

US EPA ARCHIVE DOCUMENT

# *Grease Receiving and Cogeneration Project*

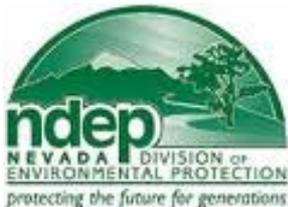
## *ARRA Funding*

Frank T. Johnson

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# Funding Provided by American Recovery and Reinvestment Act



Designed by:

Paul Cockrell, P.E.

David A. Pivetti, P.E.

EDEA

El Dorado Engineering & Architecture

HDR Engineering Inc.



Project Management:

Resource Concepts Inc.



# Project Description

- Construct 10,000 gallon grease holding tank, tank mixing and grease feed system
- Install 200 KW cogeneration system
- Bring waste grease from restaurant grease interceptors to MGSD facilities



Grease will be pumped into an existing anaerobic digester, in which the grease will be used to generate additional methane gas. The additional gas will be utilized to generate 200 kW, heat the facilities three anaerobic digesters and provide additional heating for the buildings within the plant.

The cost benefits and reduction of adverse environmental concerns, make this a worthwhile green project as defined by the EPA green project guidelines.



# Project Benefits

- Receive tipping fees for grease acceptance
- Increased digester gas production resulting in reduced natural gas purchases
- Reduced electrical power costs
- Reduced sewer line cleaning costs
- Reduced biosolids resulting in reduced bio-solids disposal costs



# Grease Requirements vs. Grease Availability

- Required volume to operate system – 3,700 gpd
- Available grease – 22,000 gpd - w/seasonal variations
- Availability = nearly 6 times of required quantity



# Grease Tipping Fee Evaluation

Population Center	GPD Grease	Miles to Lockwood Landfill	* \$/gal Disposal Cost	Cost/Yr.
Reno	6,694	10	\$0.147	\$353,012
Sparks	2,198	5	\$0.143	\$114,996
Carson City	1,727	36	\$0.164	\$103,382
South Lake Tahoe	785	70	\$0.187	\$53,487

Lockwood tipping fee - \$.14/gal

Population Center	GPD Grease	Miles to MGSD	* \$/gal Disposal Cost	Cost/Yr.
Reno	6,694	42	\$0.078	\$190,578
Sparks	2,198	47	\$0.081	\$64,984
Carson City	1,727	16	\$0.061	\$38,451
South Lake Tahoe	785	20	\$0.063	\$18,051

MGSD tipping fee - \$.05/gal

\* Includes transportation costs and tipping fees



# Projected Savings

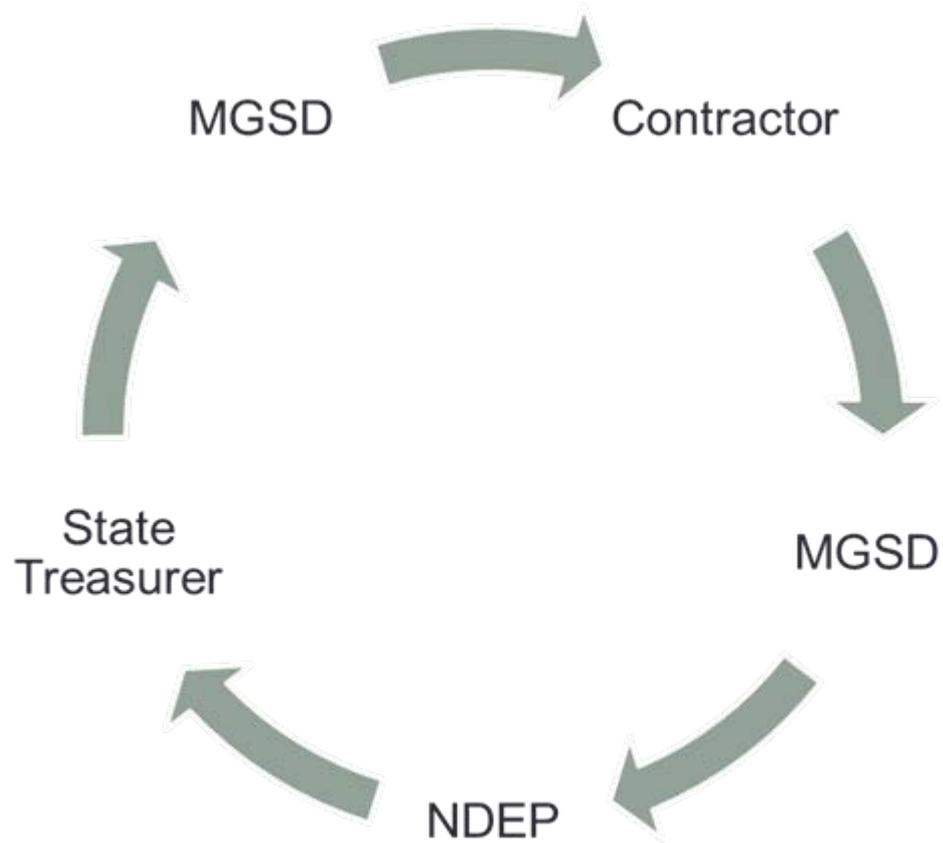
	Tipping Fees @ \$0.05/gal	Natural Gas Savings	Electrical Savings @ 40%	Bio-solids Disposal Savings @ 25%	Collection System Savings @25%	Total Savings
Present Digester Operation	-	- \$50,000	- \$275,000	- \$15,000	- \$110,000	- \$450,000
Completed Project	\$ 68,000	\$ 50,000	\$110,000	\$4,000	\$27,500	\$259,500
Simple Payback Years						5.9 yrs.

\* All figures based on current FY 2010-11 budget

# Initial Forms

- IRS Forms
- Bond Form
- Loan Contract
- Bond Resolution
- Purchasers Certificate
- State Treasurer Waiver
- General and No-Litigation Bond
- Federal Tax Exemption Certificate
- Approving Opinion of Bond Counsel
- Department of Administration Approval Certificate

# Method for Receiving Advances



# Monthly Forms

From Contractor:

- Payment Application w/ detailed spreadsheet of project completion
- Certified Payroll Forms w/ each contractor and subcontractor
- US EPA MBE/WBE Utilization under Federal Grants, Cooperative Agreements & Interagency Agreements (for minority and women owned contractors /subcontractors)



## *Submit to State:*

- NDEP Clean Water ARRA Jobs Monthly Report of Jobs Created and Retained
- NDEP Loan Payment Request
- Signed Principal Advance Panel for each payment advance



- Pay contractor and retainage from Pay Application
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- Complete and submit NDEP Loan Payment Request form
- Amounts verified by NDEP and submitted to State Treasurer
- State Treasurer sends Principal Advance Panel to MGSD for signature
- MGSD Treasurer signs Principal Advance Panel
- Submit signed Principal Advance Panel to State Treasurer
- Money is deposited into MGSD account



## Conclusion:

- Viable project in keeping with the green initiatives of today
- Environmentally and economically feasible
- 20 year – 0 % interest loan