6.1039	9.7999
7/23/2018	9:00	10:00	3.6720	6.1272	9.7992
7/23/2018	10:00	11:00	3.6440	6.1488	9.7928
7/23/2018	11:00	12:00	3.6320	6.1544	9.7864
7/23/2018	12:00	13:00	3.6400	6.1400	9.7800
7/23/2018	13:00	14:00	3.6320	6.1416	9.7736
7/23/2018	14:00	15:00	3.6080	6.1592	9.7672
7/23/2018	15:00	16:00	3.5760	6.1848	9.7608
7/23/2018	16:00	17:00	3.5720	6.1832	9.7552
7/23/2018	17:00	18:00	3.5680	6.1920	9.7600
7/23/2018	18:00	19:00	3.5680	6.2003	9.7683
7/23/2018	19:00	20:00	3.5520	6.2247	9.7767
7/23/2018	20:00	21:00	3.5200	6.2650	9.7850
7/23/2018	21:00	22:00	3.4960	6.2974	9.7934
7/23/2018	22:00	23:00	3.4680	6.3337	9.8017

7/23/2018	23:00	0:00	3.4360	6.3741	9.8101
7/24/2018	0:00	1:00	3.4280	6.3908	9.8188
7/24/2018	1:00	2:00	3.4240	6.4078	9.8318
7/24/2018	2:00	3:00	3.4120	6.4341	9.8461
7/24/2018	3:00	4:00	3.4320	6.4283	9.8603
7/24/2018	4:00	5:00	3.4520	6.4226	9.8746
7/24/2018	5:00	6:00	3.4480	6.4409	9.8889
7/24/2018	6:00	7:00	3.4760	6.4271	9.9031
7/24/2018	7:00	8:00	3.4200	6.4974	9.9174
7/24/2018	8:00	9:00	3.4880	6.4456	9.9336
7/24/2018	9:00	10:00	3.5240	6.4400	9.9640
7/24/2018	10:00	11:00	3.5080	6.4894	9.9974
7/24/2018	11:00	12:00	3.5520	6.4788	10.0308
7/24/2018	12:00	13:00	3.5880	6.4762	10.0642
7/24/2018	13:00	14:00	3.5160	6.5817	10.0977
7/24/2018	14:00	15:00	3.4920	6.6391	10.1311
7/24/2018	15:00	16:00	3.5280	6.6365	10.1645
7/24/2018	16:00	17:00	3.5560	6.6259	10.1819
7/24/2018	17:00	18:00	3.5520	6.5671	10.1191
7/24/2018	18:00	19:00	3.5680	6.4772	10.0452
7/24/2018	19:00	20:00	3.5680	6.4033	9.9713
7/24/2018	20:00	21:00	3.5600	6.3374	9.8974
7/24/2018	21:00	22:00	3.5520	6.2716	9.8236
7/24/2018	22:00	23:00	3.5440	6.2057	9.7497
7/24/2018	23:00	0:00	3.5160	6.1598	9.6758
7/25/2018	0:00	1:00	3.5000	6.1086	9.6086
7/25/2018	1:00	2:00	3.5000	6.0703	9.5703
7/25/2018	2:00	3:00	3.4880	6.0474	9.5354
7/25/2018	3:00	4:00	3.5080	5.9925	9.5005
7/25/2018	4:00	5:00	3.5160	5.9496	9.4656
7/25/2018	5:00	6:00	3.5280	5.9026	9.4306
7/25/2018	6:00	7:00	3.5280	5.8677	9.3957
7/25/2018	7:00	8:00	3.5200	5.8408	9.3608
7/25/2018	8:00	9:00	3.5400	5.8059	9.3459
7/25/2018	9:00	10:00	3.5240	5.8574	9.3814
7/25/2018	10:00	11:00	3.5400	5.8794	9.4194
7/25/2018	11:00	12:00	3.6200	5.8375	9.4575
7/25/2018	12:00	13:00	3.6120	5.8835	9.4955
7/25/2018	13:00	14:00	3.6000	5.9335	9.5335
7/25/2018	14:00	15:00	3.5920	5.9795	9.5715
7/25/2018	15:00	16:00	3.6200	5.9895	9.6095
7/25/2018	16:00	17:00	3.6200	6.0263	9.6463
7/25/2018	17:00	18:00	3.6280	6.0525	9.6805
7/25/2018	18:00	19:00	3.6160	6.0986	9.7146
7/25/2018	19:00	20:00	3.6240	6.1248	9.7488
7/25/2018	20:00	21:00	3.5960	6.1869	9.7829
7/25/2018	21:00	22:00	3.5640	6.2530	9.8170

7/25/2018	22:00	23:00	3.5680	6.2831	9.8511
7/25/2018	23:00	0:00	3.5520	6.3333	9.8853
7/26/2018	0:00	1:00	3.5720	6.2866	9.8586
7/26/2018	1:00	2:00	3.5680	6.0000	9.5680
7/26/2018	2:00	3:00	3.5800	5.9153	9.4953
7/26/2018	3:00	4:00	3.5760	5.9160	9.4920
7/26/2018	4:00	5:00	3.5880	5.9008	9.4888
7/26/2018	5:00	6:00	3.5920	5.8935	9.4855
7/26/2018	6:00	7:00	3.5840	5.8982	9.4822
7/26/2018	7:00	8:00	3.5520	5.9269	9.4789
7/26/2018	8:00	9:00	3.5840	5.8917	9.4757
7/26/2018	9:00	10:00	3.6680	5.8234	9.4914
7/26/2018	10:00	11:00	3.6840	5.8675	9.5515
7/26/2018	11:00	12:00	3.6840	5.9294	9.6134
7/26/2018	12:00	13:00	3.7080	5.9673	9.6753
7/26/2018	13:00	14:00	3.6880	6.0492	9.7372
7/26/2018	14:00	15:00	3.6840	6.1151	9.7991
7/26/2018	15:00	16:00	3.6920	6.1690	9.8610
7/26/2018	16:00	17:00	3.7080	6.2149	9.9229
7/26/2018	17:00	18:00	3.7000	6.2409	9.9409
7/26/2018	18:00	19:00	3.6840	6.2084	9.8924
7/26/2018	19:00	20:00	3.6760	6.1672	9.8432
7/26/2018	20:00	21:00	3.6640	6.1300	9.7940
7/26/2018	21:00	22:00	3.6480	6.0968	9.7448
7/26/2018	22:00	23:00	3.6000	6.0956	9.6956
7/26/2018	23:00	0:00	3.5680	6.0784	9.6464
7/27/2018	0:00	1:00	3.5680	6.0292	9.5972
7/27/2018	1:00	2:00	3.5240	6.0908	9.6148
7/27/2018	2:00	3:00	3.5520	6.1402	9.6922
7/27/2018	3:00	4:00	3.5600	6.2095	9.7695
7/27/2018	4:00	5:00	3.5840	6.2628	9.8468
7/27/2018	5:00	6:00	3.5600	6.3641	9.9241
7/27/2018	6:00	7:00	3.5600	6.4414	10.0014
7/27/2018	7:00	8:00	3.5400	6.5388	10.0788
7/27/2018	8:00	9:00	3.5520	6.6039	10.1559
7/27/2018	9:00	10:00	3.5960	6.6084	10.2044
7/27/2018	10:00	11:00	3.5400	6.6921	10.2321
7/27/2018	11:00	12:00	3.6120	6.6478	10.2598
7/27/2018	12:00	13:00	3.6400	6.6475	10.2875
7/27/2018	13:00	14:00	3.6640	6.6512	10.3152
7/27/2018	14:00	15:00	3.7720	6.5709	10.3429
7/27/2018	15:00	16:00	3.8000	6.5705	10.3705
7/27/2018	16:00	17:00	3.8320	6.5643	10.3963
7/27/2018	17:00	18:00	3.8640	6.5070	10.3710
7/27/2018	18:00	19:00	3.8560	6.4669	10.3229
7/27/2018	19:00	20:00	3.8520	6.4228	10.2748
7/27/2018	20:00	21:00	3.7920	6.4347	10.2267

7/27/2018	21:00	22:00	3.7920	6.3866	10.1786
7/27/2018	22:00	23:00	3.7520	6.3785	10.1305
7/27/2018	23:00	0:00	3.6960	6.3865	10.0825
7/28/2018	0:00	1:00	3.6800	6.3554	10.0354
7/28/2018	1:00	2:00	3.6800	6.3274	10.0074
7/28/2018	2:00	3:00	3.6960	6.2910	9.9870
7/28/2018	3:00	4:00	3.7160	6.2505	9.9665
7/28/2018	4:00	5:00	3.7280	6.2180	9.9460
7/28/2018	5:00	6:00	3.7320	6.1935	9.9255
7/28/2018	6:00	7:00	3.7360	6.1690	9.9050
7/28/2018	7:00	8:00	3.7160	6.1686	9.8846
7/28/2018	8:00	9:00	3.6800	6.1879	9.8679
7/28/2018	9:00	10:00	3.6960	6.2150	9.9110
7/28/2018	10:00	11:00	3.7080	6.3798	10.0878
7/28/2018	11:00	12:00	3.7160	6.5532	10.2692
7/28/2018	12:00	13:00	3.7680	5.5935	9.3615
7/28/2018	13:00	14:00	3.7800	5.5317	9.3117
7/28/2018	14:00	15:00	3.7480	6.3976	10.1456
7/28/2018	15:00	16:00	3.7480	6.3828	10.1308
7/28/2018	16:00	17:00	3.7560	6.3601	10.1161
7/28/2018	17:00	18:00	3.7480	6.3534	10.1014
7/28/2018	18:00	19:00	3.7640	6.3227	10.0867
7/28/2018	19:00	20:00	3.7760	6.2959	10.0719
7/28/2018	20:00	21:00	3.7640	5.6090	9.3730
7/28/2018	21:00	22:00	3.7520	6.4548	10.2068
7/28/2018	22:00	23:00	3.6640	6.4808	10.1448
7/28/2018	23:00	0:00	3.6520	6.4308	10.0828
7/29/2018	0:00	1:00	3.6520	6.3689	10.0209
7/29/2018	1:00	2:00	3.6640	6.2949	9.9589
7/29/2018	2:00	3:00	3.6880	6.2089	9.8969
7/29/2018	3:00	4:00	3.6680	6.1672	9.8352
7/29/2018	4:00	5:00	3.6040	6.0130	9.6170
7/29/2018	5:00	6:00	3.6000	6.0781	9.6781
7/29/2018	6:00	7:00	3.6200	6.1384	9.7584
7/29/2018	7:00	8:00	3.6280	6.2108	9.8388
7/29/2018	8:00	9:00	3.6760	6.2431	9.9191
7/29/2018	9:00	10:00	3.7160	6.2834	9.9994
7/29/2018	10:00	11:00	3.7160	6.3638	10.0798
7/29/2018	11:00	12:00	3.6760	6.4841	10.1601
7/29/2018	12:00	13:00	3.6920	6.5094	10.2014
7/29/2018	13:00	14:00	3.6840	6.5063	10.1903
7/29/2018	14:00	15:00	3.7040	6.4749	10.1789
7/29/2018	15:00	16:00	3.7080	6.4596	10.1676
7/29/2018	16:00	17:00	3.7000	6.4562	10.1562
7/29/2018	17:00	18:00	3.7200	6.4249	10.1449
7/29/2018	18:00	19:00	3.7280	6.4055	10.1335
7/29/2018	19:00	20:00	3.7280	6.3942	10.1222



7/29/2018	20:00	21:00	3.6920	6.3905	10.0825
7/29/2018	21:00	22:00	3.6640	6.3431	10.0071
7/29/2018	22:00	23:00	3.6040	6.3277	9.9317
7/29/2018	23:00	0:00	3.5960	6.2602	9.8562
7/30/2018	0:00	1:00	3.5880	6.4456	10.0336
7/30/2018	1:00	2:00	3.6040	6.4110	10.0150
7/30/2018	2:00	3:00	3.6080	6.3885	9.9965
7/30/2018	3:00	4:00	3.6160	6.3620	9.9780
7/30/2018	4:00	5:00	3.6320	6.3345	9.9665
7/30/2018	5:00	6:00	3.6320	6.3299	9.9619
7/30/2018	6:00	7:00	3.6280	6.3293	9.9573
7/30/2018	7:00	8:00	3.6120	6.3407	9.9527
7/30/2018	8:00	9:00	3.6600	6.2882	9.9482
7/30/2018	9:00	10:00	3.6480	6.2956	9.9436
7/30/2018	10:00	11:00	3.5680	6.3710	9.9390
7/30/2018	11:00	12:00	3.5880	6.3465	9.9345
7/30/2018	12:00	13:00	3.5760	6.3741	9.9501
7/30/2018	13:00	14:00	3.6120	6.3689	9.9809
7/30/2018	14:00	15:00	3.7880	6.2237	10.0117
7/30/2018	15:00	16:00	3.8520	6.1905	10.0425
7/30/2018	16:00	17:00	3.7840	6.2894	10.0734
7/30/2018	17:00	18:00	3.7760	6.3282	10.1042
7/30/2018	18:00	19:00	3.6840	6.4510	10.1350
7/30/2018	19:00	20:00	3.6880	6.4769	10.1649
7/30/2018	20:00	21:00	3.6840	6.4644	10.1484
7/30/2018	21:00	22:00	3.6480	6.4584	10.1064
7/30/2018	22:00	23:00	3.6040	6.4605	10.0645
7/30/2018	23:00	0:00	3.5960	6.4265	10.0225
7/31/2018	0:00	1:00	3.5920	6.4502	10.0422
7/31/2018	1:00	2:00	3.6040	6.4095	10.0135
7/31/2018	2:00	3:00	3.6200	6.3648	9.9848
7/31/2018	3:00	4:00	3.6160	6.3405	9.9565
7/31/2018	4:00	5:00	3.6120	6.3235	9.9355
7/31/2018	5:00	6:00	3.6320	6.2849	9.9169
7/31/2018	6:00	7:00	3.6200	6.2783	9.8983
7/31/2018	7:00	8:00	3.6120	6.2677	9.8797
7/31/2018	8:00	9:00	3.6360	6.2251	9.8611
7/31/2018	9:00	10:00	3.6160	6.2265	9.8425
7/31/2018	10:00	11:00	3.5640	6.2598	9.8238
7/31/2018	11:00	12:00	3.6040	6.2009	9.8049
7/31/2018	12:00	13:00	3.5720	6.2114	9.7834
7/31/2018	13:00	14:00	3.5520	6.2093	9.7613
7/31/2018	14:00	15:00	3.6680	6.0712	9.7392
7/31/2018	15:00	16:00	3.7160	6.0011	9.7171
7/31/2018	16:00	17:00	3.7080	5.9870	9.6950
7/31/2018	17:00	18:00	3.7280	5.9449	9.6729
7/31/2018	18:00	19:00	3.7120	5.9388	9.6508

7/31/2018	19:00	20:00	3.7360	5.8999	9.6359
7/31/2018	20:00	21:00	3.7240	5.9434	9.6674
7/31/2018	21:00	22:00	3.7040	6.0031	9.7071
7/31/2018	22:00	23:00	3.6000	6.1468	9.7468
7/31/2018	23:00	0:00	3.5720	6.2145	9.7865

2735.7040	4567.3808	7303.0848
-----------	-----------	-----------

Victory	AFS	Total
---------	-----	-------





July 16, 2018

MSC-2994

Aera Energy, LLC  
29235 Hwy 33  
Maricopa, CA 93252

Attn: Mike Anders

**Re: July 2018 Invoice for Steam Purchased**

Enclosed are the statement and invoice for steam purchased by Aera Energy, LLC for the period of July 1, 2018 through July 31, 2018 under the above-mentioned agreement.

The measurement of steam delivered to Aera Energy, LLC during the period was taken from the Distributed Process Control System located in the MSCC Control Room.

If you should have any questions please contact Connie-Marie King at 661-768-3017.

Sincerely,

A handwritten signature in dark ink, appearing to read "D. Faiella", is written over a light-colored background.

Dave Faiella  
Executive Director

/cmk

Attachments

cc: File MSC-2994  
S. Henriksen (w/attachments) 2 copies



INVOICE NO.	1396
INVOICE DATE	8/16/2018
PAYMENT DATE	9/15/2018

DESCRIPTION	INVOICE AMOUNT
For steam delivered for the period of July 1, 2018 through July 31, 2018	\$
<b>TOTAL DUE</b>	<b>\$</b>

Pay to	Wells Fargo Bank, N.A.
Bank Address	420 Montgomery San Francisco, CA 94104
ABA	121000248
Beneficiary:	Midway Sunset Cogeneration Company
Account	4471513853
Ref:	Vendor's Name and Invoice Number

MIDWAY SUNSET COGENERATION COMPANY  
AERA STEAM INVOICE  
2018

DESCRIPTION  
STEAM CALCULATION VALUES

WEIGHTED AVERAGE FUEL PRICE  
WEIGHTED AVERAGE  $H_h - H_f$   
TOTAL QUANTITY OF STEAM DELIVERED IN LBS  
TOTAL QUANTITY OF STEAM DELIVERED IN BBLs  
TOTAL QUANTITY OF STEAM DELIVERED IN MMBTUS  
GDP DEFLATOR  
2005 CONTRACT BASE YEAR  
CONVERSION FACTOR  
CONVERSION FACTOR  
HOURS IN PERIOD  
STEAM DISTRIBUTION FEE

PERIOD: JUL

	902.10000
	323,352,620.00
	944,885.24
	291,895.87
	1.198
	1.000
	342.50
	1.000
	744.00
	\$0.00

CALCULATION OF PRICES

COSTS  $P1 = SFC + SPC$

STEAM FUEL CHARGE =  $(H_h - H_f) \cdot DF \cdot P$

WEIGHTED AVERAGE  $H_h - H_f$  IN BTU/LB  
DISCOUNT FACTOR  
WEIGHTED AVERAGE FUEL PRICE PER MMBTU  
CONVERSION FACTOR  
SFC COST PER MLB  
SFC COST PER BBL

	902.10000
	1.000

STEAM PROCESSING CHARGE =  $(H_h - H_f) \cdot PC \cdot EF$

WEIGHTED AVERAGE  $H_h - H_f$  IN BTU/LB  
PROCESSING CHARGE PER MMBTU  
CURRENT ESCALATION FACTOR  
BASE ESCALATION FACTOR - 2005 CONTRACT BASE YEAR  
CONVERSION FACTOR  
SPC COST PER MLB  
SPC COST PER BBL

	902.10000
	\$0.2913
	1.20
	1.0
	1,000,000
	\$0.31492

$P1 = SFC + SPC$

P1 PER MLB  
P1 PER BBL


TOTAL STEAM CHARGES IN \$

STEAM FUEL CHARGES

--	--

STEAM PROCESSING CHARGES

--	--

STEAM DISTRIBUTION FEES

--	--

TOTAL MONTHLY CHARGES

--	--

LESS: DISCOUNT PER CONTRACT

\$	
----	--

TOTAL DUE

--	--

TOTAL STEAM CHARGES IN \$/BBL

STEAM FUEL CHARGES

--	--

STEAM PROCESSING CHARGES

--	--

TOTAL MONTHLY CHARGES

--	--

TOTAL MONTHLY CHARGE

TOTAL

--	--

MIDWAY SUNSET COGENERATION COMPANY  
MONTHLY STEAM  
JULY  
2018

TOTAL PERIOD HOURS	744
LBS / BBL	342.5
TOTAL LBS	323,352,620.00
TOTAL BBLS	944,095.241
TOTAL MMBTU'S	291,695.87
HS	1,042.45
HF	140.35
Delta	
AVG BTU / LB	902.1000

## Plant (3 Units) - Totals Per Day

Date	Day	Steam Sold				
		Hours On	Quantity KLB	Stm Outlet MMBTU's	Stm Inlet MMBTU's	Net Sold MMBTU's
1-Jul-18	Sun	24.00	10,413.56	10,855.06	1,444.90	9,410.16
2-Jul-18	Mon	24.00	10,410.04	10,849.99	1,447.29	9,402.70
3-Jul-18	Tue	24.00	10,397.03	10,837.11	1,449.22	9,387.89
4-Jul-18	Wed	24.00	10,436.52	10,878.66	1,436.81	9,441.85
5-Jul-18	Thu	24.00	10,483.48	10,930.49	1,449.06	9,481.43
6-Jul-18	Fri	24.00	10,484.52	10,929.90	1,469.24	9,460.66
7-Jul-18	Sat	24.00	10,455.97	10,899.68	1,476.91	9,422.77
8-Jul-18	Sun	24.00	10,464.14	10,906.78	1,478.55	9,428.23
9-Jul-18	Mon	24.00	10,504.32	10,951.13	1,476.18	9,474.95
10-Jul-18	Tue	24.00	10,453.64	10,899.70	1,435.53	9,464.17
11-Jul-18	Wed	24.00	10,420.85	10,864.31	1,412.31	9,452.00
12-Jul-18	Thu	24.00	10,407.38	10,848.80	1,436.41	9,412.39
13-Jul-18	Fri	24.00	10,427.39	10,869.46	1,434.39	9,435.07
14-Jul-18	Sat	24.00	10,424.42	10,865.62	1,465.25	9,400.37
15-Jul-18	Sun	24.00	10,410.04	10,850.43	1,480.15	9,370.28
16-Jul-18	Mon	24.00	10,418.49	10,860.66	1,491.28	9,369.38
17-Jul-18	Tue	24.00	10,421.47	10,864.24	1,483.74	9,380.50
18-Jul-18	Wed	24.00	10,423.09	10,864.99	1,486.33	9,378.67
19-Jul-18	Thu	24.00	10,395.60	10,836.03	1,470.87	9,365.16
20-Jul-18	Fri	24.00	10,399.12	10,841.37	1,466.76	9,374.60
21-Jul-18	Sat	24.00	10,433.59	10,877.12	1,459.58	9,417.54
22-Jul-18	Sun	24.00	10,434.02	10,876.35	1,459.40	9,416.95
23-Jul-18	Mon	24.00	10,433.57	10,877.36	1,466.30	9,411.06
24-Jul-18	Tue	24.00	10,434.22	10,878.76	1,470.68	9,408.09
25-Jul-18	Wed	24.00	10,441.58	10,885.04	1,473.56	9,411.48
26-Jul-18	Thu	24.00	10,426.04	10,867.85	1,472.88	9,394.97
27-Jul-18	Fri	24.00	10,407.16	10,849.35	1,481.88	9,367.47
28-Jul-18	Sat	24.00	10,430.63	10,875.07	1,476.97	9,398.10
29-Jul-18	Sun	24.00	10,421.70	10,863.34	1,474.63	9,388.71
30-Jul-18	Mon	24.00	10,421.21	10,863.82	1,478.11	9,385.71
31-Jul-18	Tue	24.00	10,417.83	10,860.02	1,477.46	9,382.56
		744.00	323,352.62	337,078.49	45,382.62	291,695.87



## Midway Sunset Cogeneration Company

## Plant (3 Units) - Averages Per Hour

Date	Day	Steam Sold				Avg BTU / Lb						
		Quantity	Quality	Stm Outlet	Stm Inlet	Net Sold	Inlet Water	Inlet Water	Outlet Stm	Steam	Water	Net Sold
		KLB	%	MMBTU's	MMBTU's	MMBTU's	Temp	Pressure	Pressure	BTU / Lb	BTU / Lb	BTU / Lb
1-Jul-18	Sun	433.90	77.21	452.29	60.20	392.09	170.80	1,459.20	937.12	1,042.40	138.75	903.64
2-Jul-18	Mon	433.75	77.20	452.08	60.30	391.78	171.06	1,460.03	937.29	1,042.26	139.03	903.23
3-Jul-18	Tue	433.21	77.20	451.55	60.38	391.16	171.29	1,459.98	937.19	1,042.33	139.39	902.94
4-Jul-18	Wed	434.86	77.20	453.28	59.87	393.41	169.77	1,460.75	938.53	1,042.36	137.67	904.69
5-Jul-18	Thu	436.81	77.23	455.44	60.38	395.06	170.18	1,460.77	941.27	1,042.64	138.23	904.41
6-Jul-18	Fri	436.85	77.22	455.41	61.22	394.19	172.20	1,459.56	938.64	1,042.48	140.14	902.34
7-Jul-18	Sat	435.67	77.21	454.15	61.54	392.62	173.23	1,459.94	938.83	1,042.44	141.25	901.18
8-Jul-18	Sun	436.01	77.20	454.45	61.61	392.84	173.37	1,459.59	939.00	1,042.30	141.30	901.00
9-Jul-18	Mon	437.68	77.23	456.30	61.51	394.79	172.57	1,459.58	939.79	1,042.54	140.53	902.01
10-Jul-18	Tue	435.57	77.24	454.15	59.81	394.34	169.34	1,459.28	939.61	1,042.67	137.32	905.35
11-Jul-18	Wed	434.20	77.19	452.68	58.85	393.83	167.55	1,459.35	939.51	1,042.56	135.53	907.03
12-Jul-18	Thu	433.64	77.18	452.03	59.85	392.18	170.04	1,460.05	938.95	1,042.42	138.02	904.39
13-Jul-18	Fri	434.47	77.18	452.89	59.77	393.13	169.55	1,459.87	939.43	1,042.40	137.56	904.83
14-Jul-18	Sat	434.35	77.18	452.73	61.05	391.68	172.59	1,459.23	939.01	1,042.32	140.56	901.76
15-Jul-18	Sun	433.75	77.18	452.10	61.67	390.43	174.17	1,459.87	939.53	1,042.30	142.19	900.12
16-Jul-18	Mon	434.10	77.19	452.53	62.14	390.39	175.16	1,460.20	939.54	1,042.44	143.14	899.30
17-Jul-18	Tue	434.23	77.20	452.68	61.82	390.85	174.37	1,459.91	939.32	1,042.49	142.37	900.11
18-Jul-18	Wed	434.30	77.20	452.71	61.93	390.78	174.59	1,459.66	939.63	1,042.40	142.60	899.80
19-Jul-18	Thu	433.15	77.18	451.50	61.29	390.21	173.41	1,459.69	938.63	1,042.37	141.49	900.88
20-Jul-18	Fri	433.30	77.21	451.72	61.12	390.61	173.06	1,459.72	938.92	1,042.53	141.05	901.48
21-Jul-18	Sat	434.73	77.22	453.21	60.82	392.40	171.89	1,459.42	939.61	1,042.51	139.89	902.62
22-Jul-18	Sun	434.75	77.21	453.18	60.81	392.37	171.86	1,459.71	939.17	1,042.39	139.87	902.52
23-Jul-18	Mon	434.73	77.21	453.22	61.10	392.13	172.56	1,460.05	939.78	1,042.54	140.54	902.00
24-Jul-18	Tue	434.76	77.22	453.28	61.28	392.00	172.99	1,459.91	939.75	1,042.61	140.95	901.66
25-Jul-18	Wed	435.07	77.22	453.54	61.40	392.14	173.13	1,460.07	940.44	1,042.47	141.13	901.35
26-Jul-18	Thu	434.42	77.21	452.83	61.37	391.46	173.16	1,459.65	939.93	1,042.38	141.27	901.10
27-Jul-18	Fri	433.63	77.20	452.06	61.74	390.31	174.24	1,459.86	939.93	1,042.49	142.39	900.10
28-Jul-18	Sat	434.61	77.21	453.13	61.54	391.59	173.60	1,460.59	940.38	1,042.61	141.60	901.01
29-Jul-18	Sun	434.24	77.22	452.64	61.44	391.20	173.50	1,460.42	940.24	1,042.38	141.50	900.88
30-Jul-18	Mon	434.22	77.21	452.66	61.59	391.07	173.79	1,459.99	940.59	1,042.47	141.84	900.63
31-Jul-18	Tue	434.08	77.19	452.50	61.56	390.94	173.60	1,459.73	939.92	1,042.45	141.82	900.63
		434.61	77.21	453.06	61.00	392.06	172.34	1,459.86	939.34	1,042.45	140.35	902.10

## Unit A - Totals Per Day

Date	Day	Steam Sold				
		Hours	Quantity	Stm Outlet	Stm Inlet	Net Sold
		On	KLB	MMBTU's	MMBTU's	MMBTU's
1-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00
2-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00
3-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00
4-Jul-18	Wed	0.00	0.00	0.00	0.00	0.00
5-Jul-18	Thu	0.00	0.00	0.00	0.00	0.00
6-Jul-18	Fri	0.00	0.00	0.00	0.00	0.00
7-Jul-18	Sat	0.00	0.00	0.00	0.00	0.00
8-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00
9-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00
10-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00
11-Jul-18	Wed	0.00	0.00	0.00	0.00	0.00
12-Jul-18	Thu	0.00	0.00	0.00	0.00	0.00
13-Jul-18	Fri	0.00	0.00	0.00	0.00	0.00
14-Jul-18	Sat	0.00	0.00	0.00	0.00	0.00
15-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00
16-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00
17-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00
18-Jul-18	Wed	0.00	0.00	0.00	0.00	0.00
19-Jul-18	Thu	0.00	0.00	0.00	0.00	0.00
20-Jul-18	Fri	0.00	0.00	0.00	0.00	0.00
21-Jul-18	Sat	0.00	0.00	0.00	0.00	0.00
22-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00
23-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00
24-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00
25-Jul-18	Wed	0.00	0.00	0.00	0.00	0.00
26-Jul-18	Thu	0.00	0.00	0.00	0.00	0.00
27-Jul-18	Fri	0.00	0.00	0.00	0.00	0.00
28-Jul-18	Sat	0.00	0.00	0.00	0.00	0.00
29-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00
30-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00
31-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00
		0.00	0.00	0.00	0.00	0.00

## Unit B - Totals Per Day

Date	Day	Steam Sold				Net Sold MMBTU's
		Hours On	Quantity KLB	Stm Outlet MMBTU's	Stm Inlet MMBTU's	
1-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00
2-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00
3-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00
4-Jul-18	Wed	0.00	0.00	0.00	0.00	0.00
5-Jul-18	Thu	0.00	0.00	0.00	0.00	0.00
6-Jul-18	Fri	0.00	0.00	0.00	0.00	0.00
7-Jul-18	Sat	0.00	0.00	0.00	0.00	0.00
8-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00
9-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00
10-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00
11-Jul-18	Wed	0.00	0.00	0.00	0.00	0.00
12-Jul-18	Thu	0.00	0.00	0.00	0.00	0.00
13-Jul-18	Fri	0.00	0.00	0.00	0.00	0.00
14-Jul-18	Sat	0.00	0.00	0.00	0.00	0.00
15-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00
16-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00
17-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00
18-Jul-18	Wed	0.00	0.00	0.00	0.00	0.00
19-Jul-18	Thu	0.00	0.00	0.00	0.00	0.00
20-Jul-18	Fri	0.00	0.00	0.00	0.00	0.00
21-Jul-18	Sat	0.00	0.00	0.00	0.00	0.00
22-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00
23-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00
24-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00
25-Jul-18	Wed	0.00	0.00	0.00	0.00	0.00
26-Jul-18	Thu	0.00	0.00	0.00	0.00	0.00
27-Jul-18	Fri	0.00	0.00	0.00	0.00	0.00
28-Jul-18	Sat	0.00	0.00	0.00	0.00	0.00
29-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00
30-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00
31-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00
		0.00	0.00	0.00	0.00	0.00

## Unit C - Totals Per Day

Date	Day	Steam Sold				
		Hours On	Quantity KLB	Stm Outlet MMBTU's	Stm Inlet MMBTU's	Net Sold MMBTU's
1-Jul-18	Sun	24.00	10,413.56	10,855.06	1,444.90	9,410.16
2-Jul-18	Mon	24.00	10,410.04	10,849.99	1,447.29	9,402.70
3-Jul-18	Tue	24.00	10,397.03	10,837.11	1,449.22	9,387.89
4-Jul-18	Wed	24.00	10,436.52	10,878.66	1,436.81	9,441.85
5-Jul-18	Thu	24.00	10,483.48	10,930.49	1,449.06	9,481.43
6-Jul-18	Fri	24.00	10,484.52	10,929.90	1,469.24	9,460.66
7-Jul-18	Sat	24.00	10,455.97	10,899.68	1,476.91	9,422.77
8-Jul-18	Sun	24.00	10,464.14	10,906.78	1,478.55	9,428.23
9-Jul-18	Mon	24.00	10,504.32	10,951.13	1,476.18	9,474.95
10-Jul-18	Tue	24.00	10,453.64	10,899.70	1,435.53	9,464.17
11-Jul-18	Wed	24.00	10,420.85	10,864.31	1,412.31	9,452.00
12-Jul-18	Thu	24.00	10,407.38	10,848.80	1,436.41	9,412.39
13-Jul-18	Fri	24.00	10,427.39	10,869.46	1,434.39	9,435.07
14-Jul-18	Sat	24.00	10,424.42	10,865.62	1,465.25	9,400.37
15-Jul-18	Sun	24.00	10,410.04	10,850.43	1,480.15	9,370.28
16-Jul-18	Mon	24.00	10,418.49	10,860.66	1,491.28	9,369.38
17-Jul-18	Tue	24.00	10,421.47	10,864.24	1,483.74	9,380.50
18-Jul-18	Wed	24.00	10,423.09	10,864.99	1,486.33	9,378.67
19-Jul-18	Thu	24.00	10,395.60	10,836.03	1,470.87	9,365.16
20-Jul-18	Fri	24.00	10,399.12	10,841.37	1,466.76	9,374.60
21-Jul-18	Sat	24.00	10,433.59	10,877.12	1,459.58	9,417.54
22-Jul-18	Sun	24.00	10,434.02	10,876.35	1,459.40	9,416.95
23-Jul-18	Mon	24.00	10,433.57	10,877.36	1,466.30	9,411.06
24-Jul-18	Tue	24.00	10,434.22	10,878.76	1,470.68	9,408.09
25-Jul-18	Wed	24.00	10,441.58	10,885.04	1,473.56	9,411.48
26-Jul-18	Thu	24.00	10,426.04	10,867.85	1,472.88	9,394.97
27-Jul-18	Fri	24.00	10,407.16	10,849.35	1,481.88	9,367.47
28-Jul-18	Sat	24.00	10,430.63	10,875.07	1,476.97	9,398.10
29-Jul-18	Sun	24.00	10,421.70	10,863.34	1,474.63	9,388.71
30-Jul-18	Mon	24.00	10,421.21	10,863.82	1,478.11	9,385.71
31-Jul-18	Tue	24.00	10,417.83	10,860.02	1,477.46	9,382.56
		744.00	323,352.62	337,078.49	45,382.62	291,695.87

## Midway Sunset Cogeneration Company

## Unit A - Averages Per Hour

Date	Day	Steam Sold					Avg BTU / Lb					
		Quantity KLB	Quality %	Stm Outlet MMBTU's	Stm Inlet MMBTU's	Net Sold MMBTU's	Inlet Water Temp	Inlet Water Pressure	Outlet Stm Pressure	Steam BTU/Lb	Water BTU/Lb	Net Sold BTU/Lb
1-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00	170.80	0.00	0.00	0.00	0.00	0.00
2-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00	171.06	0.00	0.00	0.00	0.00	0.00
3-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00	171.29	0.00	0.00	0.00	0.00	0.00
4-Jul-18	Wed	0.00	0.00	0.00	0.00	0.00	169.77	0.00	0.00	0.00	0.00	0.00
5-Jul-18	Thu	0.00	0.00	0.00	0.00	0.00	170.18	0.00	0.00	0.00	0.00	0.00
6-Jul-18	Fri	0.00	0.00	0.00	0.00	0.00	172.20	0.00	0.00	0.00	0.00	0.00
7-Jul-18	Sat	0.00	0.00	0.00	0.00	0.00	173.23	0.00	0.00	0.00	0.00	0.00
8-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00	173.37	0.00	0.00	0.00	0.00	0.00
9-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00	172.57	0.00	0.00	0.00	0.00	0.00
10-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00	169.34	0.00	0.00	0.00	0.00	0.00
11-Jul-18	Wed	0.00	0.00	0.00	0.00	0.00	167.55	0.00	0.00	0.00	0.00	0.00
12-Jul-18	Thu	0.00	0.00	0.00	0.00	0.00	170.04	0.00	0.00	0.00	0.00	0.00
13-Jul-18	Fri	0.00	0.00	0.00	0.00	0.00	169.55	0.00	0.00	0.00	0.00	0.00
14-Jul-18	Sat	0.00	0.00	0.00	0.00	0.00	172.59	0.00	0.00	0.00	0.00	0.00
15-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00	174.17	0.00	0.00	0.00	0.00	0.00
16-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00	175.16	0.00	0.00	0.00	0.00	0.00
17-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00	174.37	0.00	0.00	0.00	0.00	0.00
18-Jul-18	Wed	0.00	0.00	0.00	0.00	0.00	174.59	0.00	0.00	0.00	0.00	0.00
19-Jul-18	Thu	0.00	0.00	0.00	0.00	0.00	173.41	0.00	0.00	0.00	0.00	0.00
20-Jul-18	Fri	0.00	0.00	0.00	0.00	0.00	173.06	0.00	0.00	0.00	0.00	0.00
21-Jul-18	Sat	0.00	0.00	0.00	0.00	0.00	171.89	0.00	0.00	0.00	0.00	0.00
22-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00	171.86	0.00	0.00	0.00	0.00	0.00
23-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00	172.56	0.00	0.00	0.00	0.00	0.00
24-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00	172.99	0.00	0.00	0.00	0.00	0.00
25-Jul-18	Wed	0.00	0.00	0.00	0.00	0.00	173.13	0.00	0.00	0.00	0.00	0.00
26-Jul-18	Thu	0.00	0.00	0.00	0.00	0.00	173.16	0.00	0.00	0.00	0.00	0.00
27-Jul-18	Fri	0.00	0.00	0.00	0.00	0.00	174.24	0.00	0.00	0.00	0.00	0.00
28-Jul-18	Sat	0.00	0.00	0.00	0.00	0.00	173.60	0.00	0.00	0.00	0.00	0.00
29-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00	173.50	0.00	0.00	0.00	0.00	0.00
30-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00	173.79	0.00	0.00	0.00	0.00	0.00
31-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00	173.60	0.00	0.00	0.00	0.00	0.00
#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	172.34	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

## Midway Sunset Cogeneration Company

## Unit B - Averages Per Hour

Date	Day	Steam Sold				Inlet Water Temp	Inlet Water Pressure	Outlet Water Pressure	Steam Pressure	Avg BTU / Lb		
		Quantity	Quality	Stm Outlet	Stm Inlet					Steam	Water	Net Sold
		KLB	%	MMBTU's	MMBTU's					BTU / Lb	BTU / Lb	BTU / Lb
1-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00	170.80	0.00	0.00	0.00	0.00	0.00
2-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00	171.06	0.00	0.00	0.00	0.00	0.00
3-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00	171.29	0.00	0.00	0.00	0.00	0.00
4-Jul-18	Wed	0.00	0.00	0.00	0.00	0.00	169.77	0.00	0.00	0.00	0.00	0.00
5-Jul-18	Thu	0.00	0.00	0.00	0.00	0.00	170.18	0.00	0.00	0.00	0.00	0.00
6-Jul-18	Fri	0.00	0.00	0.00	0.00	0.00	172.20	0.00	0.00	0.00	0.00	0.00
7-Jul-18	Sat	0.00	0.00	0.00	0.00	0.00	173.23	0.00	0.00	0.00	0.00	0.00
8-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00	173.37	0.00	0.00	0.00	0.00	0.00
9-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00	172.57	0.00	0.00	0.00	0.00	0.00
10-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00	169.34	0.00	0.00	0.00	0.00	0.00
11-Jul-18	Wed	0.00	0.00	0.00	0.00	0.00	167.55	0.00	0.00	0.00	0.00	0.00
12-Jul-18	Thu	0.00	0.00	0.00	0.00	0.00	170.04	0.00	0.00	0.00	0.00	0.00
13-Jul-18	Fri	0.00	0.00	0.00	0.00	0.00	169.55	0.00	0.00	0.00	0.00	0.00
14-Jul-18	Sat	0.00	0.00	0.00	0.00	0.00	172.59	0.00	0.00	0.00	0.00	0.00
15-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00	174.17	0.00	0.00	0.00	0.00	0.00
16-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00	175.16	0.00	0.00	0.00	0.00	0.00
17-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00	174.37	0.00	0.00	0.00	0.00	0.00
18-Jul-18	Wed	0.00	0.00	0.00	0.00	0.00	174.59	0.00	0.00	0.00	0.00	0.00
19-Jul-18	Thu	0.00	0.00	0.00	0.00	0.00	173.41	0.00	0.00	0.00	0.00	0.00
20-Jul-18	Fri	0.00	0.00	0.00	0.00	0.00	173.06	0.00	0.00	0.00	0.00	0.00
21-Jul-18	Sat	0.00	0.00	0.00	0.00	0.00	171.89	0.00	0.00	0.00	0.00	0.00
22-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00	171.86	0.00	0.00	0.00	0.00	0.00
23-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00	172.56	0.00	0.00	0.00	0.00	0.00
24-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00	172.99	0.00	0.00	0.00	0.00	0.00
25-Jul-18	Wed	0.00	0.00	0.00	0.00	0.00	173.13	0.00	0.00	0.00	0.00	0.00
26-Jul-18	Thu	0.00	0.00	0.00	0.00	0.00	173.16	0.00	0.00	0.00	0.00	0.00
27-Jul-18	Fri	0.00	0.00	0.00	0.00	0.00	174.24	0.00	0.00	0.00	0.00	0.00
28-Jul-18	Sat	0.00	0.00	0.00	0.00	0.00	173.60	0.00	0.00	0.00	0.00	0.00
29-Jul-18	Sun	0.00	0.00	0.00	0.00	0.00	173.50	0.00	0.00	0.00	0.00	0.00
30-Jul-18	Mon	0.00	0.00	0.00	0.00	0.00	173.79	0.00	0.00	0.00	0.00	0.00
31-Jul-18	Tue	0.00	0.00	0.00	0.00	0.00	173.60	0.00	0.00	0.00	0.00	0.00
#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	172.34	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



## Midway Sunset Cogeneration Company

## Unit C - Averages Per Hour

Date	Day	Steam Sold							Avg BTU / Lb			
		Quantity KLB	Quality %	Stm Outlet MMBTU's	Stm Inlet MMBTU's	Net Sold MMBTU's	Inlet Water Temp	Inlet Water Pressure	Outlet Stm Pressure	Steam BTU / Lb	Water BTU / Lb	Net Sold BTU / Lb
1-Jul-18	Sun	433.90	77.21	452.29	60.20	392.09	170.80	1,459.20	937.12	1,042.40	138.75	903.64
2-Jul-18	Mon	433.75	77.20	452.08	60.30	391.78	171.06	1,460.03	937.29	1,042.26	139.03	903.23
3-Jul-18	Tue	433.21	77.20	451.55	60.38	391.16	171.29	1,459.98	937.19	1,042.33	139.39	902.94
4-Jul-18	Wed	434.86	77.20	453.28	59.87	393.41	169.77	1,460.75	938.53	1,042.36	137.67	904.69
5-Jul-18	Thu	436.81	77.23	455.44	60.38	395.06	170.18	1,460.77	941.27	1,042.64	138.23	904.41
6-Jul-18	Fri	436.85	77.22	455.41	61.22	394.19	172.20	1,459.56	938.64	1,042.48	140.14	902.34
7-Jul-18	Sat	435.67	77.21	454.15	61.54	392.62	173.23	1,459.94	938.83	1,042.44	141.25	901.18
8-Jul-18	Sun	436.01	77.20	454.45	61.61	392.84	173.37	1,459.59	939.00	1,042.30	141.30	901.00
9-Jul-18	Mon	437.68	77.23	456.30	61.51	394.79	172.57	1,459.58	939.79	1,042.54	140.53	902.01
10-Jul-18	Tue	435.57	77.24	454.15	59.81	394.34	169.34	1,459.28	939.61	1,042.67	137.32	905.35
11-Jul-18	Wed	434.20	77.19	452.68	58.85	393.83	167.55	1,459.35	939.51	1,042.56	135.53	907.03
12-Jul-18	Thu	433.64	77.18	452.03	59.85	392.18	170.04	1,460.05	938.95	1,042.42	138.02	904.39
13-Jul-18	Fri	434.47	77.18	452.89	59.77	393.13	169.55	1,459.87	939.43	1,042.40	137.56	904.83
14-Jul-18	Sat	434.35	77.18	452.73	61.05	391.68	172.59	1,459.23	939.01	1,042.32	140.56	901.76
15-Jul-18	Sun	433.75	77.18	452.10	61.67	390.43	174.17	1,459.87	939.53	1,042.30	142.19	900.12
16-Jul-18	Mon	434.10	77.19	452.53	62.14	390.39	175.16	1,460.20	939.54	1,042.44	143.14	899.30
17-Jul-18	Tue	434.23	77.20	452.68	61.82	390.85	174.37	1,459.91	939.32	1,042.49	142.37	900.11
18-Jul-18	Wed	434.30	77.20	452.71	61.93	390.78	174.59	1,459.66	939.63	1,042.40	142.60	899.80
19-Jul-18	Thu	433.15	77.18	451.50	61.29	390.21	173.41	1,459.69	938.63	1,042.37	141.49	900.88
20-Jul-18	Fri	433.30	77.21	451.72	61.12	390.61	173.06	1,459.72	938.92	1,042.53	141.05	901.48
21-Jul-18	Sat	434.73	77.22	453.21	60.82	392.40	171.89	1,459.42	939.61	1,042.51	139.89	902.62
22-Jul-18	Sun	434.75	77.21	453.18	60.81	392.37	171.86	1,459.71	939.17	1,042.39	139.87	902.52
23-Jul-18	Mon	434.73	77.21	453.22	61.10	392.13	172.56	1,460.05	939.78	1,042.54	140.54	902.00
24-Jul-18	Tue	434.76	77.22	453.28	61.28	392.00	172.99	1,459.91	939.75	1,042.61	140.95	901.66
25-Jul-18	Wed	435.07	77.22	453.54	61.40	392.14	173.13	1,460.07	940.44	1,042.47	141.13	901.35
26-Jul-18	Thu	434.42	77.21	452.83	61.37	391.46	173.16	1,459.65	939.93	1,042.38	141.27	901.10
27-Jul-18	Fri	433.63	77.20	452.06	61.74	390.31	174.24	1,459.86	939.93	1,042.49	142.39	900.10
28-Jul-18	Sat	434.61	77.21	453.13	61.54	391.59	173.60	1,460.59	940.38	1,042.61	141.60	901.01
29-Jul-18	Sun	434.24	77.22	452.64	61.44	391.20	173.50	1,460.42	940.24	1,042.38	141.50	900.88
30-Jul-18	Mon	434.22	77.21	452.66	61.59	391.07	173.79	1,459.99	940.59	1,042.47	141.84	900.63
31-Jul-18	Tue	434.08	77.19	452.50	61.56	390.94	173.60	1,459.73	939.92	1,042.45	141.82	900.63
		434.61	77.21	453.06	61.00	392.06	172.34	1,459.86	939.34	1,042.45	140.35	902.10

The first part of the paper discusses the importance of understanding the cultural context of the research. It highlights the need for researchers to be sensitive to the values and beliefs of the communities they are studying. This is particularly important in the field of education, where cultural differences can significantly impact learning outcomes.

The second part of the paper focuses on the methodology used in the study. It describes the process of selecting participants, collecting data, and analyzing the results. The authors emphasize the importance of using a mixed-methods approach to gain a comprehensive understanding of the research topic.

The third part of the paper presents the findings of the study. It discusses the results of the quantitative data analysis and the insights gained from the qualitative interviews. The authors conclude that there are significant cultural differences in the way that students learn and that these differences should be taken into account when designing educational programs.

The final part of the paper discusses the implications of the findings for future research and practice. It suggests that further studies should be conducted to explore the cultural factors that influence learning outcomes. Additionally, it recommends that educators should be trained to recognize and respond to the cultural needs of their students.



MIDWAY SUNSET COGENERATION COMPANY  
MONTHLY FRESHWATER SUMMARY REPORT  
FOR MONTH ENDING JULY 31, 2018

=====

DATE	KGAL	GAL 1000	BBLS 42	COST
-----	-----	-----	-----	-----
1	131.18	131183	3,123	
2	132.17	132165	3,147	
3	112.08	112076	2,668	
4	105.02	105016	2,500	
5	143.69	143689	3,421	
6	173.29	173287	4,126	
7	140.25	140250	3,339	
8	138.34	138340	3,294	
9	141.57	141569	3,371	
10	136.25	136245	3,244	
11	138.74	138737	3,303	
12	144.10	144097	3,431	
13	130.10	130095	3,098	
14	111.67	111672	2,659	
15	132.31	132308	3,150	
16	127.87	127869	3,045	
17	127.65	127649	3,039	
18	136.84	136835	3,258	
19	146.17	146170	3,480	
20	129.74	129744	3,089	
21	139.40	139404	3,319	
22	132.56	132559	3,156	
23	171.95	171950	4,094	
24	167.61	167614	3,991	
25	176.40	176395	4,200	
26	173.72	173715	4,136	
27	171.03	171029	4,072	
28	171.02	171017	4,072	
29	163.96	163961	3,904	
30	180.87	180867	4,306	
31	171.08	171075	4,073	
TOTALS	4,498.58	4,498,582	107,109	
=====				
AVERAGES	145.12	145,116	3,455	
=====				

MIDWAY SUNSET COGENERATION COMPANY  
MONTHLY WASTEWATER SUMMARY REPORT  
FOR MONTH ENDING JULY 31, 2018

=====

DATE	TANK I KGAL	TANK II KGAL	GAL TANK I & II TOTAL GALLONS	BBLs 42	COST \$0.12
----	-----	-----	-----	-----	-----
1	0.00	0.00	0	0	\$0.00
2	0.00	0.00	0	0	\$0.00
3	0.00	0.00	0	0	\$0.00
4	0.00	0.00	0	0	\$0.00
5	0.00	27700.00	27,700	660	
6	0.00	0.00	0	0	\$0.00
7	0.00	0.00	0	0	\$0.00
8	0.00	0.00	0	0	\$0.00
9	0.00	0.00	0	0	\$0.00
10	0.00	0.00	0	0	\$0.00
11	0.00	0.00	0	0	\$0.00
12	0.00	0.00	0	0	\$0.00
13	0.00	0.00	0	0	\$0.00
14	0.00	0.00	0	0	\$0.00
15	0.00	0.00	0	0	\$0.00
16	0.00	0.00	0	0	\$0.00
17	0.00	0.00	0	0	\$0.00
18	0.00	0.00	0	0	\$0.00
19	0.00	0.00	0	0	\$0.00
20	0.00	0.00	0	0	\$0.00
21	0.00	0.00	0	0	\$0.00
22	0.00	0.00	0	0	\$0.00
23	0.00	0.00	0	0	\$0.00
24	0.00	0.00	0	0	\$0.00
25	0.00	0.00	0	0	\$0.00
26	0.00	0.00	0	0	\$0.00
27	0.00	0.00	0	0	\$0.00
28	0.00	0.00	0	0	\$0.00
29	0.00	0.00	0	0	\$0.00
30	0.00	0.00	0	0	\$0.00
31	0.00	0.00	0	0	\$0.00
TOTALS	0.00	27,700.00	27,700	660	
	=====	=====	=====	=====	=====
AVERAGES	0.00	893.55	894	21	
	=====	=====	=====	=====	=====