



Memorandum

TO: Dan Gish, BreitBurn Management Company, LLC,
Southern Division Exploitation Manager
Steve Boljen, BreitBurn Energy, Senior Geologist

FROM: Thomas A. Herbert, PhD, P.G.
Linda L. Lampl, PhD

DATE: 16 December 2013

RE: 3D Seismic Program
Big Cypress National Preserve

This memo addresses requests for information on who/what agencies were represented at Friday's (December 6, 2013) demonstration at Big Cypress National Preserve (BICY); a summary of discussions on site and at BICY offices, and regulatory considerations that include post-demonstration with Hopping Green & Sams, BreitBurn's attorneys in Florida. As discussed elsewhere, Lampl Herbert Consultants used the video clips provided by LA Seismic Summer 2013 to begin socialization of the onion skin/bladder technology with the staff at BICY and the Florida Department of Environmental Protection (FDEP) at Tallahassee. The Raccoon Point demonstration serves as the next step in the socialization process.

Witnessed Demonstrations

Ron Clark, Chief, Resource Management Division, BICY, (linkedin not available)
Pierre Bruno, P.G., Oil & Gas Permit Coordinator / Inspector, FDEP,
(<http://www.linkedin.com/in/pwbruno>)

Separate Face-to-Face Discussion

Don Hargrove, Regional Minerals Coordinator for National Park Service (NPS)
Nonfederal Oil & Gas Program / Oil & Gas Coordinator, BICY (linkedin not available)

Don Hargrove was not able to attend the demonstration at Raccoon Point; he was on vacation and, separately, had a family emergency. Hargrove was back in the office Monday, Dec 09.

Lampl and Herbert met with Hargrove Monday, December 9, regarding the demonstration. We used photos taken Friday and Saturday to illustrate and compare to the earlier video of the onion skin/bladder technology.

Clark/Bruno/Hargrove

- The method appears benign relative to other seismic technologies that use either vibroseis trucks and/or drills.
- Hargrove noted that the demo appeared to be consistent with what he expected; was interested that the ground hump caused by the “pops” was small and could be expected to resolve with rains.
- Clark and Bruno were both interested to know the size of the ground hump after the tanks were emptied and moved. We will use the photos for follow up conversations.
- Clark and Hargrove were receptive to BreitBurn’s intent to develop a seismic exploration program around Raccoon Point using the onion skin/bladder technology.

Seasonal Considerations

- Clark and Hargrove separately thought work in wet season could minimize logistics impacts since water may be pumped directly from and back to surrounding areas. As reported earlier, the original suggestion came from Ron Clark while on site.
- While the wet season technically begins in late May – early June in South Florida, the highest water levels are generally present in the late summer. The dry season technically begins around January. For discussion purposes, if BreitBurn went to work in August-September, the program conceivably could be finished before dry season begins.
- Will need to consider seasonal requirements/limitations related to wildlife/habitat issues.

Helicopter Support

- Clark encouraged consideration of helicopters to support ground work to minimize time in the field and clearing that would be needed to use ground equipment.
- Aviation fuel could be made available at Raccoon Point; however, will need to evaluate onsite storage methods in context of Collier County regulations regarding above ground storage tanks (ASTs) and number of trips that could be added to Eleven Mile Road by daily deliveries.
- See comments below regarding FAA issues.

Vegetation Trimming

- Discussed trimming vegetation to ground level at source points and side trimming along trails if created for foot access by surveyors and support teams.

- NPS/BICY is unpredictable on this point. LHC has seen BICY agree to side trimming from time-to-time and ban it the next time, even for safety considerations.

Ground Impacts – ground hump under onion skin/bladder technology

- From what Clark and Bruno saw in the field and Hargrove saw in photos, impact considered insignificant as could be raked out after removal; thought padding could help mitigate this minor impact.

Personnel Camp at Pad 1 or elsewhere at Raccoon Point

- Onsite location preferred to offsite personnel quarters as would reduce Eleven Mile Road traffic associated with seismic exploration program at Raccoon Point Field.

Regulatory Permissions/Approval for Work

BICY/NPS is required to conduct a National Environmental Policy Act (NEPA) review for projects proposed within preserve/park boundaries. The three types of review are: Categorical Exclusion (CE), which is what was granted for the recent demonstration; Environmental Assessment (EA), or Environmental Impact Statement (EIS).

Option 1: Categorical Exclusion (CE)

LHC, in consultation with Hopping Green & Sams, suggests development of an information packet to include:

- Briefing document that outlines the project; identifies potential impacts, and addresses how potential impacts can be avoided or minimized.
- Request for a Categorical Exclusion (CE) because this is a temporary, short-term use.
- Request for a temporary amendment to BreitBurn's existing Master Plan of Operations (MPO) to conduct the work.

This approach follows a suggestion from Hargrove for a briefing document with:

- A description of the project.
- A series of maps that includes the proposed project areas with approximate location of source points.
- Details of the field work/work flow.
- Methods/process to avoid impacts.

BICY/NPS will review the information packet and provide comments.

If BICY/NPS agrees to the Categorical Exclusion, we will need to conduct field work to clear / avoid seismic line areas in conjunction with hazard/land surveys. LHC uses a resource management/avoidance process accepted for work on federal lands. We will also need to obtain an Archaeological Resources Protection Act (ARPA) permit from NPS

Southeast Archaeological Center (SEAC), Tallahassee, prior to avoidance cultural resources field work.

BICY/NPS will be expected to advertise its intent to issue a Categorical Exclusion on the NPS Planning, Environment & Public Comment (PEPC) website. Interested parties may request public meetings to discussion the proposal.

Option 2: Environmental Assessment (EA)

If BICY/NPS believes the potential impacts exceed those permissible by a Categorical Exclusion, an Environmental Assessment will be required. In that case, the BreitBurn team already in place for the electrification project will develop EA on behalf of the BICY/NPS:

- The EA will include:
 - Alternatives and significant additional documentation that include quantification of impacts.
 - Advertisement on the PEPC website.
 - A series of public scoping meetings.

In addition, BreitBurn may need to amend the current Master Plan of Operations to include the 2014 Raccoon Point seismic program along with other proposed or envisioned changes such as the electrification project and additional wells.

- A draft of an amended MPO under review within BreitBurn since September 2013 includes electrification, additional wells (o&g, disposal, anode/cathodic protection), and 15 sq mile seismic program – [see separate file for copy of draft MPO](#).
- BICY/NPS would review proposed amendments to the existing MPO and would coordinate additional review by the NPS Denver Service Center and NPS Atlanta Regional office.

Federal Authorizations/Permits

- NPS Southeast Archaeological Center will require Archaeological Resources Protection Act (ARPA) permit.
- US Army Corps of Engineers consultation, would expect to obtain a letter of no permit required because *di minimus* impact.
- Federal commenting agencies will include US Fish & Wildlife Service review on panthers and other Endangered Species Act (ESA) species.
- FAA consultation regarding use of helicopter in air space for Miami-Dade Aviation Department's Training and Transition (TNT) Airport to the east of Raccoon Point.

State Permits

- FDEP Oil and Gas Program will require a seismic permit; however, FDEP will not require seismic observers for the onion skin/bladder technology; seismic

observers are required only for programs that use explosives as the energy source.

- FDEP Environmental Resource Permitting Program will may/may not require an ERP permit, depending on determination of level of impacts.
- Other state agencies review permits identified above, including:
 - Department of State, Division of Historical Resources (DHS) – cultural resources.
 - Florida Fish & Wildlife Conservation Commission (FWC) – endangered/threatened species.
 - South Florida Water Management District (SFWMD) – fresh water, aquifers.

Local Permits

- To be determined for Collier County and Miami-Dade County.

Timetable

Dependent on approved amendment to BreitBurn's existing Master Plan of Operations and subsequent NEPA and state regulatory processes specific to the proposed seismic exploration program.