

**ATTACHMENT F-1**

REQUEST FOR ENVIRONMENTAL INFORMATION

Name of Project	Sapphire Energy Integrated Algal Bio-Refinery
Location	Luna County New Mexico, U.S.A.

- Item 1a.** Has a Federal, State, or Local Environmental Impact Statement or Analysis been prepared for this project?  
 Yes  No  Copy attached as EXHIBIT I-A.
- 1b.** If "No," provide the information requested in Instructions as EXHIBIT I.
- Item 2.** The State Historic Preservation Officer (SHOP) has been provided a detailed project description and has been requested to submit comments to the appropriate Rural Development Office.  Yes  No Date description submitted to SHPO \_\_\_\_\_
- Item 3.** Are any of the following land uses or environmental resources either to be affected by the proposal or located within or adjacent to the project site(s)? (Check appropriate box for every item of the following checklist).

	Yes	No	Unknown		Yes	No	Unknown
1. Industrial.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	19. Dunes.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Commercial.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	20. Estuary.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Residential.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	21. Wetlands.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Agricultural.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22. Floodplain.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Grazing.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	23. Wilderness..... (designated or proposed under the Wilderness Act)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Mining, Quarrying.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	24. Wild or Scenic River..... (proposed or designated under the Wild and Scenic Rivers Act)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Forests.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	25. Historical, Archeological Sites..... (Listed on the National Register of Historic Places or which may be eligible for listing)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Recreational.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	26. Critical Habitats..... (endangered /threatened species)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Transportation.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	27. Wildlife.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Parks.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	28. Air Quality.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Hospital.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	29. Solid Waste Management.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. Schools.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	30. Energy Supplies.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13. Open spaces.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	31. Natural Landmark..... (Listed on National Registry of Natural Landmarks)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14. Aquifer Recharge Area.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	32. Coastal Barrier Resources System.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15. Steep Slopes.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
16. Wildlife Refuge.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
17. Shoreline.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
18. Beaches.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				

**Item 4.** Are any facilities under your ownership, lease, or supervision to be utilized in the accomplishment of this project, either listed or under consideration for listing on the Environmental Protection Agency's List of Violating Facilities?  Yes  No

March 6 2009  
(Date)

Signed: [Signature]  
(Applicant)

VICE PRESIDENT, SAPPHIRE ENERGY  
(Title)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0575-0094. The time required to complete this information collection is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

**Environmental Assessment Contact Information**

Updated September 18, 2009

Agency/Tribe	To Whom	Street or PO	Letter / Project Description / Map Provided	Comments Received	Other Items Provided	Contact by Phone	Contact by Email	Contact by Meeting	Comments
Energy, Minerals, Forestry and Resources Conservation Division	State Forester Butch Blazer 505.476.3200 <a href="mailto:arthur.blazer@state.nm.us">arthur.blazer@state.nm.us</a>	P.O. Box 1948, Santa Fe, NM 87504	03/10/09	No	---	07/22/09 Conversation Record	---	---	No follow-up required if no endangered or threatened flora/fauna impacted
Fort Sill Apache Tribe	Jeff Houser, Chairman	Rt.2, Box 121 Apache, OK 73006	07/30/09	No	---	---	---	---	---
Hopi Tribe	Benjamin Nuvamsa, Chairman	P.O. Box 123 Kykotsmovi, AZ 86039	07/30/09	No	---	---	---	---	---
White Mountain Apache Tribe	Ronnie Lupe, Chairman	P.O. Box 700 Whiteriver, AZ 85941	07/30/09	No	---	---	---	---	---
Mescalero Apache Tribe			07/30/09	No	---	---	---	---	---
Ysleta del Sur Pueblo	Frank Paiz, Governor	P.O. Box 17579 - Ysleta Station El Paso, TX 79917	07/30/09	No	---	---	---	---	---
Governor of the Pueblo of Nambe	Lela Kaskalla 505.455.2036	Route 1, Box 117-BB Santa Fe, NM 87501	03/10/09	No	---	---	---	---	---
Governor of the Pueblo of Zuni	Donald Eriacho 505.282.7000	P.O. Box 339 Zuni, New Mexico	03/10/09	No	---	---	---	---	---
National Park Service	Regional Director 505.988.6888	P.O. Box 728 Santa Fe, New Mexico 87504	03/10/09	No	---	---	---	---	---
New Mexico Department of Game and Fish	Director 505.476.8000	P.O. Box 25112, Santa Fe, New Mexico 87504	03/10/09	No	---	06/5/09 Conversation Record	---	---	No follow-up required if no endangered or threatened flora/fauna impacted
New Mexico Environment Department	Air Quality Bureau Ted Schooley 505.827.1494 505.827.2855 505.476.4334 <a href="mailto:ted.schooley@state.nm.us">ted.schooley@state.nm.us</a>	P.O. Box 26110, Santa Fe, NM 26110	03/10/09	No	---	07/22/09 left message	---	No	An air permit (New Source Review air quality permit and/or a Clean Air Act (CAA) Title V permit) for the IABR facility will be required under New Mexico's Air Quality Control Act

**Environmental Assessment Contact Information**

Updated September 16, 2009

Agency/Tribe	To Whom	Street or PO	Letter / Project Description / Map Provided	Comments Received	Other Items Provided	Contact by Phone	Contact by Email	Contact by Meeting	Comments
New Mexico Environment Department	Water and Waste Management Division George Schuman Marcy Leavitt 505.476.3728 <a href="mailto:marcy.leavitt@state.nm.us">marcy.leavitt@state.nm.us</a>	P.O. Box 26110, Santa Fe, NM 26110	03/10/09	Yes	---	---	---	04/16/09 See attached	Groundwater management plan to be approved by NMED prior to issuance of a discharge permit. A liquid waste permit will be obtained from the NMED's District III office in Las Cruces to treat wastewater from bathrooms at the IABR facility. NPDES permit to be obtained and SWPPP prepared
New Mexico State Highway and Transportation Department	District Engineer, NMSHTP Frank Guzman, PE 575.544.6621	2912 E. Pine Street Deming, NM 88030	3/10/2009	No	---	---	---	---	---
Office of the State Engineer	State Engineer John D'Antonio, PE 505.827.6091	Bataan Memorial Building, Room 101, P.O. Box 25102, Santa Fe, NM 87504-5102	03/10/09	No	---	---	---	Yes 08/19/09 Conference Call	OSE will issue water rights permit upon conditions.
State Historic Preservation Officer	Michelle Ensey Archaeologist 505.827.4064 <a href="mailto:michelle.ensy@state.nm.us">michelle.ensy@state.nm.us</a> Katherine Slick 505.827.4044 <a href="mailto:katherine.slick@state.nm.us">katherine.slick@state.nm.us</a>	Bataan Memorial Building, 407 Galisteo Street, Suite 236, Santa Fe, NM 87501	03/10/09	Yes 08/13/09 Yes 08/31/09	---	---	Michelle Ensey 05/07/09	---	SHPO concurs proposed project will have no effect as long as project is constructed in Area 1. If Area 2 is used consultation required.
U.S. Army Corps of Engineers	Construction Operations Division, Regulatory Office Kelly Allen 505.342.3216 <a href="mailto:Kelly.e.allen@usace.army.mil">Kelly.e.allen@usace.army.mil</a> Richard Gatewood 505.554.7943	4101 Jefferson Plaza, NE, Albuquerque, NM 87109-3435	03/10/09	No	JD Checklist Submission Packet submitted on September 18, 2009	06/24/09 07/22/09 Conversation Records	06/24/09 06/25/09	---	JD Checklist Submission Packet submitted on September 18, 2009

**Environmental Assessment Contact Information**

Updated September 16, 2009

Agency/Tribe	To Whom	Street or PO	Letter / Project Description / Map Provided	Comments Received	Other Items Provided	Contact by Phone	Contact by Email	Contact by Meeting	Comments
U.S. Bureau of Land Management	Las Cruces District Office Lori Allen	1800 Marquess Street Las Cruces, New Mexico	---	No	Notification of Land Access 5/30/2009	---	---	---	---
U.S. Environmental Protection Agency	Director 800.887.6063	1445 Ross Avenue, Suite 1200, Dallas, Texas 75202-2733	3/10/2009	No	---	---	---	---	Stormwater Discharge Permit Construction General Permit data must be submitted to the USEPA Region 6, a SWPPP must be prepared and kept on site for review if required.
U.S. Department of Agriculture	Farm Service Agency 575.546.9692	405 E. Florida St, Deming, NM 88030-5235	---	No	---	07/24/09 Wilhelm Weizenbach	---	---	FSA provided the Conservation Plan, including HEL for the project site.
U.S. Department of Agriculture	Natural Resource Conservation Service Luis Garcia 575.546.9692 <a href="mailto:Luis_Garcia@nrm.usda.gov">Luis_Garcia@nrm.usda.gov</a>	405 E Florida Street Deming, NM 88030-5235	03/10/09	No	Form AD-1006 8/14/2009 Revised 08/31/2009 Kenneth Scheffe State Soil Scientist	VM - 07/23/09	07/24/09	---	State Soil Scientist confirmed there are no prime, unique, statewide or locally designated cropland on the property.
U.S. Fish & Wildlife Service	Field Supervisor Eric Hine Wally Murphy 505.248.6911	2105 Osuna Rd NE, Albuquerque, New Mexico 87113-1001	03/10/09	Yes 04/01/09	No response to 30-day notice of No adverse effect determination dated August 17, 2009	05/5/09 Shelly Adams 5/6/2009 Patricia Zenone 07/24/09	05/7/09	---	USFWS concurred that no adverse effect to endangered or threatened flora/fauna.



3115 Merryfield Row  
San Diego, California 92121  
858.530.3690 ph | 888.501.8353 fax

March 10, 2009

Mr. Mike McDow  
Director, Business and Cooperative Programs  
USDA Rural Development  
6200 Jefferson NE, Room 255  
Albuquerque, NM 87109

RE: Initial Application for Loan Guarantee; Section 9003 BioRefinery Assistance Loan Guarantees

Dear Mr. McDow:

By this letter and associated attachments, Sapphire Energy Company is initiating the process for securing a loan guarantee as described above in support of our proposed Integrated Algal Biorefinery Project in Luna County, New Mexico. In accordance with your direction, we have attached the following information:

- Form 1920-40 (Request for Environmental Information).
- A generalized project description.
- A map showing the locations of the proposed facilities.

Our team is currently soliciting input from the list of various local, state, and federal governmental entities you provided us to support completion of the environmental assessment of the proposed project. Our project team is also in the throes of preparing an environmental information document pursuant to 7 CFR Part 1940, Subpart G, Exhibit H. This information will be forward to you to assist you in completing your portion of the analysis of our application as soon as possible.

Sapphire Energy appreciates your attention to this matter. Please contact me if you have any questions regarding our submittal.

Sincerely,

A handwritten signature in black ink, appearing to read "Brian Goodall", written over a white background.

Brian Goodall, Ph.D.  
Vice President of Downstream Technology

Attachments

## Conversation Record

Project name: Sapphire Bio-Algal Fuel Farm  
Date: July 14, 2009  
Contact: Ann Swanberg-Mee  
Agency: USDA - Rural Development - Business and Cooperative Programs  
Phone: 505.761.4972  
By: Tom Tangen, AMEC Geomatrix  
Subject: Understanding of EA Section F Comments

Existing Section F will be revised into a stand-alone EA that meets USDA requirements. Must not rely on information in any of the other sections. Will schedule another call to determine how we get from present format to a format that meets USDA requirements (assume compatible with CEQ guidance for EA's).

Example of additional information required: How does Sapphire anticipates development of the site (from 300 acres of ponds to a 25,000 acre production site).

Discussed documentation of calls with other agencies to this point. Discussed documentation of contacts with letters moving forward.

Informed her that we have a good handle on flora / fauna species on the site, including potentially T&E species. Revised biological assessment being prepared.

Cory Abraham (717-237-2291) sits in Pennsylvania, and will have input into details about conversion of Section F to an EA that can meet requirements.

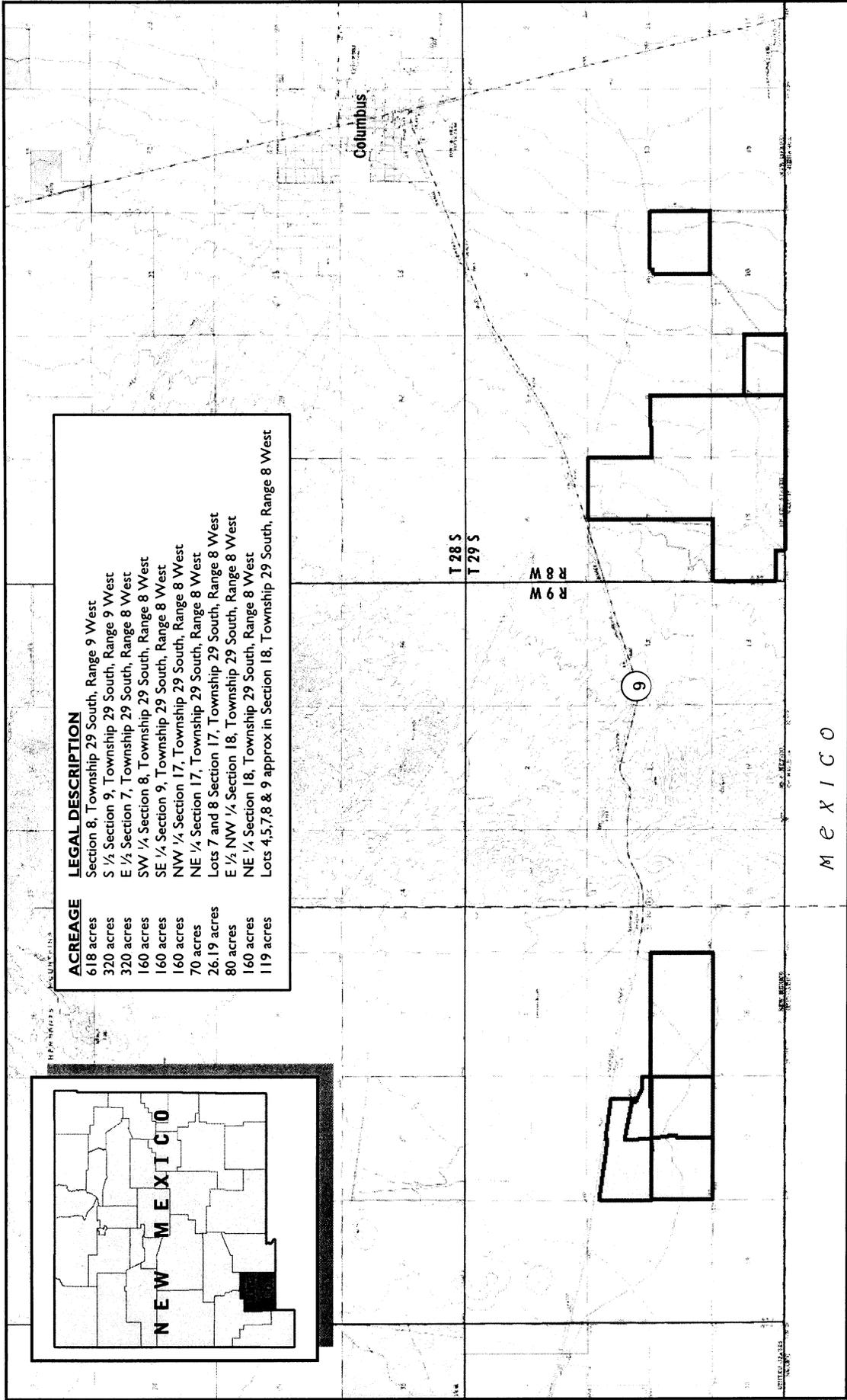
**Generalized Project Description  
Proposed Integrated Algal Biorefinery  
Sapphire Energy Company  
Luna County, New Mexico  
March 2009  
(Updated July 2010)**

Sapphire Energy Company (Sapphire) is proposing to conduct a field-scale project in Luna County, New Mexico to further evaluate the feasibility of its proprietary process to generate fuel from algae. The algae used in the proposed project are not new intergeneric organisms within the meaning of the federal Coordinated Framework for Regulation of Biotechnology, 51 Fed. Reg. 23302 – 23309 (June 26, 1986) or any of the implementing regulations under the Framework and, thus, the project is not subject to review by the Animal and Health Inspection Service (APHIS) Biotechnology Regulatory Service under the Plant Protection Act. The field-scale project, referred to by the company as IABR (integrated algal biorefinery), would apply a pilot-proven process to an approximate 400-acre development near Columbus, New Mexico. **Figure I** shows the locations of the land parcels that will be used to host the development. The primary facilities associated with the project will be located on the western parcel shown on **Figure I**; the eastern land parcel will be used either for facility development or accessed for groundwater with the extracted water routed to the facility in the western parcel. Details of the layout of facilities associated with the project are being finalized.

The IABR facility would include two primary components; (1) a series of earthen cells (ponds), covering approximately 300 acres, that would be filled to a shallow depth (less than one foot) with water derived from on-site wells; and, (2) a small processing facility (approximately 100 acres of ancillary facilities including roads) wherein the harvested algae would be processed. The ponded water would serve as the host for growing algae in which carbon dioxide would be added to the ponds through a diffuser system. The primary inputs of the IABR are water, carbon dioxide, and natural sunlight that would promote growth of the algae inoculated in the ponds.

When ready, the algae would be harvested and processed at a small on-site facility that would generally separate the water from the algae and create pellets of the product that would be trucked to an existing, permitted offsite facility for oil extraction. At the existing off-site facility, the Company would use a wet extrusion process to generate what it refers to as "green crude," a product that would ultimately be shipped via truck to an existing oil refinery for further processing into a refined fuel. It is anticipated that approximately 100 barrels of green crude would be generated daily using this process, or approximately 30,000 barrels per year. Concurrent with the production of green crude is the production of solid post-extracted residual biomass which will either be digested anaerobically to biogas to provide thermal energy required during processing or used as animal feed.

The primary waste products from the process at the proposed IABR site would be wastewater. The water would be recycled into the cells hosting the algae farm. Water to start the operation as well as provide make-up water would be obtained from existing on-site wells. The expected water demand for the IABR project is approximately 3,500 acre feet per year. Approximately 15,000 to 30,000 tons of carbon dioxide would be used annually as an additive to the process to promote algal growth. The peak power demand to support the IABR project would be less than 2 megawatts, which would be accessed through existing infrastructure at the proposed project site.



ACREAGE	LEGAL DESCRIPTION
618 acres	Section 8, Township 29 South, Range 9 West
320 acres	S 1/2 Section 9, Township 29 South, Range 9 West
320 acres	E 1/2 Section 7, Township 29 South, Range 8 West
160 acres	SW 1/4 Section 8, Township 29 South, Range 8 West
160 acres	SE 1/4 Section 9, Township 29 South, Range 8 West
160 acres	NW 1/4 Section 17, Township 29 South, Range 8 West
70 acres	NE 1/4 Section 17, Township 29 South, Range 8 West
26.19 acres	Lots 7 and 8 Section 17, Township 29 South, Range 8 West
80 acres	E 1/2 NW 1/4 Section 18, Township 29 South, Range 8 West
160 acres	NE 1/4 Section 18, Township 29 South, Range 8 West
119 acres	Lots 4, 5, 7, 8 & 9 approx in Section 18, Township 29 South, Range 8 West

- IABR Sites
- Bureau of Land Management
- State of New Mexico
- Private

0 10,000 Feet

North Arrow

Energy

Proposed IABR Sites  
Luna County, New Mexico  
FIGURE 1

March 10, 2009

Energy, Minerals, Forestry and Resources Conservation Division  
State Forester  
P.O. Box 1948  
Santa Fe, New Mexico 87504

Dear Sir/Madam:

RE: Proposed Sapphire Energy Company Integrated Algal Biorefinery Project, Luna County,  
New Mexico

Sapphire Energy Company is in the process of making a request for financial assistance to USDA-Rural Development. It is necessary that Rural Development determine compliance with the requirements of the environmental assessment process on any project financed by the agency.

Attached is a location map and a description of the proposed project for which financial assistance has been requested. We would appreciate your advice as to whether the project would affect any regulations under your jurisdiction as well as provide us other information concerning the project site that you may have available. We would like this information back as soon as possible and no later than April 10, 2009.

Thank you for your attention to this matter.

Sincerely,

Brian Goodall, Ph.D.  
Vice President of Downstream Technology

Attachments

## **Conversation Record**

Project name: Sapphire Bio-Algal Fuel Farm  
Date: July 22, 2009  
Contact: Butch Blazer  
Phone: 505-476-3200  
By: Jim Stapleton, AMEC Geomatrix  
Subject: Threatened or Endangered Flora or Fauna

The department received letter and if there is no conflict and no endangered or threatened flora or fauna , then they don't need to be involved in the loop and usually will not respond to the letter. They will only respond if there is a known problem.

March 10, 2009

National Park Service  
Regional Director  
P.O. Box 728  
Santa Fe, New Mexico 87504

Dear Sir/Madam:

RE: Proposed Sapphire Energy Company Integrated Algal Biorefinery Project, Luna County,  
New Mexico

Sapphire Energy Company is in the process of making a request for financial assistance to USDA-Rural Development. It is necessary that Rural Development determine compliance with the requirements of the environmental assessment process on any project financed by the agency.

Attached is a location map and a description of the proposed project for which financial assistance has been requested. We would appreciate your advice as to whether the project would affect any regulations under your jurisdiction as well as provide us other information concerning the project site that you may have available. We would like this information back as soon as possible and no later than April 10, 2009.

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Sincerely,

Brian Goodall, Ph.D.  
Vice President of Downstream Technology

Attachments

March 10, 2009

New Mexico Department of Game and Fish  
Director  
P.O. Box 25112  
Santa Fe, New Mexico 87504

Dear Sir/Madam:

RE: Proposed Sapphire Energy Company Integrated Algal Biorefinery Project, Luna County,  
New Mexico

Sapphire Energy Company is in the process of making a request for financial assistance to USDA-Rural Development. It is necessary that Rural Development determine compliance with the requirements of the environmental assessment process on any project financed by the agency.

Attached is a location map and a description of the proposed project for which financial assistance has been requested. We would appreciate your advice as to whether the project would affect any regulations under your jurisdiction as well as provide us other information concerning the project site that you may have available. We would like this information back as soon as possible and no later than April 10, 2009.

Thank you for your attention to this matter.

Sincerely,

Brian Goodall, Ph.D.  
Vice President of Downstream Technology

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## Conversation Record

Project name: Sapphire Bio-Algal Fuel Farm  
Date: June 5, 2009  
Contact: Eliza Gilbert  
Agency: New Mexico Game and Fish  
Phone: 505.476.8130  
By: Tom Tangen, AMEC Geomatrix  
Subject: NM Process for T & E Permitting

Ms. Gilbert does not know how the Federal process for T&E consultation works. It does not occur in conjunction with the NMDGF process. The State of NM process is not similar to the Federal process. The State of NM does not have authority to allow a direct take of T&E species.

In the case we encounter T&E species at the site, we have some options that can be pursued:  
1. try to enhance off site species habitat 2. Get permission to move the species in question, such as possibly move burrowing owls.

In terms of consultation requirements: The NMDGF does not have a formal process for consultation. Unless there is a Federal nexus. In that case, the US Dept of F&G will require us to consult with them (USDFW) and with the NMDGF. NMDGF will require a site eco survey and a description of the Project (POO). There is no need for a meeting, but the State biologist may ask for one depending on the project. The State biologist will usually ask for and take 30 days to respond to a notification about the project. If there are no fauna T&E species detected at the site, there is usually no need to consult, but if there are some T&E species, consultation is Strongly Recommended.

To reiterate, State of NM and Feds usually do separate consultations if required. There is no formalized MOA or other agreement in place to control interactions between State and Feds. NMDGF is trying to re-introduce Aplomado Falcons into Luna, Hidalgo, Grant and Sierra counties. Person at the state with good Aplomado Falcon knowledge and knowledge of the reintroduction methods is Hira Walker 505 476 8109. Ms. Gilbert also suggested I try to reach Ms. Terra Manasco with the Conservation Services Division if I have more questions. P.O. 25112, Santa Fe, 87507

**Project name:** Sapphire Bio-Algal Fuel Farm  
**Date:** 07/24/09  
**Contact:** Mike Hine or Wally Murphy  
**Agency:** US Fish & Wildlife Service  
**Phone:** 505-248-6911  
**By:** Jim Stapleton, AMEC Geomatrix

Called US Fish and Wildlife Service and left a message that we are going to send a report documenting a June 2009 Flora and fauna survey. Have another survey planned for later in the summer.

March 10, 2009

New Mexico Environment Department  
Air Quality Bureau  
P.O. Box 26110  
Santa Fe, New Mexico 26110

Dear Sir/Madam:

RE: Proposed Sapphire Energy Company Integrated Algal Biorefinery Project, Luna County,  
New Mexico

Sapphire Energy Company is in the process of making a request for financial assistance to USDA-Rural Development. It is necessary that Rural Development determine compliance with the requirements of the environmental assessment process on any project financed by the agency.

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Sincerely,

Brian Goodall, Ph.D.  
Vice President of Downstream Technology

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## **Conversation Record**

Project name: Sapphire Bio-Algal Fuel Farm

Date: July 22, 2009

Contact: Ted Schooley

Agency: NM Environment Department – Air quality

Phone: 505-827-2855

By: Jim Stapleton, AMEC Geomatrix

Subject: Called ted on 7/22, left a voicemail. Told him that we were still working on the permitting. I also tried calling him on 7/23 – He has not returned my call.

March 10, 2009

New Mexico Environment Department  
Water and Waste Management Division  
P.O. Box 26110  
Santa Fe, New Mexico 26110

Dear Sir/Madam:

RE: Proposed Sapphire Energy Company Integrated Algal Biorefinery Project, Luna County,  
New Mexico

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Sincerely,

Brian Goodall, Ph.D.  
Vice President of Downstream Technology

Attachments

## Meeting Conversation Record

Project name: Sapphire Bio-Algal Fuel Farm

Date: April 16, 2009

Agency Attendance: George Schuman

AMEC Geomatrix Attendance: Tom Tangen, Myles Grotbo

Subject: Discussion of Agency Requirements for Groundwater Permit

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Discussion centered on how to demonstrate to the NMED that Sapphire can demonstrate no effect on groundwater.

GS – NMED would like to review any data from a pilot test to demonstrate the liner capacity

Stated there is some obligation to do a pilot test

Applicant will have to come up with testwork to support a discharge plan

MG - asked about how aquifers are defined in NM

GS - an aquifer in NM has to produce enough water to sustain a yield

Went on to state that a perched groundwater zone, if large enough, could be considered receiving water and if > 10,000 mg/l TDS would not be considered “protectable” water under NM law.

Stated that Sapphire could possibly demonstrate whether the perched zones were actually aquifers under the NM definition IF the drillers logs were detailed enough. Probably not likely however.

MG / TT – asked how NMED will review a discharge plan and associated design for a pond liner

GS - NMED would have an engineer review the design in detail, but more important, they would do a review on the BASIS for the design.

NMED will also require a monitoring plan

NMED will require submittal of a liner design, not just criteria

NMED would establish a point of compliance near the site, (probably no less than 20 – 50 feet from a potential source

Discussed monitoring well screening criteria. Screened no more than 15 feet below the level of the phreatic surface and 5 feet of screen above the top of the water table.

MG/TT- asked about Septic tank permits

GS - Stated that there are two permits available in NM <2,000 gallons per day (gpd) and >2000 gpd, review requirements in NMAC 20.7.3. Need criteria on size of facility.

MG/TT - asked about timing of obtaining a permit from NMED.

GS - Stated that a field test producing credible data may take as much as 4 – 6 months.

After receipt of NOI and field test data, and design, NMED would need a minimum of 4-6 months to review a permit application. Best possible scenario with NO public interest.

GS - Stated that apparently the Las Cruces R&D facility is discharging without a permit.

March 10, 2009

New Mexico State Highway and Transportation Department  
District Engineer, NMSHTP  
2912 E. Pine Street  
Deming, New Mexico 88030

Dear Sir/Madam:

RE: Proposed Sapphire Energy Company Integrated Algal Biorefinery Project, Luna County,  
New Mexico

Sapphire Energy Company is in the process of making a request for financial assistance to USDA-Rural Development. It is necessary that Rural Development determine compliance with the requirements of the environmental assessment process on any project financed by the agency.

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Thank you for your attention to this matter.

Sincerely,

Brian Goodall, Ph.D.  
Vice President of Downstream Technology

Attachments

March 10, 2009

Office of the State Engineer  
State Engineer  
Bataan Memorial Building, Room 101  
P.O. Box 25102  
Santa Fe, New Mexico 87504-5102

Dear Sir/Madam:

RE: Proposed Sapphire Energy Company Integrated Algal Biorefinery Project, Luna County,  
New Mexico

Sapphire Energy Company is in the process of making a request for financial assistance to USDA-Rural Development. It is necessary that Rural Development determine compliance with the requirements of the environmental assessment process on any project financed by the agency.

Attached is a location map and a description of the proposed project for which financial assistance has been requested. We would appreciate your advice as to whether the project would affect any regulations under your jurisdiction as well as provide us other information concerning the project site that you may have available. We would like this information back as soon as possible and no later than April 10, 2009.

Thank you for your attention to this matter.

Sincerely,

Brian Goodall, Ph.D.  
Vice President of Downstream Technology

Attachments

## **CONFERENCE CALL MEETING NOTES**

**August 19, 2009**

**11:00 am MST**

### **ATTENDEES:**

- **US DEPARTMENT OF AGRICULTURE**
  - Korah Abraham
  - Juliet Bochicchio
  - George Scott
  
- **Office of the State Engineer (OSE) – New Mexico**
  - John D'Antonio
  - John Romero
  - Jim Seizmore
  
- **Sapphire Energy, Inc.**
  - Jaime Moreno
  - Bryn Davis
  - Nick Hofmeister
  
- **AMEC Geomatrix, Inc.**
  - Myles Grotbo
  - Terry Grotbo
  - Cam Stringer

Mr. John D'Antonio (the State Engineer for New Mexico) briefly described the jurisdiction of his office related to water rights in New Mexico. Mr. D'Antonio identified to the call participants the awareness his agency has of the IABR project and the level of involvement the OSE has had to date in discussing water rights associated with the Cooper Property, the amount of consumptive use that would be allowed under New Mexico water law.

Mr. D'Antonio indicated that the leasing of water rights to make up the difference between water rights appurtenant to the IABR property and the water requirements of the IABR was a good strategy because it would provide water rights that are already proven, easing the process transferring water to the IABR facility. He affirmed that his office will work with Sapphire through the process of water rights consumptive use allocation and leasing.

March 10, 2009

State Historic Preservation Officer  
Attn: Katherine Slick  
Bataan Memorial Building  
407 Galisteo Street, Suite 236  
Santa Fe, New Mexico 87501

Dear Ms. Slick:

RE: Proposed Sapphire Energy Company Integrated Algal Biorefinery Project, Luna County,  
New Mexico

Sapphire Energy Company is in the process of making a request for financial assistance to USDA-Rural Development. It is necessary that Rural Development determine compliance with the requirements of the environmental assessment process on any project financed by the agency.

Attached is a location map and a description of the proposed project for which financial assistance has been requested. We would appreciate your advice as to whether the project would affect any regulations under your jurisdiction as well as provide us other information concerning the project site that you may have available. We would like this information back as soon as possible and no later than April 10, 2009.

Thank you for your attention to this matter.

Sincerely,

Brian Goodall, Ph.D.  
Vice President of Downstream Technology

Attachments



3115 Merryfield Row, Lab 130  
San Diego, California 92121  
858-530-3656 ph | 888.501.8353 fax

March 10, 2009

MAR 16  
LME

State Historic Preservation Officer  
Attn: Katherine Slick  
Bataan Memorial Building  
407 Galisteo Street, Suite 236  
Santa Fe, New Mexico 87501

086499

Dear Ms. Slick:

RE: Proposed Sapphire Energy Company Integrated Algal Biorefinery Project, Luna County, New Mexico

Sapphire Energy Company is in the process of making a request for financial assistance to USDA-Rural Development. It is necessary that Rural Development determine compliance with the requirements of the environmental assessment process on any project financed by the agency.

Attached are a location map and a description of the proposed project for which financial assistance has been requested. We would appreciate your advice as to whether the project would affect any regulations under your jurisdiction as well as provide us other information concerning the project site that you may have available. We would like this information back as soon as possible and no later than April 10, 2009.

Thank you for your attention to this matter.

Sincerely,

Brian Goodall, Ph.D.  
Vice President of Downstream Technology

COMMENTS

for NM State Historic Preservation Officer

If financial assistance is obtained from Rural Development or federal land is involved Consultation with this office will be required under Section 106 of the National Historic Preservation Act. If state land is involved, consultation will be required under state law.

Attachments:  
IABR\_Site.pdf  
Generalized Project Description 09March09.pdf



United States Department of Agriculture  
Rural Development  
State of New Mexico

17  
NME

August 13, 2009

SUBJECT: Sapphire Energy Company Integrated Algal Bio-Refinery  
Facility Project - Determination of No Effect

087483

TO: Ms. Michelle Ensey  
State of New Mexico  
Department of Cultural Affairs  
Historic Preservation Division  
Bataan Memorial Bldg (2nd floor)  
407 Galisteo Street  
Santa Fe, NM 87501

Dear Ms. Ensey:

Rural Development (RD) is proposing to provide Federal Financial Assistance to Sapphire Energy for the construction of an Integrated Algal Bio-Refinery Facility southwest of the community of Columbus in Luna County, New Mexico. In late July the environmental consultant, AMEC Geomatrix, Inc. had forwarded a cultural resource survey prepared by Lone Mountain Archeological Services, Inc. to your office for your review. Project Area 1, as described in the report, is the Area of Potential Effect for the proposed undertaking.

RD requests concurrence with a "Determination of No Effect" from your office for the project.

If you have any questions on the above proposal, please feel free to contact me at (505) 471-4960.

George Scott, P.E.  
Rural Development Engineer

No Historic Properties Affected. 8/31/09

  
for NM State Historic Preservation Officer

Concur that the proposed project will have no effect as long as project is constructed in Area 1. If there is any change in plans and Area 2 will be used, then consultation with this office will be required.

6200 Jefferson NE • Suite 255 • Albuquerque, NM 87109  
505-761-4950 • Fax - 505-761-4976 • TDD - 505-761-4938

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**Green, Lynne**

---

**From:** Grotbo, Terry  
**Sent:** Friday, August 14, 2009 3:53 PM  
**To:** Green, Lynne  
**Subject:** FW: Cultural Resources Survey - Sapphire Energy

*Terry Grotbo  
Geologist  
amec Geomatrix Inc.  
1824 North Last Chance Gulch  
Helena, MT 59601  
406-442-0860  
terry.grotbo@amec.com*

---

**From:** Grotbo, Myles  
**Sent:** Thursday, August 13, 2009 4:21 PM  
**To:** Grotbo, Terry  
**Subject:** FW: Cultural Resources Survey - Sapphire Energy

FYI...

**Myles Grotbo**  
**406-442-0860**

---

**From:** Ensey, Michelle, DCA [mailto:michelle.ensey@state.nm.us]  
**Sent:** Thursday, August 13, 2009 4:16 PM  
**To:** Tangen, Tom  
**Cc:** jaime.moreno@sapphireenergy.com; george.scott@nm.usda.gov; Grotbo, Myles  
**Subject:** RE: Cultural Resources Survey - Sapphire Energy

Tom,

I apologize for not getting back to you sooner, but I have reviewed the report and just spoke with George Scott. George will send me a letter requesting concurrence with a determination of No Historic Properties Affected. I agree with the archaeologist that the site, LA 162362 within project area 1 is not eligible. If this is the preferred project area, then we will be able to concur with the no effect determination when the letter arrives from Rural Development. In the meantime, I will need the Laboratory of Anthropology (LA) site records for all seven archaeological sites that were recorded during the survey of both Area 1 and Area 2. The archaeological consultant should have provided these forms to you. Please send them to me in the mail as soon as possible.

Please call or email me if you have any questions.

Michelle M. Ensey  
Archaeologist  
Department of Cultural Affairs  
Historic Preservation Division  
Bataan Memorial Building  
407 Galisteo Street, Suite 236

8/14/2009



May 30, 2009

Ms. Lori Allen  
Realty Specialist, Lands and Minerals  
Las Cruces District Office  
Bureau of Land Management  
1800 Marquess Street  
Las Cruces, New Mexico 88005

**Re: Access to BLM – Managed Land Near Columbus, New Mexico**

Dear Ms. Allen

This letter is notification to BLM that biologists with Amec Geomatrix will be accessing privately held, State managed, and Federally managed land near Columbus, New Mexico for the purpose of conducting an ecological survey during the week of June 1 through 5. The survey is associated with potential development of an algae growth and processing facility and will focus on studies of migratory birds, other fauna and flora, and presence / absence of jurisdictional wetlands and non-wetland waters of the US.

The biologists will be accessing land in the area of Sections 7, 8, 9, 16, 17, and 18 in T29S, R8W; and Sections 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18 in T29S, R9W. If you have any questions regarding this activity, please contact me at the numbers or email address below.

Sincerely yours,  
AMEC Geomatrix, Inc.

Tom Tangen  
Senior Engineer

Direct Tel.: 505 821 0221  
Cell Phone: 505 301 2081  
E-mail: [tom.tangen@mec.com](mailto:tom.tangen@mec.com)

forward via email.

AMEC Geomatrix, Inc.  
7007 Wyoming Blvd. NE, Suite F1  
Albuquerque, NM  
USA 87109-3983  
Tel (505) 821-0221  
[www.amecgeomatrixinc.com](http://www.amecgeomatrixinc.com)

**AMEC Geomatrix**

## Green, Lynne

---

**From:** Grotbo, Terry  
**Sent:** Friday, August 14, 2009 3:52 PM  
**To:** Green, Lynne  
**Subject:** FW: transmittal  
**Attachments:** transmittal - site forms- Dept of Cultural Affairs - M. Ensey.pdf

*Terry Grotbo  
Geologist  
amec Geomatrix Inc.  
1824 North Last Chance Gulch  
Helena, MT 59601  
406-442-0860  
terry.grotbo@amec.com*

---

**From:** Tangen, Tom  
**Sent:** Friday, August 14, 2009 10:14 AM  
**To:** george.scott@nm.usda.gov  
**Cc:** Jaime Moreno; Grotbo, Terry; Grotbo, Myles  
**Subject:** transmittal

Mr. Scott,  
I am attaching a copy of the transmittal that accompanied the site forms requested by Ms. Michelle Ensey of the Dept of Cultural Affairs. The forms were fedexed priority overnight on August 14.

Regards to all,

Tom

**Tom Tangen**  
*Senior Engineer  
Amec - Geomatrix  
7007 Wyoming Blvd. NE, Suite F-1  
Albuquerque, NM 87109  
Office 505-821-0221  
Cell 505-301-2081  
tom.tangen@amec.com*

Santa Fe, NM 87501  
voice: (505) 827-4064  
fax: (505) 827-6338  
michelle.ensey@state.nm.us  
www.nmhistoricpreservation.org

---

**From:** Tangen, Tom [mailto:Tom.Tangen@amec.com]  
**Sent:** Wednesday, July 29, 2009 7:21 AM  
**To:** Ensey, Michelle, DCA  
**Cc:** jaime.moreno@sapphireenergy.com; george.scott@nm.usda.gov; Grotbo, Myles  
**Subject:** Cultural Resources Survey - Sapphire Energy

Good Morning Ms. Ensey,  
You were contacted several days ago by Ms. Ann Swanberg-Mee with USDA Rural Development regarding an integrated algal biorefinery project being proposed for development in Luna County, NM by Sapphire Energy. Ms. Swanberg-Mee informed me of your conversation and asked that I forward the attached cultural resources survey completed for the project earlier this year. The attached cover letter describes the project and discusses project contacts.

I will follow this electronic submittal with hard copies of the survey and the attached letter. Please let me know how many hard copies you will require. If you have any questions about this submittal or other issues, please contact me at the email address or phone numbers below.

Regards,  
Tom Tangen

**Tom Tangen**  
*Senior Engineer*  
Amec - Geomatrix  
7007 Wyoming Blvd. NE, Suite F-1  
Albuquerque, NM 87109  
Office 505-821-0221  
Cell 505-301-2081  
tom.tangen@amec.com

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8/14/2009



United States Department of Agriculture  
Rural Development  
State of New Mexico

July 30, 2009

SUBJECT: Integrated Algal Bio-Refinery Facility (IABR), Luna County -  
Determination of No Effect

TO: Fort Sill Apache Tribe  
Jeff Houser, Chairman  
Rt. 2, Box 121  
Apache, OK 73006

Dear Mr. Houser,

Rural Development (RD) is proposing to provide Federal Financial Assistance to the Sapphire Energy Company. The project consists of construction of an Integrated Algal Bio-Refinery Facility (IABR) in Luna County, New Mexico (Figure 1 and Figure 2). The purpose of the project is to construct and operate a demonstration-scale facility in the United States (US) that produces jet and diesel fuel, derived from renewable algae sources.

A generalized layout of key components associated with the proposed IABR facility, including approximately 300 acres of ponds, is illustrated in Figure 1. Existing wells on the property will be used to supply the water necessary to fill and maintain the ponds. Please consider the green shaded area in Figure 2 to be the Area of Potential Effect (APE). The APE as depicted will include all access routes and staging areas.

Enclosed with this letter is a copy of the *Cultural Resource Survey for the Mimbres Due Diligence Project, Luna County, New Mexico, NMCRIS Number 113215a* project description and maps of the area and proposed improvements.

RD has made a determination of "no effect" for this undertaking. Should we not receive a response from your office within 30 days from the date of receipt of this letter, we will assume that this project will not have an adverse effect on any archeological or historic concerns and will proceed with the project. If you have any questions on the above proposal, please feel free to contact me at (505) 471-4960.

Sincerely,

George Scott, P.E.  
Rural Development Engineer

6200 Jefferson NE • Suite 255 • Albuquerque, NM 87109  
505-761-4950 • Fax - 505-761-4976 • TDD - 505-761-4938

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Washington, DC 20250-9410 or call 800-795-3272 (voice) or 202-720-6382 (TDD)



United States Department of Agriculture  
Rural Development  
State of New Mexico

July 30, 2009

SUBJECT: Integrated Algal Bio-Refinery Facility (IABR), Luna County -  
Determination of No Effect

TO: Hopi Tribe  
Benjamin Nuvamsa, Chairman  
P.O. Box 123  
Kykotsmovi, AZ 86039

Dear Mr. Nuvamsa,

Rural Development (RD) is proposing to provide Federal Financial Assistance to the Sapphire Energy Company. The project consists of construction of an Integrated Algal Bio-Refinery Facility (IABR) in Luna County, New Mexico (Figure 1 and Figure 2). The purpose of the project is to construct and operate a demonstration-scale facility in the United States (US) that produces jet and diesel fuel, derived from renewable algae sources.

A generalized layout of key components associated with the proposed IABR facility, including approximately 300 acres of ponds, is illustrated in Figure 2. Existing wells on the property will be used to supply the water necessary to fill and maintain the ponds. Please consider the green shaded area in Figure 2 to be the Area of Potential Effect (APE). The APE as depicted will include all access routes and staging areas.

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Sincerely,

George Scott, P.E.  
Rural Development Engineer

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L AUG 20 2009

BY: CPO/KS



United States Department of Agriculture  
Rural Development  
State of New Mexico

RECEIVED

AUG 20 2009

BY: .....

July 30, 2009

SUBJECT: Integrated Algal Bio-Refinery Facility (IABR), Luna County  
Determination of No Effect

TO: Hopi Tribe  
Benjamin Nuvamsa, Chairman  
P.O. Box 123  
Kykotsmovi, AZ 86039

*Forwarded to Jerry*

RECEIVED  
*Shirley*

Dear Mr. Nuvamsa,

Rural Development (RD) is proposing to provide Federal Financial Assistance to the Sapphire Energy Company. The project consists of construction of an Integrated Algal Bio-Refinery Facility (IABR) in Luna County, New Mexico (Figure 1 and Figure 2). The purpose of the project is to construct and operate a demonstration-scale facility in the United States (US) that produces jet and diesel fuel, derived from renewable algae sources.

A generalized layout of key components associated with the proposed IABR facility, including approximately 300 acres of ponds, is illustrated in Figure 2. Existing wells on the property will be used to supply the water necessary to fill and maintain the ponds. Please consider the green shaded area in Figure 2 to be the Area of Potential Effect (APE). The APE as depicted will include all access routes and staging areas.

Enclosed with this letter is a copy of the *Cultural Resource Survey for the Mimbres Due Diligence Project, Luna County, New Mexico, NMCRIS Number 113215a* project description and maps of the area and proposed improvements.

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Sincerely,

*George Scott*  
George Scott, P.E.  
Rural Development Engineer

*Conor*  
*Margaret*  
*for*  
*Kevan Nuvamsa*  
8-21-09

6200 Jefferson NE • Suite 255 • Albuquerque, NM 87109  
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United States Department of Agriculture  
Rural Development  
State of New Mexico

July 30, 2009

SUBJECT: Integrated Algal Bio-Refinery Facility (IABR), Luna County -  
Determination of No Effect

TO: White Mountain Apache Tribe  
Ronnie Lupe, Chairman  
P.O. Box 700  
Whiteriver, AZ 85941

Dear Mr. Lupe,

Rural Development (RD) is proposing to provide Federal Financial Assistance to the Sapphire Energy Company. The project consists of construction of an Integrated Algal Bio-Refinery Facility (IABR) in Luna County, New Mexico (Figure 1 and Figure 2). The purpose of the project is to construct and operate a demonstration-scale facility in the United States (US) that produces jet and diesel fuel, derived from renewable algae sources.

A generalized layout of key components associated with the proposed IABR facility, including approximately 300 acres of ponds, is illustrated in Figure 2. Existing wells on the property will be used to supply the water necessary to fill and maintain the ponds. Please consider the green shaded area in Figure 2 to be the Area of Potential Effect (APE). The APE as depicted will include all access routes and staging areas.

Enclosed with this letter is a copy of the *Cultural Resource Survey for the Mimbres Due Diligence Project, Luna County, New Mexico, NMCRIS Number 113215a* project description and maps of the area and proposed improvements.

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Sincerely,

George Scott, P.E.  
Rural Development Engineer

6200 Jefferson NE • Suite 255 • Albuquerque, NM 87109  
505-761-4950 • Fax - 505-761-4976 • TDD - 505-761-4938

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United States Department of Agriculture  
Rural Development  
State of New Mexico

July 30, 2009

SUBJECT: Integrated Algal Bio-Refinery Facility (IABR), Luna County -  
Determination of No Effect

TO: Mescalero Apache Tribe  
President Carleton Naiche-Palmer  
P.O. Box 227  
Mescalero, NM 88340

Dear Mr. Naiche-Palmer,

Rural Development (RD) is proposing to provide Federal Financial Assistance to the Sapphire Energy Company. The project consists of construction of an Integrated Algal Bio-Refinery Facility (IABR) in Luna County, New Mexico (Figure 1 and Figure 2). The purpose of the project is to construct and operate a demonstration-scale facility in the United States (US) that produces jet and diesel fuel, derived from renewable algae sources.

A generalized layout of key components associated with the proposed IABR facility, including approximately 300 acres of ponds, is illustrated in Figure 2. Existing wells on the property will be used to supply the water necessary to fill and maintain the ponds. Please consider the green shaded area in Figure 2 to be the Area of Potential Effect (APE). The APE as depicted will include all access routes and staging areas.

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Sincerely,

A handwritten signature in black ink, appearing to read "George Scott".

George Scott, P.E.  
Rural Development Engineer

6200 Jefferson NE • Suite 255 • Albuquerque, NM 87109  
505-761-4950 • Fax - 505-761-4976 • TDD - 505-761-4938

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United States Department of Agriculture  
Rural Development  
State of New Mexico

July 30, 2009

SUBJECT: Integrated Algal Bio-Refinery Facility (IABR), Luna County -  
Determination of No Effect

TO: Ysleta del Sur Pueblo  
Frank Paiz, Governor  
P.O. Box 17579 – Ysleta Station  
El Paso, TX 79917

Dear Mr. Paiz,

Rural Development (RD) is proposing to provide Federal Financial Assistance to the Sapphire Energy Company. The project consists of construction of an Integrated Algal Bio-Refinery Facility (IABR) in Luna County, New Mexico (Figure 1 and Figure 2). The purpose of the project is to construct and operate a demonstration-scale facility in the United States (US) that produces jet and diesel fuel, derived from renewable algae sources.

A generalized layout of key components associated with the proposed IABR facility, including approximately 300 acres of ponds, is illustrated in Figure 2. Existing wells on the property will be used to supply the water necessary to fill and maintain the ponds. Please consider the green shaded area in Figure 2 to be the Area of Potential Effect (APE). The APE as depicted will include all access routes and staging areas.

Enclosed with this letter is a copy of the *Cultural Resource Survey for the Mimbres Due Diligence Project, Luna County, New Mexico, NMCRIS Number 113215a* project description and maps of the area and proposed improvements.

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Sincerely,

George Scott, P.E.  
Rural Development Engineer

6200 Jefferson NE • Suite 255 • Albuquerque, NM 87109  
505-761-4950 • Fax - 505-761-4976 • TDD - 505-761-4938

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Washington, DC 20250-9410 or call 800-795-3272 (voice) or 202-720-6382 (TDD)

March 10, 2009

Lela Kaskalla, Governor  
Pueblo of Nambe  
Route 1, Box 117-BB  
Santa Fe, New Mexico 87501

Dear Lela:

RE: Proposed Sapphire Energy Company Integrated Algal Biorefinery Project, Luna County,  
New Mexico

Sapphire Energy Company is in the process of making a request for financial assistance to USDA-Rural Development. It is necessary that Rural Development determine compliance with the requirements of the environmental assessment process on any project financed by the agency.

Attached is a location map and a description of the proposed project for which financial assistance has been requested. We would appreciate your advice as to whether the project would affect any regulations under your jurisdiction as well as provide us other information concerning the project site that you may have available. We would like this information back as soon as possible and no later than April 10, 2009.

Thank you for your attention to this matter.

Sincerely,

Brian Goodall, Ph.D.  
Vice President of Downstream Technology

Attachments

March 10, 2009

Donald Eriacho, Governor  
Pueblo of Zuni  
P.O. Box 339  
Zuni, New Mexico 87327

Dear Mr. Eriacho:

RE: Proposed Sapphire Energy Company Integrated Algal Biorefinery Project, Luna County,  
New Mexico

Sapphire Energy Company is in the process of making a request for financial assistance to USDA-Rural Development. It is necessary that Rural Development determine compliance with the requirements of the environmental assessment process on any project financed by the agency.

Attached is a location map and a description of the proposed project for which financial assistance has been requested. We would appreciate your advice as to whether the project would affect any regulations under your jurisdiction as well as provide us other information concerning the project site that you may have available. We would like this information back as soon as possible and no later than April 10, 2009.

Thank you for your attention to this matter.

Sincerely,

Brian Goodall, Ph.D.  
Vice President of Downstream Technology

Attachments

March 10, 2009

U.S. Army Corps of Engineers  
Attn: Construction Operations Division  
Regulatory Branch  
4101 Jefferson Plaza, NE  
Albuquerque, New Mexico 87109-3435

Dear Sir/Madam:

RE: Proposed Sapphire Energy Company Integrated Algal Biorefinery Project, Luna County,  
New Mexico

Sapphire Energy Company is in the process of making a request for financial assistance to USDA-Rural Development. It is necessary that Rural Development determine compliance with the requirements of the environmental assessment process on any project financed by the agency.

Attached is a location map and a description of the proposed project for which financial assistance has been requested. We would appreciate your advice as to whether the project would affect any regulations under your jurisdiction as well as provide us other information concerning the project site that you may have available. We would like this information back as soon as possible and no later than April 10, 2009.

Thank you for your attention to this matter.

Sincerely,

Brian Goodall, Ph.D.  
Vice President of Downstream Technology

Attachments

## Conversation Record

Project name: Sapphire Bio-Algal Fuel Farm  
Date: 6-24-09  
Contact: Lesley McWhirter, U.S. Army Corps of Engineers, Albuquerque District  
By: Shelly Adams, AMEC Earth & Environmental, Inc.  
Subject: Jurisdictional Determinations in New Mexico

---

After describing the wetland north of the highway, the ephemeral washes, and their overland surface discharge across the Mexico border, Lesley McWhirter “highly recommended” coordinating with the Corps. She said there were two options – either obtaining an approved jurisdictional determination (JD) or submitting a Preliminary JD Form for our project. She said even though initially it seems that there is no “significant nexus” and that the wetland may be an isolated water she recommends coordination due to the difficulties involved with the recent Rapanos and SWANNC rulings, and crossing the Mexico border. (Ephemeral washes without a significant nexus to a navigable water of the U.S. and isolated wetlands are not jurisdictional to the Corps).

Lesley discussed the two options. The benefit of a Preliminary JD is that it is a quicker process, but the drawback is that you are accepting that everything is jurisdictional (even if they would have been determined non-jurisdictional otherwise) and will be held to all Section 404 permit requirements (Nationwide Permit, Preconstruction Notification, Individual Permit, etc). Obtaining an approved JD (based on conducting delineations), on the other hand, is a slower process, but there is a possibility of receiving a non-jurisdictional status and the proponent would not need a permit from the Corps.

The JD package would be submitted to the EPA (by the Corps) for concurrence on the “significant nexus” determination, which takes approximately one month to one and a half months. The “isolated waters” determination goes through a separate process and is determined by the Corps and EPA. This process takes about 3 months for approval.

She recommended calling out the wetland on the JD package even if we’re not impacting it and to state that we are avoiding it if that is the case. She said that Rick Gatewood, out of the El Paso Field Office, would actually be the Project Manager, but recommended coordinating with Kelly Allen initially and for any questions we may have. (Rick is new to his position). Kelly Allen is apparently updating a JD checklist with the recent Rapanos rulings included. Lesley said she would contact Kelly and ask her to send us the JD checklist as soon as possible.

**Leferink, Richard**

---

**From:** McWhirter, Lesley A SPA [Lesley.A.McWhirter@usace.army.mil]  
**Sent:** Wednesday, June 24, 2009 1:57 PM  
**To:** Adams, Shelly  
**Cc:** Allen, Kelly E SPA  
**Subject:** JD in southern NM

Shelly,

Regarding your inquiry on information required for an approved JD, I am asking our regulatory PM, Kelly Allen, to send you our JD checklist. This should help you put together the information we will need to do an approved JD. Since the proposed project is located on the NM/Mexico border, your JD request submittal should be sent to Rick Gatewood in our El Paso field office (see mailing address on our website).

If you have any questions, please feel free to call me at the number below, or Kelly at 505-342-3216.

Lesley McWhirter  
NM/TX Branch Chief, Regulatory Division  
Albuquerque District, U.S. Army Corps of Engineers  
4101 Jefferson Plaza NE  
Albuquerque, NM 87109

Office: 505-342-3678  
Fax: 505-342-3498

Information about the Regulatory Program is available at <http://www.spa.usace.army.mil/reg/>

**Leferink, Richard**

---

**From:** Allen, Kelly E SPA [Kelly.E.Allen@usace.army.mil]  
**Sent:** Thursday, June 25, 2009 2:22 PM  
**To:** Adams, Shelly  
**Subject:** USACE JD checklist  
**Attachments:** NAI\_JD\_general.doc

Shelly,  
Attached is our JD checklist. I incorporated data collection required for Approved (Rapanos) JDs. In the case of Preliminary JDs less data collection is required. If you have any questions please let me know. Thanks.

<<NAI\_JD\_general.doc>>

*Kelly E. Allen*

Project Manager  
Regulatory Division, Albuquerque District  
U.S. Army Corps of Engineers  
4101 Jefferson Plaza NE  
Albuquerque, NM 87109  
Office: 505-342-3216  
Fax: 505-342-3498

Information about the Regulatory Program is available at <http://www.spa.usace.army.mil/reg/>

## Conversation Record

Project name: Sapphire Bio-Algal Fuel Farm

Date: 7/22/2009

Contact: Kelly Allen, U.S. Army Corps of Engineers, Albuquerque

By: Jim Stapleton, AMEC Geomatrix

Subject: Jurisdictional Determinations in New Mexico

---

I spoke to Kelly on 7/22 about the jurisdictional determination. She informed me that their El Paso office would be handling it. The gentleman is Richard Gatewood 505-554-7943. (915) 568-6985

## Leferink, Richard

---

**From:** Allen, Kelly E SPA [Kelly.E.Allen@usace.army.mil]  
**Sent:** Thursday, June 25, 2009 1:06 PM  
**To:** Adams, Shelly  
**Subject:** FW: JD in southern NM

Shelly,  
I'm currently updating the checklist with Rapanos guidance so I'll send it to you shortly.  
Thanks.

Kelly E. Allen  
505-342-3216 office

-----Original Message-----

**From:** McWhirter, Lesley A SPA  
**Sent:** Wednesday, June 24, 2009 1:57 PM  
**To:** shelly.adams@amec.com  
**Cc:** Allen, Kelly E SPA  
**Subject:** JD in southern NM

Shelly,

Regarding your inquiry on information required for an approved JD, I am asking our regulatory PM, Kelly Allen, to send you our JD checklist. This should help you put together the information we will need to do an approved JD. Since the proposed project is located on the NM/Mexico border, your JD request submittal should be sent to Rick Gatewood in our El Paso field office (see mailing address on our website).

If you have any questions, please feel free to call me at the number below, or Kelly at 505-342-3216.

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Albuquerque, NM 87109

Office: 505-342-3678  
Fax: 505-342-3498

Information about the Regulatory Program is available at  
<http://www.spa.usace.army.mil/reg/>

March 10, 2009

U.S. Environmental Protection Agency  
Director  
1445 Ross Avenue  
Suite 1200  
Dallas, Texas 75202-2733

Dear Sir/Madam:

RE: Proposed Sapphire Energy Company Integrated Algal Biorefinery Project, Luna County,  
New Mexico

Sapphire Energy Company is in the process of making a request for financial assistance to USDA-Rural Development. It is necessary that Rural Development determine compliance with the requirements of the environmental assessment process on any project financed by the agency.

Attached is a location map and a description of the proposed project for which financial assistance has been requested. We would appreciate your advice as to whether the project would affect any regulations under your jurisdiction as well as provide us other information concerning the project site that you may have available. We would like this information back as soon as possible and no later than April 10, 2009.

Thank you for your attention to this matter.

Sincerely,

Brian Goodall, Ph.D.  
Vice President of Downstream Technology

Attachments



May 30, 2009

Ms. Lori Allen  
Realty Specialist, Lands and Minerals  
Las Cruces District Office  
Bureau of Land Management  
1800 Marquess Street  
Las Cruces, New Mexico 88005

**Re: Access to BLM – Managed Land Near Columbus, New Mexico**

Dear Ms. Allen

This letter is notification to BLM that biologists with Amec Geomatrix will be accessing privately held, State managed, and Federally managed land near Columbus, New Mexico for the purpose of conducting an ecological survey during the week of June 1 through 5. The survey is associated with potential development of an algae growth and processing facility and will focus on studies of migratory birds, other fauna and flora, and presence / absence of jurisdictional wetlands and non-wetland waters of the US.

The biologists will be accessing land in the area of Sections 7, 8, 9, 16, 17, and 18 in T29S, R8W; and Sections 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18 in T29S, R9W. If you have any questions regarding this activity, please contact me at the numbers or email address below.

Sincerely yours,  
AMEC Geomatrix, Inc.

Tom Tangen  
Senior Engineer

Direct Tel.: 505 821 0221  
Cell Phone: 505 301 2081  
E-mail: [tom.tangen@mec.com](mailto:tom.tangen@mec.com)

forward via email.

AMEC Geomatrix, Inc.  
7007 Wyoming Blvd. NE, Suite F1  
Albuquerque, NM  
USA 87109-3983  
Tel (505) 821-0221  
[www.amecgeomatrixinc.com](http://www.amecgeomatrixinc.com)

**AMEC Geomatrix**

March 10, 2009

Natural Resource Conservation Service  
District Conservationist  
Deming Service Center  
405 E Florida Street  
Deming, New Mexico 88030-5235

Dear Sir/Madam:

RE: Proposed Sapphire Energy Company Integrated Algal Biorefinery Project, Luna County,  
New Mexico

Sapphire Energy Company is in the process of making a request for financial assistance to USDA-Rural Development. It is necessary that Rural Development determine compliance with the requirements of the environmental assessment process on any project financed by the agency.

Attached is a location map and a description of the proposed project for which financial assistance has been requested. We would appreciate your advice as to whether the project would affect any regulations under your jurisdiction as well as provide us other information concerning the project site that you may have available. We would like this information back as soon as possible and no later than April 10, 2009.

Thank you for your attention to this matter.

Sincerely,

Brian Goodall, Ph.D.  
Vice President of Downstream Technology

Attachments

-----Original Message-----

From: Garcia, Luis - Deming, NM [mailto:Luis.Garcia@nm.usda.gov]  
Sent: Thursday, July 23, 2009 5:57 PM  
To: Stapleton, Jim  
Subject: FW: AB Cooper farm

-----Original Message-----

From: Garcia, Luis - Deming, NM  
Sent: Thursday, July 23, 2009 4:51 PM  
To: 'jim.stapleton@amce.com'  
Subject: AB Cooper farm

Mr. Stapleton,

Attached is the letter with associated maps.

luis

**United States Department of Agriculture**



Natural Resources Conservation Service  
405 East Florida  
Deming, NM 88030  
**Phone:** (575) 546-9692 **Fax:** (575) 546-0038  
**Web site:** [www.nm.nrcs.usda.gov](http://www.nm.nrcs.usda.gov)

---

Mr. Stapleton

I have attached some scanned documents. This land you referred to Sect 9- T 29s R 8w has two farms associated with it. Both Farms are documented in Farm Service Agency (FSA) as Farm number 540 and Tract 248. Our prime and unique farm land map shows this land to have both Prime Farmland and Additional Farmland. Please see attached scanned maps.

If you have additional question feel free to give us a call.

Sincerely,

Luis B. Garcia, DC  
Deming Field Office  
USDA NRCS

*Helping People Help the Land*

An Equal Opportunity Provider and Employer

# MEMORANDUM



DATE: JULY 24, 2009

TO: CHRIS CERQUONE, SENIOR SCIENTIST

FROM: WILHELM WELZENBACH, PROJECT SCIENTIST

**RE: CORRESPONDENCE WITH NRCS**

---

To support the USDA BioRefinery Assistance Loan Guarantee application for the Sapphire Energy Project outside Columbus, New Mexico, I obtained the following information and direction from regulatory agencies through personal communication regarding Highly Erodible Lands (HEL) and Farmland of Statewide Importance.

3/23/2009 - Ken Scheffe, State Soil Scientist – Natural Resources Conservation Service (NRCS)

- Mr. Scheffe stated that all areas in Luna County are HEL, due to the windy dry climate.

3/23/2009 - Luis Garcia, Deming Field Office – NRCS District Conservationist

- Mr. Garcia stated that we should obtain the Conservation Plan for the property from the Farm Service Agency (FSA), and that plan will include the field number and site-specific HEL determination.
- Regarding whether the property is a Sodbust, Mr. Garcia stated that any areas with at least 5 years of cropping history prior to 1985 are not considered Sodbust. This means that the project area is not a Sodbust, because the site was reportedly cropped for a long period prior to 1979.

3/23/2009 - Paul Offet, Deming Field Office - FSA

- Provided the current Conservation Plan for the fields on the site, through the land owner's real estate agent. The Conservation Plan, including HEL determination and wetlands sections, was attached with the loan guarantee application. (Further discussion of the Conservation Plan and HEL determination are on Page 2.)

2/9/2009 – Clarence Chavez, Soil Data Quality Specialist – Bureau of Land Management (BLM)

- Mr. Chavez discussed which areas in the Mimbres Basin would be likely to have collapsible soils, and therefore be difficult areas to construct ponds. Mr. Chavez also described the extent of salt-affected soils in Luna County.

Based on the landscape of the IABR site, which has low-angle slopes of less than 2%, and is not downhill from significant arroyos, the conditions that would lead to collapsible soils are not present at the site. Significant gravel fractions were observed in soil during the field survey, and near-surface soils were very dense, which is not indicative of collapsible soil. The field survey was provided in the loan guarantee application.

The IABR site is not considered to be exceptional farmland worthy of land management restrictions. Specifically, the NRCS Web Soil Survey database (found at <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>) does not include the site as an area shown to be "prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland".



Following receipt of comments by USDA on the initial loan guarantee application, the following additional information was obtained in personal communication with FSA and NRCS:

7/24/2009 - Mackie Erwin, Executive Director, Deming Field Office - FSA

- It would be a good practice for new owners to come in to the field office and register themselves with FSA, so they could be tracked by USDA in regards to their practices, and be recognized by USDA. The new owners may want to obtain a new Conservation Plan from NRCS that can be executed by FSA.

7/24/2009 - Santiago Misquez, Deming Field Office - NRCS

- Conservation Plans automatically transfer with the land to the new owner.
- The HEL determination also stays with the land, and does not change, because it is based on the characteristics of the land.
- If new land uses are put in place, then assignment of HEL may no longer apply (such as if annual cropping is no longer performed), because conditions that would lead to high risk of erosion are no longer in place. It would be a good practice for the new owners to come in to the field office and create a new Conservation Plan to reflect their use of the land.

Based on the above two conversations, Sapphire Energy should register with the Deming Field Office of FSA/NRCS as the new owner, and either have NRCS create a new Conservation Plan applicable to the proposed future land use (IABR and surroundings), or obtain from NRCS documentation that the proposed future land use would not need a Conservation Plan because it is neither CRP nor annual tilling and cropping.

U.S. Department of Agriculture

# FARMLAND CONVERSION IMPACT RATING

<b>Part I</b> (To be completed by Federal Agency)	Date Of Land Evaluation Request 8/14/09
Name Of Project <b>SAPPHIRE ENERGY</b>	Federal Agency Involved <b>USDA</b>
Proposed Land Use <b>INTEGRATED ALGA BIO-REFINERY FACILITY</b>	County And State <b>LUNA NEW MEXICO</b>

<b>Part II</b> (To be completed by NRCS)		Date Request Received By NRCS	
Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply -- do not complete additional parts of this form).		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %	Acres Irrigated	Average Farm Size
Name Of Land Evaluation System Used	Name Of Local Site Assessment System	Amount Of Farmland As Defined in FPPA Acres: %	
		Date Land Evaluation Returned By NRCS	

Part III (To be completed by Federal Agency)	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	400.0			
B. Total Acres To Be Converted Indirectly	442.4			
C. Total Acres In Site	842.4	0.0	0.0	0.0

Part IV (To be completed by NRCS) Land Evaluation Information				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				

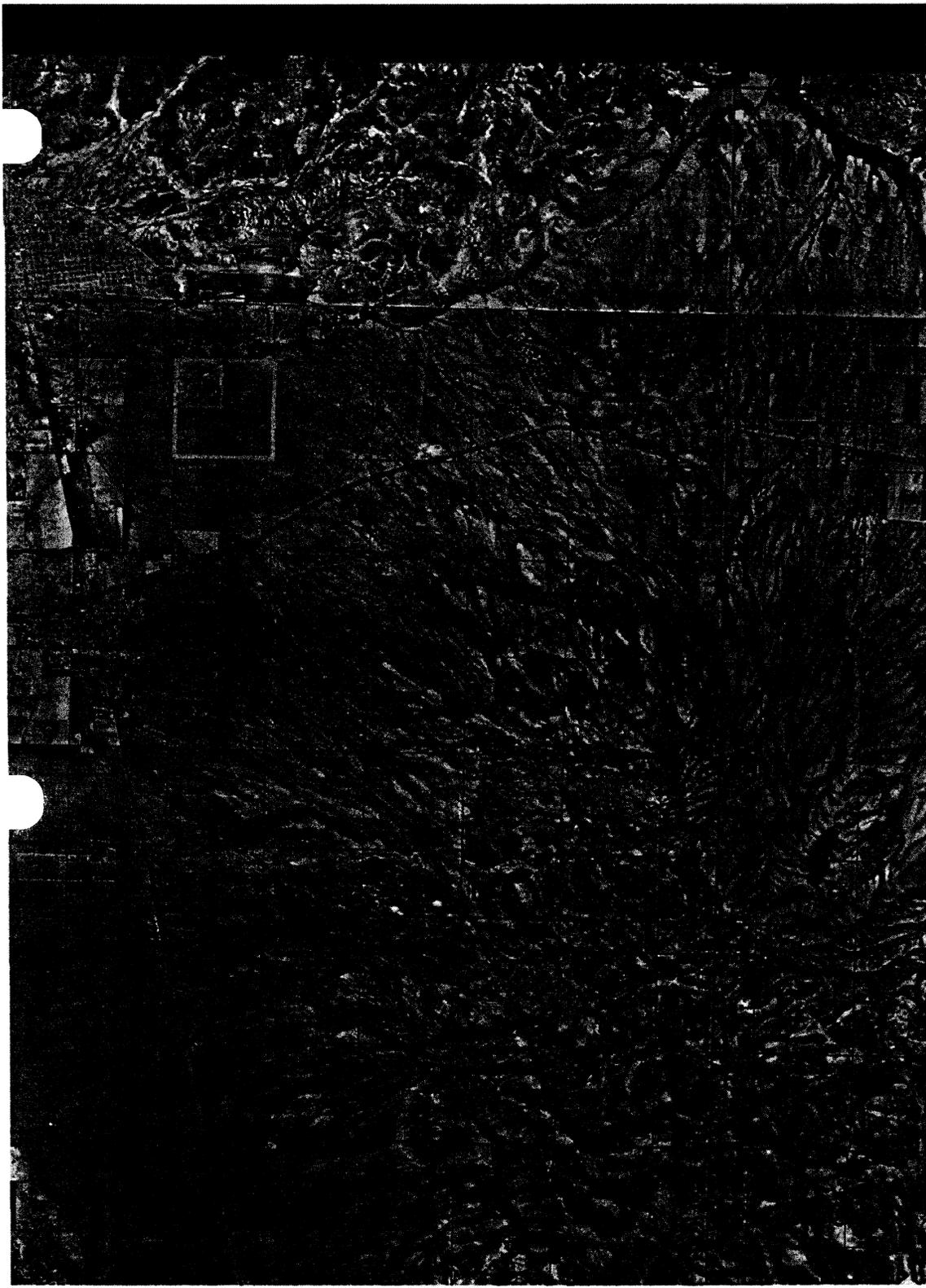
Part V (To be completed by NRCS) Land Evaluation Criterion Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)	0	0	0	0
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Part VI (To be completed by Federal Agency) Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))	Maximum Points				
1. Area In Nonurban Use	15	15			
2. Perimeter In Nonurban Use	10	10			
3. Percent Of Site Being Farmed	20	0			
4. Protection Provided By State And Local Government	20	0			
5. Distance From Urban Builtup Area	15	15			
6. Distance To Urban Support Services	15	10			
7. Size Of Present Farm Unit Compared To Average	10	10			
8. Creation Of Nonfarmable Farmland	10	0			
9. Availability Of Farm Support Services	5	5			
10. On-Farm Investments	20	0			
11. Effects Of Conversion On Farm Support Services	10	0			
12. Compatibility With Existing Agricultural Use	10	0			
<b>TOTAL SITE ASSESSMENT POINTS</b>	160	65	0	0	0

Part VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)	100	0	0	0	0
Total Site Assessment (From Part VI above or a local site assessment)	160	65	0	0	0
<b>TOTAL POINTS (Total of above 2 lines)</b>	260	65	0	0	0

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input type="checkbox"/>
----------------	-------------------	---

Reason For Selection:



## Green, Lynne

---

**From:** Grotbo, Terry  
**Sent:** Friday, August 14, 2009 4:19 PM  
**To:** Green, Lynne  
**Subject:** FW: Form 1006  
**Attachments:** AD1006sapphire.pdf; Appendix A Section VI.doc

*Terry Grotbo  
Geologist  
amec Geomatrix Inc.  
1824 North Last Chance Gulch  
Helena, MT 59601  
406-442-0860  
terry.grotbo@amec.com*

---

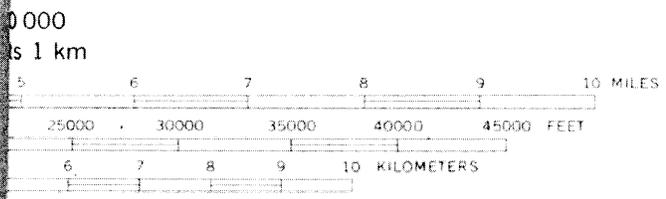
**From:** Stapleton, Jim  
**Sent:** Friday, August 14, 2009 2:25 PM  
**To:** Grotbo, Terry  
**Subject:** Form 1006

Terry  
Here is form 1006 and an attached info sheet. We are trying to get a location and acreage outline map together and plan to send the whole package to Jamie in the next 30 min.

**Jim Stapleton**  
*Project Scientist  
Amec - Geomatrix  
7007 Wyoming Blvd. NE, Suite F-1  
Albuquerque, NM 87109  
Office 505-821-0221  
[jim.stapleton@amec.com](mailto:jim.stapleton@amec.com)*

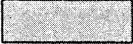
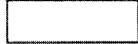


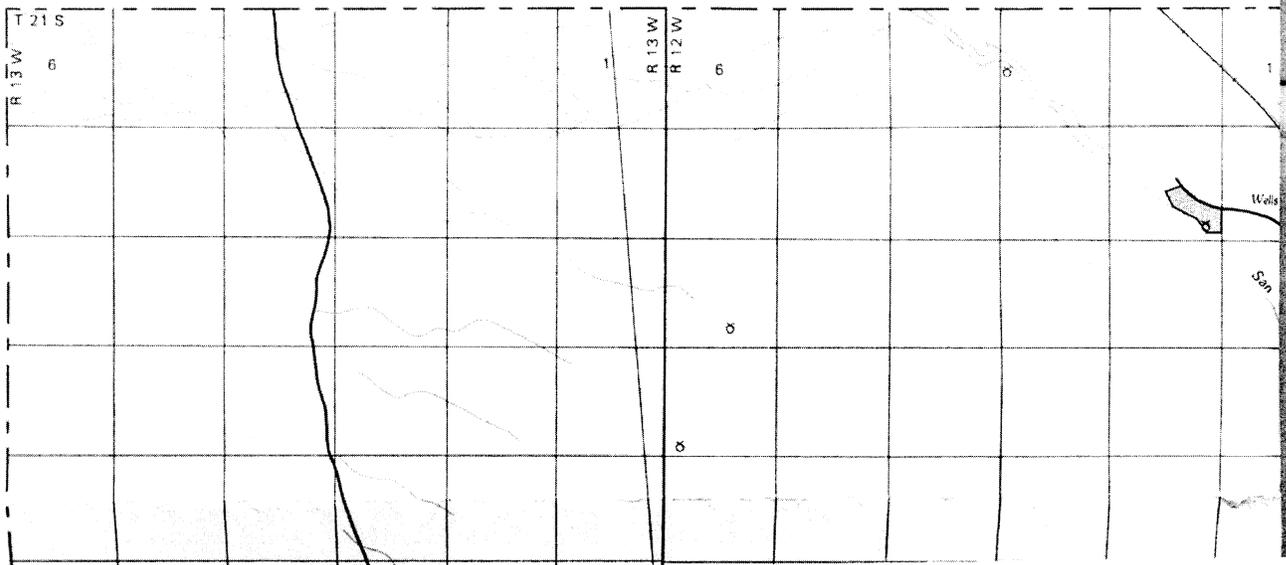
MEXICO



DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

LEGEND

-  Prime farmland  
Total acres 38,257
-  Unique farmland, other than prime  
Total acres— none reported
-  Additional farmland of statewide importance  
Total acres 22,804
-  Additional farmland of local importance  
Total acres—none reported
-  Other farmland  
Total acres 2,734
-  Other land
-  Water areas
-  Approximate limits of urban growth



# FARMLAND CONVERSION IMPACT RATING

**PART I (To be completed by Federal Agency)** Date Of Land Evaluation Request **8/14/09**

Name Of Project **SAPPHIRE ENERGY** Federal Agency Involved **USDA**

Proposed Land Use **INTEGRATED ALGA BIO-REFINERY FACILITY** County And State **LUNA NEW MEXICO**

**PART II (To be completed by NRCS)** Date Request Received By NRCS

Does the site contain prime, unique, statewide or local important farmland?  
(If no, the FPPA does not apply -- do not complete additional parts of this form). Yes  No  Acres Irrigated **0** Average Farm Size

Major Crop(s) Farmable Land In Govt. Jurisdiction Acres: % **N/A** Amount Of Farmland As Defined In FPPA Acres: %

Name Of Land Evaluation System Used **N/A** Name Of Local Site Assessment System **N/A** Date Land Evaluation Returned By NRCS

**PART III (To be completed by Federal Agency)** Alternative Site Rating

	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	400.0			
B. Total Acres To Be Converted Indirectly	442.4			
C. Total Acres In Site	842.4	0.0	0.0	0.0

**PART IV (To be completed by NRCS) Land Evaluation Information**

A. Total Acres Prime And Unique Farmland	0			
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				

**PART V (To be completed by NRCS) Land Evaluation Criterion**  
Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)

Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))	Maximum Points	Points	Site B	Site C	Site D
1. Area In Nonurban Use	15	15			
2. Perimeter In Nonurban Use	10	10			
3. Percent Of Site Being Farmed	20	0			
4. Protection Provided By State And Local Government	20	0			
5. Distance From Urban Builtup Area	15	15			
6. Distance To Urban Support Services	15	10			
7. Size Of Present Farm Unit Compared To Average	10	10			
8. Creation Of Nonfarmable Farmland	10	0			
9. Availability Of Farm Support Services	5	5			
10. On-Farm Investments	20	0			
11. Effects Of Conversion On Farm Support Services	10	0			
12. Compatibility With Existing Agricultural Use	10	0			
<b>TOTAL SITE ASSESSMENT POINTS</b>	<b>160</b>	<b>65</b>	<b>0</b>	<b>0</b>	<b>0</b>

**PART VII (To be completed by Federal Agency)**

Relative Value Of Farmland (From Part V)	100	0	0	0	0
Total Site Assessment (From Part VI above or a local site assessment)	160	65	0	0	0
<b>TOTAL POINTS (Total of above 2 lines)</b>	<b>260</b>	<b>65</b>	<b>0</b>	<b>0</b>	<b>0</b>

Site Selected: Date Of Selection Was A Local Site Assessment Used? Yes  No

Reason For Selection:

*Contains no prime, unique, statewide or locally designated cropland. K. Schaffe 8/31/09 KENNETH F. SCHEFFE, STATE SOIL SCIENTIST*

## Part VI Site Assessment Criteria

1. **Area In Non-urban Use** – 100% of the land is in non-urban use within 1.0 mile from where the project is intended. The nearest urban center is 2 miles away. Maximum Total Points 15, Points earned 15.
2. **Perimeter In Non-urban Use** – 100% of the land perimeter borders non-urban use. The nearest urban center is 2 miles away. Maximum Total Points 10, Points earned 10.
3. **Percentage of Site Being Farmed** – 0% of the land is being farmed. The last time the land was farmed was 1978. Maximum Total Points 20, Points earned 0.
4. **Protection Provided By State And Local Governments** – 0% of the site is subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland. Maximum Total Points 20, Points earned 0.
5. **Distance to Urban Built-up Area** – The site is 2 miles or more from an urban built-up area. Maximum Total Points 15, Points earned 15.
6. **Distance to Urban Support Services** – Some services such as electricity, fire and police protection and schools are more than 1 mile but less than 3 miles from the site. Maximum Total Points 15, points earned 10.
7. **Size of Present Farm Unit Compared to Average** – The farm unit is as large as the average size farm unit in the area. Maximum Total Points 10, Points earned 10.
8. **Creation of Non-Farmable Farmland** – The land currently is not farmed but upon closure of the facility the land will be returned to its pre-development conditions. Maximum Total Points 10, Points earned 0.
9. **Availability of Farm Support Services** – The site will not have an adverse affect on the available farm support services. Currently those services are not being used because no farming has been done since 1978. Maximum Total Points 5, Points earned 5.
10. **On-Farm Investments** – There are no structures on the site or irrigation systems that are operational. Maximum Total Points 20, Points Earned 0.
11. **Effects Of Conversion On Farm Support Services** – The site would actually require many support services and possibly create demand some new services. Maximum Total Points 10, points Earned 0.
12. **Compatibility With Existing Agricultural Use** – The site is currently not being farmed. The site use would be compatible with the surrounding area and would not have any long-term environmental effect. Maximum Total Points 10, Points earned 0.

March 10, 2009

U.S. Fish & Wildlife Service  
Field Supervisor  
2105 Osuna Rd NE  
Albuquerque, New Mexico 87504

Dear Sir/Madam:

RE: Proposed Sapphire Energy Company Integrated Algal Biorefinery Project, Luna County,  
New Mexico

Sapphire Energy Company is in the process of making a request for financial assistance to USDA-Rural Development. It is necessary that Rural Development determine compliance with the requirements of the environmental assessment process on any project financed by the agency.

Attached is a location map and a description of the proposed project for which financial assistance has been requested. We would appreciate your advice as to whether the project would affect any regulations under your jurisdiction as well as provide us other information concerning the project site that you may have available. We would like this information back as soon as possible and no later than April 10, 2009.

Thank you for your attention to this matter.

Sincerely,

Brian Goodall, Ph.D.  
Vice President of Downstream Technology

Attachments



3115 Merryfield Row, Lab 130  
San Diego, California 92121  
858-530-3656 ph | 888.501.8353 fax

RECEIVED

MAR 16 2009

USFWS-NMESFO

March 10, 2009

U.S. Fish & Wildlife Service  
Field Supervisor  
2105 Osuna Rd NE  
Albuquerque, New Mexico 87504

Dear Sir/Madam:

RE: Proposed Sapphire Energy Company Integrated Algal Biorefinery Project, Luna County,  
New Mexico

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Thank you for your attention to this matter.

Sincerely,

Brian Goodall, Ph.D.  
Vice President of Downstream Technology

Attachments:  
IABR\_Site.pdf  
Generalized Project Description 09March09.pdf

## Conversation Record

Project name: Sapphire Bio-Algal Fuel Farm  
Date: May 5, 2009  
Contact: Eric Hine, USFWS, Consultation/Federal Nexus Specialist  
Phone: 505-761-4735  
By: Shelly Adams, AMEC Earth & Environmental, Inc.  
Subject: Federal Nexus and USFWS Process

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Eric Hine concurred that the northern aplomado falcon (NAP) was a non-essential experimental in the project area. NAPs have been sighted in the project vicinity, are historically known to occur in the area, and have a nest between Deming and the project area. USFWS consults regularly with the U.S. Border Patrol regarding NAPs. USFWS is actively reintroducing populations of NAP. Experimental non-essential means that a federal agency cannot jeopardize the continued existence of NAPs. He recommended talking to Pat Zenone, the lead for the NAP.

It is up to the federal lead agency to decide whether to prepare a Biological Assessment (BA), or whether to prepare a hybrid NEPA Environmental Assessment (EA)/BA, in which the determination of effects would be included within. You can embed the Section 7 consultation in the Environmental Assessment.

The species list Sapphire Energy received (directing to the USFWS website list) is adequate and we do not need request another unless a lot of time goes by before the BA is prepared.

*Pendiomelum pentaphyllum* is hard to assess habitat, difficult to survey, and emerges Aprilish or after monsoons in August. It probably didn't flower this year, not enough snow melt, no window this year. There is currently a petition to list (October 2008) and the 90 day finding is under review. They will probably perform a status review next year. Should survey for this species in case it gets listed.

Regarding the Migratory Bird Treaty Act (MBTA), in SE New Mexico, birds are known to get encrusted from groundwater pumping to surface because the water is salty. He recommended performing surveys outside of breeding season in addition to breeding season surveys (April through August). He encouraged us to clear prior to the breeding season to discourage nesting. He also recommended having a biomonitor on site during bulldozing and clearing activities to ensure birds were not nesting or being harmed. He said that as far as surveys go, he was concerned with presence rather than density.

## Conversation Record

Project name: Sapphire Bio-Algal Fuel Farm  
Date: May 6, 2009  
Contact: Patricia Zenone, USFWS, Northern Aplomado Falcon Lead  
Phone: 505-761-4718  
By: Shelly Adams, AMEC Earth & Environmental, Inc.  
Subject: Northern Aplomado Falcons in project area

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Patricia Zenone discussed habitat for the northern aplomado falcon (NAP), which includes yuccas and trees over 6 feet tall with big abandoned raptor or corvid nests. NAPs don't build their own nest. She said even if we don't have habitat in the project footprint, we'll need to identify the action area (area outside the project boundaries exposed to noise and other disturbances), determine if there is suitable habitat in the action area, and perform surveys within suitable habitat to determine if NAPs occur in the action area. She recommended avoiding removal of any large yuccas or mesquites.

There is a survey protocol, and the surveyor must be certified. She said that I would probably be qualified and to go ahead and submit my application to Albuquerque USFWS for approval. She said she would email me the survey protocol.

Mitigation measures that she recommended include ensuring the facility lighting is faced downward, reducing human disturbance, and building wildlife ramps so the birds don't drown, since the NAP could be attracted to the constructed ponds. The ponds could have a negative effect on NAPs depending on the size of the pond and depth, and the water quality.

She said that she would be happy to work with us further and recommended sending photos or making a field visit with her. I told her that I was concerned about discussing the project in too much detail before we had identified the lead federal agency, since it would be the lead federal agency initiating Section 7 Consultation. I told her that I would likely wait to discuss the project further with her until after the lead federal agency was identified. She agreed.

**Leferink, Richard**

---

**From:** Patricia\_Zenone@fws.gov  
**Sent:** Thursday, May 07, 2009 6:01 PM  
**To:** Adams, Shelly  
**Subject:** 2003 "Interim Survey Methodology for the Northern Aplomado Falcon (*Falco femoralis septentrionalis*) in Desert Grasslands"  
**Attachments:** aplomado falcon interim survey protocol 2003.pdf

Hi Shelly,

As we discussed, attached is a copy of the 2003 "Interim Survey Methodology for the Northern Aplomado Falcon (*Falco femoralis septentrionalis*) in Desert Grasslands." This document is also sent to biologists when they receive a Scientific and Recovery Endangered Species Permit from the U.S. Fish and Wildlife Service to survey for aplomado falcons in New Mexico, Texas, or Arizona. Such a permit is required to survey for aplomado falcons in these States. If you are interested in applying for one, please contact Vanessa Martinez at (505) 248-6665 for more information and review our permits website at <http://www.fws.gov/endangered/permits/index.html>.

My co-worker wasn't in the office today for me to ask about the other aplomado falcon document we discussed, but I expect to see her tomorrow. Please let me know if you have any questions about the attached survey protocol or this message. Regards, Patricia (505-761-4718).

7/24/2009



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

New Mexico Ecological Services Field Office  
2105 Osuna NE  
Albuquerque, New Mexico 87113  
Phone: (505) 346-2525 Fax: (505) 346-2542

APR - 1 2009

Thank you for your recent request for information on threatened or endangered species or important wildlife habitats that may occur in your project area. The New Mexico Ecological Services Field Office has posted lists of the endangered, threatened, proposed, candidate and species of concern occurring in all New Mexico Counties on the Internet. Please refer to the following web page for species information in the county where your project occurs: [http://www.fws.gov/southwest/es/NewMexico/SBC\\_intro.cfm](http://www.fws.gov/southwest/es/NewMexico/SBC_intro.cfm). If you do not have access to the Internet or have difficulty obtaining a list, please contact our office and we will mail or fax you a list as soon as possible.

After opening the web page, find New Mexico Listed and Sensitive Species Lists on the main page and click on the county of interest. Your project area may not necessarily include all or any of these species. This information should assist you in determining which species may or may not occur within your project area.

Under the Endangered Species Act of 1973, as amended (Act), it is the responsibility of the Federal action agency or its designated representative to determine if a proposed action "may affect" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with us further. Similarly, it is their responsibility to determine if a proposed action has no effect to endangered, threatened, or proposed species, or designated critical habitat. On December 16, 2008, we published a final rule concerning clarifications to section 7 consultations under the Act (73 FR 76272). One of the clarifications is that section 7 consultation is not required in those instances when the direct and indirect effects of an action pose no effect to listed species or critical habitat. As a result, we do not provide concurrence with project proponent's "no effect" determinations.

If your action area has suitable habitat for any of these species, we recommend that species-specific surveys be conducted during the flowering season for plants and at the appropriate time for wildlife to evaluate any possible project-related impacts. Please keep in mind that the scope of federally listed species compliance also includes any interrelated or interdependent project activities (e.g., equipment staging areas, offsite borrow material areas, or utility relocations) and any indirect or cumulative effects.

Candidates and species of concern have no legal protection under the Act and are included on the web site for planning purposes only. We monitor the status of these species. If significant declines are detected, these species could potentially be listed as endangered or threatened. Therefore, actions that may contribute to their decline should be avoided. We recommend that candidates and species of concern be included in your surveys.

Also on the web site, we have included additional wildlife-related information that should be considered if your project is a specific type. These include communication towers, power line safety for raptors, road and highway improvements and/or construction, spring developments and livestock watering facilities, wastewater facilities, and trenching operations.

Under Executive Orders 11988 and 11990, Federal agencies are required to minimize the destruction, loss, or degradation of wetlands and floodplains, and preserve and enhance their natural and beneficial values. We recommend you contact the U.S. Army Corps of Engineers for permitting requirements under section 404 of the Clean Water Act if your proposed action could impact floodplains or wetlands. These habitats should be conserved through avoidance, or mitigated to ensure no net loss of wetlands function and value.

The Migratory Bird Treaty Act (MBTA) prohibits the taking of migratory birds, nests, and eggs, except as permitted by the U.S. Fish and Wildlife Service. To minimize the likelihood of adverse impacts to all birds protected under the MBTA, we recommend construction activities occur outside the general migratory bird nesting season of March through August, or that areas proposed for construction during the nesting season be surveyed, and when occupied, avoided until nesting is complete.

We suggest you contact the New Mexico Department of Game and Fish, and the New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division for information regarding fish, wildlife, and plants of State concern.

Thank you for your concern for endangered and threatened species and New Mexico's wildlife habitats. We appreciate your efforts to identify and avoid impacts to listed and sensitive species in your project area.

Sincerely,



Wally Murphy  
Field Supervisor



United States Department of Agriculture  
Rural Development  
State of New Mexico

August 17, 2009

SUBJECT: Proposed Sapphire Bio-Algal Fuel Farm  
Determination of No Effect

TO: Susan MacMullin, Field Supervisor  
U.S. Department of Interior - Fish and Wildlife Service  
New Mexico Ecological Services Field Office  
2105 Osuna, NE  
Albuquerque, NM 87113-1001

Dear Ms. MacMullen:

Rural Development (RD) is proposing to provide Federal Financial Assistance to Sapphire Energy for the construction of an integrated algal biorefinery in Luna County, NM. Please find enclosed a draft Biological Field Survey Report prepared by Amec Geomatrix, Inc. for the project area.

After review of the report, RD has made a determination that the proposed undertaking will not adversely affect wildlife resources for the area. The report does recommend action items concerning wildlife resources for Sapphire Energy's consideration.

Should we not receive a response from your office within 30 days from the date of receipt of this letter, we will assume that this project will not have an adverse effect on any wildlife resources and will proceed.

If you have any questions on the above proposal, please feel free to contact me at (505) 471-4960.

George Scott, P.E.  
Rural Development Engineer

cc: Lisa Kirkpatrick, Chief  
New Mexico Department of Game and Fish  
Conservation Services Division  
P.O. Box 25112  
Santa Fe, NM 87504

enclosures

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RON CURRY  
Secretary  
Jon Goldstein  
Deputy Secretary

September 11, 2009

Anthony Ashby  
Loan Specialist USDA  
Rural Development  
1400 Independence Ave, SW  
Room 6858-S Mail STOP 3225  
Washington, DC 20250

**RE: Letter from USDA Rural Development Regarding Sapphire Energy Integrated Algal Biorefinery (IABR), Luna County (NMED File No. 3037ER)**

Dear Mr. Ashby:

Your letter regarding the above named project was received in the New Mexico Environment Department (NMED) and was sent to various Bureaus for review and comment. Comments were provided by the Surface Water Quality Bureau, Ground Water Quality Bureau and are as follows.

**Ground Water Quality Bureau**

GWQB staff reviewed the above-referenced document as requested, focusing specifically on the potential effect to ground water quality in the area of the proposed project.

The letter notes that Sapphire Energy is considering the construction of an integrated algal biorefinery in Luna County that would involve the construction and use of shallow, lined impoundments. The discharge of water into these ponds containing constituents at concentrations exceeding Water Quality Control Commission ground water standards will require a ground water Discharge Permit. Ground water Discharge Permits are issued by the NMED Ground Water Quality Bureau pursuant to the Water Quality Control Commission Regulations, 20.6.2 NMAC. Sapphire Energy is encouraged to continue communication with the Ground Water Quality Bureau regarding permitting requirements for the proposed project.

Further, construction of the integrated algal biorefinery will likely involve the use of heavy equipment, thereby leading to the possibility of contaminant releases (e.g., fuel, hydraulic fluid, etc.) associated with equipment malfunctions. The GWQB advises all parties involved in the project to be aware of discharge notification requirements contained in 20.6.2.1203 NMAC.

Compliance with the notification and response requirements will ensure the protection of ground water quality in the vicinity of the project.

### **Surface Water Quality Bureau**

The U.S. Environmental Protection Agency (USEPA) requires National Pollutant Discharge Elimination System (NPDES) permit coverage for storm water discharges from construction projects (common plans of development) that will result in the disturbance (or re-disturbance) of one or more acres (as of June 30, 2008), including expansions, of total land area. If this project exceeds one acre, it requires appropriate NPDES permit coverage prior to beginning construction.

Among other things, this permit requires that a Storm Water Pollution Prevention Plan (SWPPP) be prepared for the site and that appropriate Best Management Practices (BMPs) be installed and maintained both during and after construction to prevent, to the extent practicable, pollutants (primarily sediment, oil & grease and construction materials from construction sites) in storm water runoff from entering waters of the U.S. This permit also requires that permanent stabilization measures (revegetation, paving, etc.), and permanent storm water management measures (storm water detention/retention structures, velocity dissipation devices, etc.) be implemented post construction to minimize, in the long term, pollutants in storm water runoff from entering these waters.

You should also be aware that EPA requires that all "operators" (see **Federal Register/Vol. 63, No. 128/Monday, July 6, 1998** pg 36509) obtain NPDES permit coverage for construction projects. Generally, this means that at least two parties will require permit coverage. The owner/developer of this construction project who has operational control over project specifications (probably the Sapphire Energy, Inc. in this case), the general contractor who has day-to-day operational control of those activities at the site, which are necessary to ensure compliance with the storm water pollution plan and other permit conditions, and possibly other "operators" will require appropriate NPDES permit coverage for this project.

I apologize for the delay in responding to you and hope this information is helpful.

Sincerely,



Julie Roybal For:  
Georgia Cleverley  
NMED File #3037



# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
New Mexico Ecological Services Field Office  
2105 Osuna NE  
Albuquerque, New Mexico 87113  
Phone: (505) 346-2525 Fax: (505) 346-2542

*Rec'd  
9/28/09*

September 24, 2009

Cons. #22420-2009-FA-0151

Mr. George Scott, P.E.  
Rural Development Engineer  
6200 Jefferson NE, Suite 255  
Albuquerque, New Mexico 87109

Dear Mr. Scott:

Thank you for the opportunity to comment on the proposed Sapphire Energy project. The USDA Rural Development is proposing to provide Federal Financial Assistance to Sapphire Energy for the construction of an integrated algal bio-refinery in Luna County. The U.S. Fish and Wildlife Service (Service) has viewed the draft Biological Field Survey Report prepared by Amec Geomatrix, Inc. The Service found the referenced report very informative in its analysis. If implemented, the recommendations described in the report for each of the wildlife and vegetative surveys would minimize the impacts from the proposed project. The Service recommends that the biological report recommendations be implemented for the proposed project.

Your cover letter indicated that if there was no response from us within 30 days, you would assume that the referenced project would not have an adverse effect on any wildlife resources and would proceed. We cannot make the impact determination for you; however, we do have the following comments that will help you determine the effects of the proposed project. There are two Federal laws that may affect your determination of potential impacts as a result of the proposed project. These laws are the Endangered Species Act (Act), as amended, and the National Environmental Policy Act (NEPA), they are often times confused because they have similar language and terms. Both laws require the action proponent to make the determination on the affects of their proposed actions.

Under the Act, as amended, it is the responsibility of the Federal action agency or its designated representative to determine if a proposed action "may affect" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with the Service further. The action agency documents the "no effect" determinations as part of normal environmental review procedures. No consultation is necessary for determinations of "no effect" under the Act, as amended. Similarly, it is the responsibility of the action agency or project proponent, not the Service, to make "no effect" determinations.

The Biological Field Report indicated that the northern aplomado falcon (falcon) (*Falco femoralis septentrionalis*) habitat may be present on the periphery of and/or immediately adjacent to the property of the action area. We recommend that USDA Rural Development consult with the Service through section 7 of the Act for the falcon. If you have any questions about the falcon please contact Dr. Patricia Zenone at (505)-761-4718 or <patricia\_zenone@fws.gov>.

The NEPA requires Federal agencies to integrate environmental values into their decision making processes by considering the environmental impacts (positive and negative) of their major proposed actions and reasonable alternatives to those actions.

Under NEPA, an Environmental Assessment (EA) provides evidence/analysis for determining whether the action will cause significant impacts (*i.e.*, if yes, an Environmental Impact Statement is required). When it is determined that there will be no significant impacts as a result of the proposed action, an EA fulfills the agency's compliance with NEPA. If it is determined that there will be significant (positive and/or negative) impacts, an EA facilitates preparation of an Environmental Impact Statement. Environmental Assessments do not need to be circulated for public review.

A Finding of No Significant Impact (FONSI) is a decision document supporting a determination that an action will not result in significant impacts. A FONSI is prepared after the EA is completed and a determination of no significant impacts has been made. A FONSI must be either circulated to the affected public, or made available for review for 30 days prior to making a decision when the action usually requires an Environmental Impact Statement or is without precedent. The FONSI is often included in the EA, but may be a separate document that includes a summary of the EA.

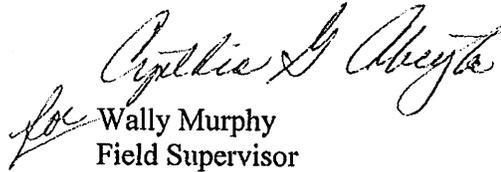
The Biological Field Report indicated that burrowing owls (*Athene cunicularia*) have been observed on the proposed action property. The Migratory Bird Treaty Act (MBTA) prohibits the taking of migratory birds, nests, and eggs, except as permitted. To minimize the likelihood of adverse impacts to all birds protected under the MBTA, we recommend construction activities occur outside the general migratory bird nesting season of March through August, or that areas proposed for construction during the nesting season be surveyed, and if necessary, avoided until nesting is complete. To minimize adverse impacts to birds protected under the Migratory Bird Treaty Act, tree stands or other adequately vegetated areas should be surveyed for the presence of nesting birds during the general migratory bird nesting season of April through August. Disturbance to nesting areas should be avoided until nesting is completed.

Mr. George Scott, P.E.

3

Thank you for your concern for endangered species and New Mexico's wildlife habitats. In future communications regarding this project please refer to 22420-2009-FA-0151. If you have any questions, please contact Santiago Gonzales of my staff at the letterhead address or at (505) 761-4720 or 4708.

Sincerely,

  
Wally Murphy  
Field Supervisor

cc:

Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico  
Director, New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division,  
Santa Fe, New Mexico

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TO THE COMMISSION  
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Hobbs, NM

September 21st, 2009

George Scott, P.E.  
Rural Development Engineer  
United States Department of Agriculture  
6200 Jefferson NE, Suite 255  
Albuquerque, NM 87109

*Rec'd  
9/29/09*

Re: Proposed Sapphire Bio-Algal Fuel Farm; NMGF No. 12962

Dear Mr. Scott,

In response to your letter dated August 17th, regarding the above referenced project, the Department of Game and Fish (Department) does not anticipate significant impacts to wildlife or sensitive habitats. For your information, we have enclosed a list of sensitive, threatened and endangered species that occur in Luna County.

For more information on listed and other species of concern, contact the following sources:

1. BISON-M Species Accounts, Searches, and County lists: <http://www.bison-m.org>
2. Habitat Handbook Project Guidelines:  
[http://wildlife.state.nm.us/conservation/habitat\\_handbook/index.htm](http://wildlife.state.nm.us/conservation/habitat_handbook/index.htm)
3. For custom, site-specific database searches on plants and wildlife, go to <http://nhnm.unm.edu>, then go to Data, then to Free On-Line Data, and follow the directions
4. New Mexico State Forestry Division (505-476-3334) or <http://nmrareplants.unm.edu/index.html> for state-listed plants
5. For the most current listing of federally listed species always check the U.S. Fish and Wildlife Service at (505-346-2525) or <http://www.fws.gov/southwest/es/NewMexico/SBC.cfm>.

Thank you for the opportunity to review and comment on your project. If you have any questions, please contact  
Patrick Mathis, Southwest Area Habitat Specialist at (575) 532-2108 or [patrick.mathis@state.nm.us](mailto:patrick.mathis@state.nm.us).

Sincerely,

Terra Manasco  
Assistant Chief, Conservation Services Division  
*Technical Guidance Section*

TLM/pm

xc: Wally Murphy, Ecological Services Field Supervisor, USFWS  
Luis Rios, SW Area Operations Chief, NMDGF

## NEW MEXICO WILDLIFE OF CONCERN COUNTY LUNA

For complete up-dated information on federal-listed species, including plants, see the US Fish & Wildlife Service NM Ecological Services Field Office website at <http://www.fws.gov/lfw2es/NewMexico/SBC.cfm>. For information on state-listed plants, contact

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGF</u>	<u>US FWS</u>	<u>critical habitat</u>
Great Plains Narrowmouth Toad	<i>Gastrophryne olivacea</i>	E		
Chiricahua Leopard Frog	<i>Rana chiricahuensis</i>	s	T	
Reticulate Gila Monster	<i>Heloderma suspectum suspectum</i>	E		
Brown Pelican	<i>Pelecanus occidentalis</i>	E		
Neotropic Cormorant	<i>Phalacrocorax brasilianus</i>	T		
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T	T	
Common Black-Hawk	<i>Buteogallus anthracinus</i>	T	SOC	
Apomado Falcon	<i>Falco femoralis</i>	E	Exp	
Peregrine Falcon	<i>Falco peregrinus</i>	T	SOC	
Mountain Plover	<i>Charadrius montanus</i>	s	SOC	
Common Ground-Dove	<i>Columbina passerina</i>	E		
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	s	C	
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	s	T	Y
Burrowing Owl	<i>Athene cunicularia</i>		SOC	
Violet-crowned Hummingbird	<i>Amazilia violiceps</i>	T		
Lucifer Hummingbird	<i>Calothorax lucifer</i>	T		
Southwestern Willow Flycatcher	<i>Empidonax traillii extimus</i>	E	E	Y
Loggerhead Shrike	<i>Lanius ludovicianus</i>	s		
Bell's Vireo	<i>Vireo bellii</i>	T	SOC	
Gray Vireo	<i>Vireo vicinior</i>	T		
Botteri's Sparrow	<i>Aimophila botterii</i>	s		
Baird's Sparrow	<i>Ammodramus bairdii</i>	T	SOC	
Varied Bunting	<i>Passerina versicolor</i>	T		
Long-legged Myotis Bat	<i>Myotis volans interior</i>	s		
Fringed Myotis Bat	<i>Myotis thysanodes thysanodes</i>	s		
Western Red Bat	<i>Lasiurus blossevillei</i>	s	SOC	
Pale Townsend's Big-eared Bat	<i>Corynorhinus townsendii pallescens</i>	s	SOC	
Desert Pocket Gopher	<i>Geomys arenarius</i>	s	SOC	
Ringtail	<i>Bassariscus astutus</i>	s		
Western Spotted Skunk	<i>Spilogale gracilis</i>	s		
Hooded Skunk	<i>Mephitis macroura milleri</i>	s		
Cook's Peak Woodlandsnail	<i>Ashmunella macromphala</i>	T	SOC	
Fairy Shrimp	<i>Streptocephalus moorei</i>	s		



OCT 05 2009

United States Department of Agriculture  
Rural Development

U.S. Fish and Wildlife Service  
New Mexico Ecological Services Field Office  
2105 Osuna NE  
Albuquerque, New Mexico 87113

Attention: Wally Murphy

Re: Cons. #22420-2009-FA-0151  
Sapphire Energy Project, Luna County, NM  
Northern Aplomado Falcon Habitat –  
“may effect/not likely to effect” Letter of Concurrence Request

Dear Mr. Murphy,

The U.S. Department of Agriculture Rural Development (USDA-RD) requests a letter of concurrence from the USFWS with respect to our determination of “may effect/not likely to effect” for the northern aplomado falcon (*Falco femoralis septentrionalis*) (falcon) for the Sapphire Energy Project in Luna County, NM. This request is in response to USFWS’s letter dated September 24, 2009, which recommended that USDA-RD consult with the Service through Section 7 of the ESA for the falcon. This request is also in response to personal communication with Santiago Gonzales of USFWS in which he recommended USDA-RD make a “may effect/not likely to effect” letter of concurrence request to USFWS for the falcon, based on a review of the project.

### Project Description

The project proposes to construct and operate an Integrated Algal Bio-Refinery Facility (IABR) to produce oil from algae, for ultimate refinery to transportation fuel, southwest of Columbus, New Mexico. The IABR facility proposes to construct ponds and process equipment on approximately 400 acres of land. Ponds will be constructed on about 300 acres to grow algae and another 100 acres will be used to house the process equipment required to dry algae and purify algal oil and an evaporation pond. Process equipment will be installed at the IABR facility, including an anaerobic digester, membrane filter system, disc centrifuge, boiler, hexane distiller, several process and holding tanks and other related equipment. The project proposes the conversion of approximately 400 acres of degraded upland habitat to ponds and support facilities for the IABR facility. Construction may be scheduled to begin as early as the Fall of 2009, with operations commencing as early as Spring 2010, and will run for approximately 3 years. The proposed site is privately owned land consisting of disturbed land from farming activities. Adjacent state and federally managed public land supports native plant communities and wildlife habitats typical of the Chihuahuan Desert.

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## **NEPA Process**

USDA-RD prepared an Environmental Assessment (EA) on the project which included analysis of impacts to bird and wildlife on the site and affected area. A Finding of No Significant Impact (FONSI), including a Section 7 Endangered Species Act determination, was signed on September 21, 2009 (Attachment 1). Public notice of the FONSI was published on September 24, 25 and 28, 2009.

## **Survey Results**

As part of the EA process, a Biological and Wetland Field Survey Report for the proposed IABR Project site dated August, 2009, reported no falcons but the presence of potential suitable nests for the falcon identified on the property (but outside of the construction envelope) and on the periphery of the project site, based on surveys completed in June, 2009 (Attachment 2). USDA-RD made a finding of no adverse effect to wildlife resources for the project and surrounding area based on this August 2009 report and sent a letter to USFWS dated August 17, 2009, which summarized our finding of no effect. USFWS's September 24, 2009 letter requesting informal Section 7 consultation was received by USDA-RD on October 1, 2009. A second Biological and Wetland Field Survey Report was completed on the proposed IABR Project site in September 2009, which included results of a second falcon survey completed in September, 2009 (Attachment 3). This survey reported identical results for the falcon (no presence of falcons but the presence of potential suitable nests).

As outlined in the biological reports, three suitable Aplomado falcon nests (raptor and/or corvid nests) (two are located on one yucca) occur immediately north of the highway in the northwestern-most portion of the Property between the old railroad grade and Highway 9 (Attachments 2 and 3, Figure 1). The other nest is located in the northeastern-most portion of the east half of the Cooper Property/project area, adjacent to the eastern property fence line. Removal of yuccas and associated nests (potentially suitable falcon nests) will be avoided due to their location on the periphery of the property, outside of the construction envelope. Although there would be no direct disturbance to these habitats from the proposed project, indirect effects from nearby human activities (noise and visual disturbance) could displace species sensitive to human presence and project activities. Additional potentially suitable nesting habitat on adjacent public land could be indirectly affected by increased levels of human activity in the project area.

As indicated above, two of the nests are located immediately adjacent to the highway where substantial vehicular activity associated with Border Patrol movements and other human activity occurs. The amount of noise and vibration associated with current activity reduces the potential for falcons to use these nest sites.

## Mitigation Measures

Mitigative measures applicable to the falcon as listed in the FONSI (Attachment 1) which will be employed for this project include the following: The USFWS recommends that in order to minimize the likelihood of adverse impacts to all birds protected under the Migratory Bird Treaty Act (MBTA), construction activities should occur outside the general migratory bird nesting season of March through August, or that areas proposed for construction during nesting season be surveyed, and when occupied, avoided until nesting is completed.

In addition to the mitigation measures as stated in the FONSI, there are several mitigative measures which are proposed to be employed at the project site during construction, which are geared toward ensuring minimal impact to wildlife species. Noise-related impacts will be controlled by limiting equipment delivery trips and management of work hours to reduce impacts on neighbors. The use of "jake brakes" by trucks will be prohibited to lower noise levels. In addition, noise reduction mufflers for trucks hauling equipment to the site could be employed, if necessary.

Based on the survey results and proposed mitigation measures, USDA-RD concludes there is minimal habitat for the falcon on the project site and periphery, and the project is not likely to affect the falcon. For these reasons, we request concurrence from USFWS on this determination. All action on this proposal will be stopped until USDA-RD receives a letter of concurrence on this determination from USFWS.

Please feel free to contact me directly if I can provide further information on this request for letter of concurrence at [juliet.bochicchio@wdc.usda.gov](mailto:juliet.bochicchio@wdc.usda.gov) or at (202) 205-8242.

Sincerely,



Juliet C. Bochicchio  
Environmental Protection Specialist

Attachments: 1- FONSI  
2- Biological and Wetland Field Survey Report dated August 2009  
3- Biological and Wetland Field Survey Report dated September 2009



DEPARTMENT OF THE ARMY  
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS  
El Paso Regulatory Office  
P.O. Box 6096  
Fort Bliss, Texas 79906-0236  
915-772-2784  
FAX 915-843-2106

October 7, 2009

REPLY TO  
ATTENTION OF:

Regulatory Division  
New Mexico/Texas Branch

SUBJECT: Action Number SPA-2009-00257-ELP, Sapphire Energy Company,  
Integrated Algal Biorefinery Project, Luna County, New Mexico

Jaime Moreno, P. E.  
Vice President  
Sapphire Energy, Inc.  
27101 Puerta Real  
Ste 280  
Mission Viejo, CA 92691

Dear Mr. Moreno:

The U.S. Army Corps of Engineers (Corps) is in receipt of your letter dated October 7, 2009 concerning a proposal by Sapphire Energy Inc. to construct and operate an Integrated Algal Biorefinery (IABR) located southwest of Columbus, in Sections 8 and 9, Township 29 south, Range 8 and 9 west, in Luna county, New Mexico. The activity involves the construction of a number of shallow ponds with liners, to be used to grow algae for refining to fuel. We have assigned Action No. SPA-2009-00257-ELP to this activity. To avoid delay, please include this number in all future correspondence concerning this project.

We have reviewed this project in accordance with Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act of 1899 (RHA). Under Section 404, the Corps regulates the discharge of dredged and fill material into waters of the United States, including wetlands. The Corps responsibility under Section 10 is to regulate any work in, or affecting, navigable waters of the United States. Based on your description of the proposed work, other information available to us, and current regulations and policy, we have determined that this project will not involve any of the

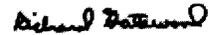
*This is only a preliminary JD, and is not sufficient.  
\* Please note, USDA determined that an "official jurisdictional determination letter" is required to ensure no waters of US impact.*

above activities, because the wetlands on site will be avoided by the project. Therefore, it will not require Department of the Army authorization under the above laws. However, it is incumbent upon you to remain informed of any changes in the Corps Regulatory Program regulations and policy as they relate to your project.

The Corps based this decision on a preliminary jurisdictional determination (JD) that there may be waters of the United States on the project site. Preliminary JDs are advisory in nature and may not be appealed. An approved JD is an official Corps determination that "waters of the U.S." and/or "navigable waters of the U.S." are either present or absent on a particular site. An approved JD precisely identifies the limits of those waters on the project site determined to be jurisdictional under the CWA or RHA. If you wish, you may request that the USACE reevaluate this case and issue an approved JD. If you request an approved JD, you may not begin work until the approved JD, which may require coordination with the Environmental Protection Agency, is completed. Please contact me if you wish to request an approved JD for this case.

If you have any questions concerning our regulatory program, please contact me at 915-772-2784 or by e-mail at [richard.h.gatewood@usace.army.mil](mailto:richard.h.gatewood@usace.army.mil). At your convenience, please complete a Customer Service Survey on-line available at <http://per2.nwp.usace.army.mil/survey.html>.

Sincerely,

  
Richard Gatewood  
Regulatory Manager

Copies furnished:

Terry Grotbo  
AMEC Geomatrix, Inc.  
1824 North Last Chance Gulch  
Helena, Montana 59601

New Mexico/Texas Branch



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

New Mexico Ecological Services Field Office

2105 Osuna NE

Albuquerque, New Mexico 87113

Phone: (505) 346-2525 Fax: (505) 346-2542

October 14, 2009

Cons. # 22420-2009-FA-0151

Mr. George Scott, P.E.  
Rural Development Engineer  
6200 Jefferson NE, Suite 255  
Albuquerque, New Mexico 87109

Dear Mr. Scott:

Thank you for your request for concurrence on the Sapphire Energy Project, Luna County. The USDA Rural Development is proposing to provide Federal Financial Assistance to Sapphire Energy for the construction of an integrated algal bio-refinery in Luna County, New Mexico. The U.S. Fish and Wildlife Service (Service) has reviewed the draft Biological Field Survey report, finding of no significant impact (FONSI), and other relevant document provided by USDA Rural Development. You have determined that the proposed project is not likely to affect the northern aplomado falcon (falcon) (*Falco femoralis septentrionalis*) because the proposed project area contains minimal falcon habitat.

The northern aplomado falcon was listed as an endangered species on February 25, 1986 (51 FR 6686). On July 26, 2006 (71 FR 42298), the reintroduced northern aplomado falcon population in New Mexico and Arizona was designated "nonessential experimental," a classification that reduces land management requirements for northern aplomado falcons in these two States. When nonessential experimental populations are located outside a National Wildlife Refuge or in a unit of the National Park System, the Service treats the population as proposed for listing and only two provisions of the ESA apply: section 7(a)1 and section 7(a)4. Section 7(a)1 requires Federal agencies to use their authorities to further the conservation of listed species. Section 7(a)4 requires Federal agencies to confer (rather than consult) with the Service on actions that are likely to jeopardize the continued existence of a proposed species. The results of a conference are advisory in nature and do not restrict agencies from carrying out, funding, or authorizing activities.

Because the falcon is designated as nonessential experimental population the determination is "not likely to jeopardize" the of the northern aplomado falcon (*Falco femoralis septentrionalis*). We are providing you with a conference report for this species in accordance with the Endangered Species Act.

**Conference Report:** Based on information provided by you and other information available to the Service, we believe that Sapphire Energy Project is “not likely to jeopardize” the nonessential experimental population of the falcon because: (1) minimal habitat is found within the proposed project area; (2) ) the project proponent has committed to conduct future surveys for falcons and their nesting habitat; (2) the project proponent would attempt to avoid potential falcon nest sites; and (3) the proposed project area contains minimal falcon habitat.

We appreciate your commitment to conduct surveys for this subspecies and its nesting habitat. As additional information, presence/absence surveys for falcons must be conducted by biologists permitted by the Service for this subspecies. If your surveys locate a falcon or nest, please contact us for further coordination so we may provide technical assistance on a protection or nest management plan. This concludes the conference report for the nonessential experimental population of the northern aplomado falcon. If you have any questions about the falcon or this conference report, please contact Santiago Gonzales at (505) 761-4720.

Thank you for the opportunity to comment. In future communication regarding this project, please refer to Consultation #22420-2009-FA-0151. If you have any questions, concerning this consultation please contact Santiago Gonzales of my staff at the letterhead address or at (505) 761-4720.

Sincerely,



Santiago Gonzales  
Acting Field Supervisor

cc:

Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico  
Director, New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division,  
Santa Fe, New Mexico  
Ms. Julie Boochicchio, USDA Rural Development, 1400 Independence Ave. S.W., Washington  
DC 20250-0700

**COPY FOR YOUR  
INFORMATION**

Notification of the Finding of No Significant Impact (FONSI)  
For Sapphire Energy, Inc.  
Integrated Algal Biorefinery (IABR) Facility  
In Columbus, New Mexico

The US Department of Agriculture, Rural Development, Rural Business and Cooperative Service received a request from Sapphire Energy, Inc. for a loan guarantee in the amount of \$60 Million under the USDA Rural Business and Cooperative Service Section 9003, Biorefinery Assistance Program. The Lender is Square 1 Bank. The proposed loan guarantee request is for construction of a 3-year pilot-scale integrated algal biorefinery (IABR) facility to be located on 400-acres southwest of Columbus, New Mexico. The facility would include the construction of a number of shallow engineered ponds and related infrastructure.

As required by the National Environmental Policy Act and agency regulations, the USDA Rural Development has assessed the potential environmental effects of the proposal. Upon consideration of the applicant's proposal, comments from federal and state environmental regulatory and natural resource agencies, the agency has determined that the proposal will not have a significant adverse effect on the quality of human environment. Therefore, Rural Development will not prepare an Environmental Impact Statement for this project.

For copies of the Environmental Assessment or for further information, please contact: Mr. Anthony Ashby, Loan Specialist, USDA, Rural Development, 1400 Independence Avenue SW, Room 6858-S, Washington DC, 20250 (202) 720-0661. Any person interested in commenting on the proposal should submit their comments to the Agency contact at the address identified above. Comments must be received by Rural Development within 15 days following the date of publication. Rural Development will make no further decisions regarding this proposed action during this fifteen-day period.

The project area is located in Sections 8 and 9, T29S, R8 and 9 West, approximately 7 miles west of Columbus, New Mexico, approximately one-half mile north of the US/Mexico border.



The National Park Service reviewed this project, and determined that no parks will be affected; therefore, we have no comments.

Signed: Julie Sharp Date: 10/13/09





DEPARTMENT OF THE ARMY  
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS

El Paso Regulatory Office  
P.O. Box 6096  
Fort Bliss, Texas 79906-0236  
915-772-2784  
FAX 915-843-2106

January 21, 2010

REPLY TO  
ATTENTION OF:

Regulatory Division  
New Mexico/Texas Branch

SUBJECT: Action No. SPA-2009-00257-ELP, Sapphire Energy Company, Integrated Algal Biorefinery Project, Luna County, New Mexico

Jaime Moreno P. E.  
Sapphire Energy, Inc.  
27101 Puerta Real  
Ste 280  
Mission Viejo, CA 92691

Dear Mr. Moreno:

The U.S. Army Corps of Engineers (Corps) is in receipt of your letter dated December 17, 2009 concerning a proposal by Sapphire Energy Inc. to construct and operate an Integrated Algal Biorefinery located southwest of Columbus, in Sections 8 and 9, Township 29 south, Range 8 and 9 west, in Luna county, New Mexico. The activity involves the construction of a number of shallow ponds with liners to be used to grow algae for refining to fuel. We have assigned Action No. SPA-2009-00257-ELP to this activity. To avoid delay, please include this number in all future correspondence concerning this project.

We have reviewed this project in accordance with Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act of 1899 (RHA). Under Section 404, the Corps regulates the discharge of dredged and fill material into waters of the United States, including wetlands. The Corps responsibility under Section 10 is to regulate any work in, or affecting, navigable waters of the United States. Based on your description of the proposed work, other information available to us, and current regulations and policy, we have determined that this project will not involve any of the above activities. Therefore, it will not require Department of the Army authorization

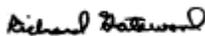
under the above laws. However, it is incumbent upon you to remain informed of any changes in the Corps Regulatory Program regulations and policy as they relate to your project.

The Corps based this decision on an approved jurisdictional determination (JD) that there are no waters of the United States on the project site. The basis for this approved JD is: that the project site contains intrastate waters with no nexus to interstate or foreign commerce. The JD form is available at [http://www.spa.usace.army.mil/reg/Jurisdictional\\_Determinations/jurisdictional\\_determinations.asp](http://www.spa.usace.army.mil/reg/Jurisdictional_Determinations/jurisdictional_determinations.asp). This approved JD is valid for a period of no more than five years from the date of this letter unless new information warrants revision of the delineation before the expiration date.

You may accept or appeal this approved JD or provide new information in accordance with the Notification of Administration Appeal Options and Process and Request For Appeal (NAAOP-RFA). This form is available at [http://www.spa.usace.army.mil/reg/Administrative%20Appeals/appeals\\_process.asp](http://www.spa.usace.army.mil/reg/Administrative%20Appeals/appeals_process.asp). If you elect to appeal this approved JD, you must complete Section II (Request For Appeal or Objections to an Initial Proffered Permit) of the form and return it to the Army Engineer Division, South Pacific, CESPDPDS-O, Attn: Tom Cavanaugh, Administrative Appeal Review Officer, 1455 Market Street, Room 1760, San Francisco, CA 94103-1399 within 60 days of the date of this notice. Failure to notify the Corps within 60 days of the date of this notice means that you accept the approved JD in its entirety and waive all rights to appeal the approved JD.

If you have any questions concerning our regulatory program, please contact me at 915-772-2784 or by e-mail at [richard.h.gatewood@usace.army.mil](mailto:richard.h.gatewood@usace.army.mil). At your convenience, please complete a Customer Service Survey on-line available at <http://per2.nwp.usace.army.mil/survey.html>.

Sincerely,

  
Richard Gatewood  
Regulatory Manager

Enclosure(s):

Copies furnished via electronic format:

Myles Grotbo  
AMEC Geomatrix, Inc.  
1824 North Last Chance Gulch  
Helena, Montana 59601

David Menzie: david.menzie@state.nm.us

New Mexico/Texas Branch

**APPROVED JURISDICTIONAL DETERMINATION FORM**  
**U.S. Army Corps of Engineers**

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

**SECTION I: BACKGROUND INFORMATION**

**A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): January 21, 2010**

**B. DISTRICT OFFICE, FILE NAME, AND NUMBER: CESPA-RD-ELP; SPA-2009-257-ELP; Sapphire Energy Integrated Algal Biorefinery**

**C. PROJECT LOCATION AND BACKGROUND INFORMATION:**

State: New Mexico County/parish/borough: Luna City:  
Center coordinates of site (lat/long in degree decimal format): Lat. 31.78823° **N**, Long. -107.71387° **W**.  
Universal Transverse Mercator:

Name of nearest waterbody: Rio Casas Grandes in Mexico

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: None; the nearest TNW is the Rio Grande, which is located in a separate watershed, approximately 80 miles from the project area.

Name of watershed or Hydrologic Unit Code (HUC): 13030201 Mimbres between Playas Lake and Mimbres sub units.

Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

**D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

Office (Desk) Determination. Date:

Field Determination. Date(s): September 15, 2009

**SECTION II: SUMMARY OF FINDINGS**

**A. RHA SECTION 10 DETERMINATION OF JURISDICTION.**

There **Are no** "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

Waters subject to the ebb and flow of the tide.

Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.  
Explain: .

**B. CWA SECTION 404 DETERMINATION OF JURISDICTION.**

There **Are no** "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

**1. Waters of the U.S.**

**a. Indicate presence of waters of U.S. in review area (check all that apply):<sup>1</sup>**

- TNWs, including territorial seas
- Wetlands adjacent to TNWs
- Relatively permanent waters<sup>2</sup> (RPWs) that flow directly or indirectly into TNWs
- Non-RPWs that flow directly or indirectly into TNWs
- Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
- Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
- Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
- Impoundments of jurisdictional waters
- Isolated (interstate or intrastate) waters, including isolated wetlands

**b. Identify (estimate) size of waters of the U.S. in the review area:**

Non-wetland waters: linear feet: width (ft) and/or acres.

Wetlands: acres.

**c. Limits (boundaries) of jurisdiction based on: Pick List**

Elevation of established OHWM (if known): .

**2. Non-regulated waters/wetlands (check if applicable):<sup>3</sup>**

<sup>1</sup> Boxes checked below shall be supported by completing the appropriate sections in Section III below.

<sup>2</sup> For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

<sup>3</sup> Supporting documentation is presented in Section III.F.

- Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: **Based on a review of the Wetland Determination Data Forms-Arid West Region (Appendix E of the attached delineation report, titled Jurisdictional Determination Application, Proposed Integrated Algal Biorefinery, dated December 2009) two wetlands were identified as vegetative swales within the review area which were characterized by wetland vegetation and seasonal inundation, but no hydric soil. Based on a USGS Orthophoto dated 2005 (Figure D-2 of delineation report), a topographic map dated 1999 (Figure D-3 of delineation report), a NRCS Soil Survey Map dated 2008 (Figure D-4 of delineation report), site photos dated 2009 (Appendix C of the delineation report, and the review of the information provided in the delineation report, there are no tributaries within the review area. Erosional features (ephemeral drainages) begin and end without connecting with other drainages or erosional features. The ephemeral drainages are not continuous with or confluent with other drainage features, wetlands, TNWs, or other waters of the US..**

**SECTION III: CWA ANALYSIS**

**A. TNWs AND WETLANDS ADJACENT TO TNWs**

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

**1. TNW**

Identify TNW: .

Summarize rationale supporting determination: .

**2. Wetland adjacent to TNW**

Summarize rationale supporting conclusion that wetland is “adjacent”:

**B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):**

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are “relatively permanent waters” (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. **Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.**

If the waterbody<sup>4</sup> is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

**1. Characteristics of non-TNWs that flow directly or indirectly into TNW**

**(i) General Area Conditions:**

Watershed size: **Pick List**

Drainage area: **Pick List**

Average annual rainfall: inches

Average annual snowfall: inches

**(ii) Physical Characteristics:**

**(a) Relationship with TNW:**

Tributary flows directly into TNW.

Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.

Project waters are **Pick List** river miles from RPW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Project waters are **Pick List** aerial (straight) miles from RPW.

Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW<sup>5</sup>: .

Tributary stream order, if known: .

<sup>4</sup> Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

<sup>5</sup> Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

**Tributary is:**  Natural  
 Artificial (man-made). Explain: .  
 Manipulated (man-altered). Explain: .

**Tributary properties with respect to top of bank (estimate):**

Average width: feet  
Average depth: feet  
Average side slopes: **Pick List**.

**Primary tributary substrate composition (check all that apply):**

Silts  Sands  Concrete  
 Cobbles  Gravel  Muck  
 Bedrock  Vegetation. Type/% cover:  
 Other. Explain: .

**Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:** .

**Presence of run/riffle/pool complexes. Explain:** .

**Tributary geometry: Pick List**

**Tributary gradient (approximate average slope):** %

(c) Flow:

**Tributary provides for: Pick List**

**Estimate average number of flow events in review area/year: Pick List**

Describe flow regime: .

**Other information on duration and volume:** .

**Surface flow is: Pick List. Characteristics:** .

**Subsurface flow: Pick List. Explain findings:** .

Dye (or other) test performed: .

**Tributary has (check all that apply):**

Bed and banks  
 OHWM<sup>6</sup> (check all indicators that apply):  
 clear, natural line impressed on the bank  the presence of litter and debris  
 changes in the character of soil  destruction of terrestrial vegetation  
 shelving  the presence of wrack line  
 vegetation matted down, bent, or absent  sediment sorting  
 leaf litter disturbed or washed away  scour  
 sediment deposition  multiple observed or predicted flow events  
 water staining  abrupt change in plant community  
 other (list):  
 Discontinuous OHWM.<sup>7</sup> Explain: .

**If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):**

High Tide Line indicated by:  Mean High Water Mark indicated by:  
 oil or scum line along shore objects  survey to available datum;  
 fine shell or debris deposits (foreshore)  physical markings;  
 physical markings/characteristics  vegetation lines/changes in vegetation types.  
 tidal gauges  
 other (list):

(iii) **Chemical Characteristics:**

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: .

Identify specific pollutants, if known: .

<sup>6</sup>A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

<sup>7</sup>Ibid.

(iv) **Biological Characteristics. Channel supports (check all that apply):**

- Riparian corridor. Characteristics (type, average width): .
- Wetland fringe. Characteristics: .
- Habitat for:
  - Federally Listed species. Explain findings: .
  - Fish/spawn areas. Explain findings: .
  - Other environmentally-sensitive species. Explain findings: .
  - Aquatic/wildlife diversity. Explain findings: .

2. **Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size:        acres

Wetland type. Explain: .

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain: .

Surface flow is: **Pick List**

Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .

- Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

Directly abutting

Not directly abutting

Discrete wetland hydrologic connection. Explain: .

Ecological connection. Explain: .

Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List**.

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

- Riparian buffer. Characteristics (type, average width): .
- Vegetation type/percent cover. Explain: .
- Habitat for:
  - Federally Listed species. Explain findings: .
  - Fish/spawn areas. Explain findings: .
  - Other environmentally-sensitive species. Explain findings: .
  - Aquatic/wildlife diversity. Explain findings: .

3. **Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately (        ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)      Size (in acres)      Directly abuts? (Y/N)      Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

### C. SIGNIFICANT NEXUS DETERMINATION

**A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.**

**Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:**

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

**Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:**

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .
3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

### D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:

- TNWs: linear feet width (ft), Or,      acres.
- Wetlands adjacent to TNWs:      acres.

2. **RPWs that flow directly or indirectly into TNWs.**

- Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
- Tributaries of TNW where tributaries have continuous flow “seasonally” (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet width (ft).  
 Other non-wetland waters: acres.  
Identify type(s) of waters: .

**3. Non-RPWs<sup>8</sup> that flow directly or indirectly into TNWs.**

- Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

- Tributary waters: linear feet width (ft).  
 Other non-wetland waters: acres.  
Identify type(s) of waters: .

**4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

- Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.  
 Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .  
 Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

**5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

- Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

**6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

- Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

**7. Impoundments of jurisdictional waters.<sup>9</sup>**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- Demonstrate that impoundment was created from "waters of the U.S.," or  
 Demonstrate that water meets the criteria for one of the categories presented above (1-6), or  
 Demonstrate that water is isolated with a nexus to commerce (see E below).

**E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):<sup>10</sup>**

- which are or could be used by interstate or foreign travelers for recreational or other purposes.  
 from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.  
 which are or could be used for industrial purposes by industries in interstate commerce.  
 Interstate isolated waters. Explain: .  
 Other factors. Explain: .

**Identify water body and summarize rationale supporting determination:** .

<sup>8</sup>See Footnote # 3.

<sup>9</sup>To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

<sup>10</sup>Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet width (ft).
- Other non-wetland waters: acres.  
Identify type(s) of waters: .
- Wetlands: acres.

**F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):**

- If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource: .
- Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource: .
- Wetlands: acres.

**SECTION IV: DATA SOURCES.**

**A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):**

- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: "Delineation of Waters of the US Report Loop 375 at I-10, El Paso County Texas", TXDOT project number, CSJs: 2121-04-065 and 2121-04-082 prepared for the TXDOT El Paso District, submission of September 2009, field date of August 12, 2009, report prepared by David Alexander and Dave Severison of Blanton Associates.
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - Office concurs with data sheets/delineation report.
  - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps: .
- Corps navigable waters' study: .
- U.S. Geological Survey Hydrologic Atlas: .
  - USGS NHD data.
  - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: 7.5 min topo 1:24,000 Luna County, NMX 1991 - 1999.
- USDA Natural Resources Conservation Service Soil Survey. Citation: Soil Survey of Luna Co USDA Dec 2008.
- National wetlands inventory map(s). Cite name: USFWS National Wetland Inventory, Luna County New Mexico.
- State/Local wetland inventory map(s): .
- FEMA/FIRM maps: FEMA map panel .
- 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- Photographs:  Aerial (Name & Date): 2005 Color IR, Luna County Quad, Orthophoto.  
or  Other (Name & Date): Eight photos taken along the drainage.
- Previous determination(s). File no. and date of response letter: .
- Applicable/supporting case law: .
- Applicable/supporting scientific literature: .
- Other information (please specify): .

**B. ADDITIONAL COMMENTS TO SUPPORT JD:** Results of the on-the-ground and remote surveys indicated that erosional drainage features and wetlands in the review area do not have a nexus with traditional navigable waters or interstate waters. They are seasonal drainage features that become indistinguishable as flows concentrated by the railroad embankment spread over the flat uplands on the nearly level topography of formerly irrigated crop land. Traditional navigable waters of the United States are not present in the watershed receiving drainage from the review area. None of the drainage features or wetlands in the review area connect to drainage features that flow into Mexico.