VOLTA RIVER AUTHORITY

PROPOSED
330KV ABOADZE – VOLTA TRANSMISSION LINE PROJECT

ENVIRONMENTAL IMPACT STATEMENT
ADDENDUM

February 2005
1.0 INTRODUCTION
The Volta River Authority (VRA) proposes to construct a new power transmission line from Aboadze in the Western Region to Tema in the Greater Accra Region in Ghana. The project, which is known as the 330 KV Aboadze – Volta Transmission Line Project (AVTP), is required primarily to evacuate power from the Takoradi Thermal Plant to the Volta Switching station at Tema to be fed into the national grid.

The proposed line will be constructed to transmit power at 330 KV. The choice of transmitting at 330 KV instead of the usual 161 KV is the result of various studies carried out by VRA, the main advantages being the higher transfer capability and improvement in system reliability. The proposed project is to be part financed by the World Bank Group.

Under the provisions of the Ghana Environmental Assessment Regulations, 1999 (LI 1652), erection of power transmission lines falls under the category of Environmentally Critical Projects for which an Environmental Impact Assessment (EIA) is mandatory. In compliance with these provisions and in furtherance to its Corporate Policy on Environment, VRA prepared an Environmental Impact Statement (EIS) Report for the proposed project. Subsequently, an Environmental Certificate was issued in March 2004 for the project.

A copy of the Environmental Certificate is attached as Appendix 1.

The World Bank Group after a review of the EIS Report indicated per e-mail of January 14, 2005 that certain clarifications were required on two (2) issues before the World Bank could consider the document for disclosure. The World Bank recommended that the VRA prepare a short supplemental Environmental Assessment (EA) document, in the form of an Addendum, to clarify these issues.

Issues raised by the World Bank Group are attached as Appendix 2.

This Addendum provides the relevant clarifications on the issues raised by the World Bank Group following their review of the Environmental Impact Statement Report prepared for the Proposed 330 KV Aboadze – Volta Transmission Line Project.
2.0 CLARIFICATIONS OF ISSUES

2.1 First Issue

The first issue raised by World Bank Group outlined that:

"The consideration of alternatives (Section 6) is very weak, especially concerning route selection where, apparently, no alternatives were considered during the EA (the line was surveyed two years before the EA was prepared (p.78)). On linear projects like this, route selection offers the greatest opportunity for avoiding or minimizing adverse environmental and social impacts. The EA does recommend diversions to avoid environmentally and socially sensitive sites, but we don't know exactly where the diversions would run or if VRA is committed to implementing them. These sites include 11 sacred groves/shrines (p.30), delicate habitats that may harbour rare and endemic species (p.43), and community properties (p.87)".

The World Bank Group subsequently recommended that the Supplemental EA document "Maps the right-of-way (ROW) as surveyed and considered in the EA, and maps the diversions that will be undertaken to address the concerns summarized in #1 above"

2.1.1 Clarification of First Issue

The route for the new line is proposed to run mostly north and inland of the coastal area. Deviations were made to avoid major human settlements along the route. Due to the diversions from these settlements, eleven (11) community properties made up of sacred groves, shrines and cemeteries located just at the outskirts of some these settlements were identified to be within the project area and could be affected by the transmission project.

In a follow up field survey carried out in February 2003 on the issue to consider the option of diversion as a first line of action, it was noted that seven (7) out of the eleven (11) sites could be directly affected by the transmission project. Generally, it was noted that it would be difficult to avoid these 7 community properties since diversion would result in re-routing the line through the communities which would result in destruction of buildings with the resultant social implications as well as the high compensation to be paid for relocation.
The community properties to be affected are:

1. The Borborgyema Sacred Grove at Nyankrom
2. Hahmeed Islamic School at Mankessim
3. Public Cemetery at Ekotsi
5. Abeka Mpow at Edukrom
6. Nana Abeka Shrine at Nkotrodo
7. Guoko Shrine, near Pokuase

The Public cemetery at Ekotsi was identified to be currently already located within the RoW of the existing 161 KV. There is however no tower erected in the cemetery. It was noted that the new line is expected to run parallel to the existing line in this area and in line with the current design, the new towers for the 330 KV Line would be constructed parallel to the existing 161 KV towers, therefore no tower would be erected in the cemetery. Subsequently, the status quo would remain.

Figures 1 – 6 in Appendix 3 shows sketches of the Borborgyema Sacred Grove, Hahmeed Islamic School, Public Cemetery at Ekotsi, Nana Obokyam & Nana Obusiwa, Abeka Mpow and the Nana Abeka Shrine in relation with the proposed route and nearby settlements, respectively.

As diverting the line from the affected properties may result in re-routing through the communities, which would result in destruction of several buildings with the resultant social implications, VRA has held discussions on the necessary rituals or pacification rites to be performed for their relocation, either physically or spiritually. Details of the discussions and the required items are provided in the Resettlement Action Plan (RAP) report prepared for the project.

The above notwithstanding the VRA shall consider the option of deviating from the line to avoid these community properties, as well as any delicate habitats and other community properties that are identified during the actual physical construction.
From the same field survey, it was also noted that the following community properties would not be directly affected by the physical construction of the project for the following reasons:

1. **Public Cemetery at Kwasikwaa**
   
   The Public Cemetery at Kwasikwaa is located over 15 m outside the proposed Right of Way (RoW), and therefore there was no need for the line to be diverted from the cemetery.

2. **The Abeka Dumasi Shrine at Aboransa**
   
   The Abeka Dumasi Shrine at Aboransa is located close to the old existing 161 kV line and not near the proposed 330 kV line. The new line deviates from the old line at Aboransa to avoid human settlements.

3. **Nana Ebolise Shrine at Amosima**
   
   The Nana Ebolise Shrine is a sacred grove at Amosima. This grove fall about 20 m outside the right of way, and therefore there was no need for the line to be diverted from the shrine.

Another visit was undertaken in February 2005 to the 3 communities with properties that would not to be directly affected by the physical construction of the project. Basically, it was agreed upon that the three (3) community properties would not be affected by the project. Documentation of the meeting outlining issues agreed upon with the 3 communities during this visit is attached as Appendix 4.

2.2 **Second Issue**

The second issue raised by World Bank Group outlined that:

"The EA analyses social and socio-economic impacts due to acquisition of the ROW and consequent restrictions on future activities in the ROW (without specifying what they are). These issues are more properly addressed in the project Resettlement Action Plan (RAP), which we have received and are reviewing separately, and which may well be inconsistent with what is in the EA document."

The World Bank Group subsequently recommended that the Supplemental EA document;

"Acknowledges the preliminary nature of the analysis of social and socio-economic impacts outlined in #2 above, and refers readers to the RAP for the current information".
2.2.1 Clarification of Second Issue

The analysis of the social and socio-economic impacts contained in the Environmental Impact Statement Report was preliminary in nature. Following this, more detailed information on the social and socio-economic impacts of the project has been gathered. The detailed information on the social and socio-economic impacts has been provided in the Resettlement Action Plan (RAP) prepared for the Project.
APPENDIX


2. World Bank Group comments per e-mail of January 14, 2005.

3. Figures 1 – 6 showing sketches of six affected community properties in relation with the proposed route and nearby settlements

4. Notes of the meeting outlining issues agreed upon with the community during follow up visit in February 2005.
APPENDIX 1

Copy of Environmental Certificate for the proposed 330KV Aboadze – Volta Transmission Line Project
ENVIRONMENTAL PROTECTION AGENCY

ENVIRONMENTAL PERMIT
(ENVIRONMENTAL IMPACT ASSESSMENT)

This is to certify that

Authorisation has been given to VOLTA RIVER AUTHORITY

to commence and pursue operations as per attached schedule

Date Issued: FEBRUARY 27, 2004

........................................

J. A. ALLOTey
EXECUTIVE DIRECTOR

NB: This permit is only valid with Seal of the Environmental Protection Agency.
SCHEDULE TO THE ENVIRONMENTAL PERMIT

1. CONTACT : THE CHIEF EXECUTIVE

2. COMPANY : VOLTA RIVER AUTHORITY
   P.O. BOX M77, ACCRA

3. REGISTRATION NO. : CE 707/01/20

4. PERMIT NO. : CE 0707/0120

7. EIA OF PROPOSED 330KV ABOADZE-VOLTA TRANSMISSION LINE PROJECT

In pursuance of the Environmental Protection Agency Act 490 of 1994, (Sections 2(i) and 12(1)) and the Environmental Assessment Regulations, L1652 of 1999 and, on the basis of the published project Environmental Impact Statement (November 2003) an Environmental Permit is issued authorizing Volta River Authority to commence work on the proposed 330KV Aboadze-Volta Transmission Line project.

6.0 CONDITIONS OF PERMIT

6.1 Commitment to Project Specification
Comply with all project specifications, mitigation, monitoring and other environmental management provisions indicated in the project Environmental Impact Statement. The project involves:
- 215 km 330KV Power Transmission Line from Aboadze to Tema.
- Erection of 430 No. of towers of about 40 metres high.
- Installation of 2No. 450 MVA 330/161KV autotransformers at the line ends at Aboadze and Tema (Volta) switching stations.

6.2 Acquisition of Right of Way
- Buildings, lands, crops should be duly compensated in accordance with the provisions of the law at the appropriate values in line with VRA/Land Valuation Board procedures.
- Property Impact Report identifying all affected properties owners and estimated prevailing market values should be provided.

6.3 Compliance with Factories Offices and Shops Act/VRA Corporate Safety Rules, 1993
- Comply with the requirements of the Factories, Offices and Shops Act, 1970 (Act 328). Consult with the Factories Inspectorate Department in order to satisfy the requirements of the Department and the Act.
6.4 Occupational Health and Safety Management

- **Occupational health and safety measures should include among others:**
  - Environmental awareness training programmes to sensitise workers on the need to follow laid down procedures and the handling of equipments/machinery.
  - Provision of appropriate protective clothing/gear such as helmets, boots, climbing belts etc. to workers.
  - Cranes lifting gear, wires and other items should be tested and duly certified.
  - Due notification and appropriate warning signal should be given when stringing across public roads, powerlines to ensure public safety (of persons, vehicles etc).
  - Towers should be clearly marked with a “DANGER-330,000 Volts” signal in red on white background.

6.5 Traffic Management

- **Avoid routing of construction access roads through farmlands as much as possible.**
- **Heavy machinery trucks should display appropriate road safety signals (red flags & flashing amber lights).**
- **Delivery of materials should be made in day light hours and speed limited to prescribed safe levels (10-20 kph) especially within towns and settlements.**

6.6 Compliance with Forestry Services Guidelines

- **Comply with the Forestry Services Division’s Guidelines/Memorandum of Understanding with regard to the Yenku block B and Apa Hill Forest Reserves.**
- **Comply with the Wildlife Division of the Forestry Commission’s directive to consider nesting sites and perching platforms for birds in the tower designs (using aluminium covered steel shield wires with improved insulation materials).**

6.7 Solid/Liquid Waste Management

- **Solid waste from vegetation clearing and packaging materials should be collected in waste receptacles for disposal**
- **Liquid wastes (from concrete works, washing of equipment, fuel, oil and chemicals spills) should be directed into drains away from nearby water bodies.**

6.8 Religious/Cultural Resources

- **Avoid all cultural and religious properties (shrines, sacred groves and cemeteries) in selection of tower spots.**

6.9 Commencement and Completion Notice

- **Notify EPA on the commencement and completion of the project construction.**
6.10 Notification of Changes
- Notify EPA of any major changes in the planned development of the project contrary to what is provided in the EIS.

6.11 Annual Environmental Report
Submit Annual Environmental Report of the company’s operations in accordance with Regulation 25 of LI 1652.

6.12 Environmental Management Plan
Submit within eighteen (18) months on commencement of operations, an Environmental Management Plan on the project in accordance with Regulation 24 of LI 1652.

6.13 Other Permits
Notwithstanding this permit, the project is further subject to other relevant regulations and permits pertaining to the sector and must be observed.

6.14 Validity Period
- The permit shall be valid for a period of 18 months effective from the date of issue of this permit.
- Failure to commence operation within 18 months shall render the permit invalid after the period.

Failure to comply with or observe all the permit conditions above would render the Environmental Permit invalid.

EXECUTIVE DIRECTOR ..................................................  FEBRUARY 27, 2004
J. A. ADDOTey .............................................................. DATE

NOTIFICATION
The Hon. Minister, Ministry of Environment & Science
The Hon. Minister, Ministry of Energy, Accra
The Executive Secretary, Energy Commission, Accra
The Chief Inspector, Factories Inspectorate Dept., Accra
The Metropolitan Chief Executive, Shama-Anwunta East Metro Assembly, Sekondi
The Municipal Chief Executive, Tema Municipal Assembly, Tema
The Municipal Chief Executive, Cape-Coast Municipal Assembly, Cape-Coast
The District Chief Executive, Mfantseman District Assembly, Saltpond
The District Chief Executive, Komenda-Edina-Eguafo Abrem District Assembly, Elmina
The District Chief Executive, Gomoa District Assembly, Apam
The District Chief Executive, Atwima-Mponua District Assembly, Wamena
The District Chief Executive, Atwima-Mponua District Assembly, Kumasi
The District Chief Executive, Ashanti Regional Assembly, Kumasi
The Regional Officer, EPA Greater Accra Region, Accra
The Regional Officer, EPA Western Region, Sekondi
The Regional Officer, EPA Central Region, Cape-Coast

Refast/VRA/AVTP/EIS

February 2005
APPENDIX 2

World Bank Group comments per e-mail of January 14, 2005.
Forwarded Message

Subject: WAPP Market Development APL -- Review of Aboadze-Volta T/L EIS
To: depd@vra.com
    "Richmond Evans-Appiah" <revans_appiah@hotmail.com>, chiefx@vra.com, jsutherland@akosombo-vra.com, jsuth@yahoo.co.uk, "Mark A. Baah" <mabaah@akuse.vra.com>, jboyle@worldbank.org, daronson@worldbank.org, royeneyin@worldbank.org, royeneyin@worldbank.org
CC: vra.com, jwsuth@yahoo.co.uk, "Mark A. Baah" <mabaah@akuse.vra.com>, jboyle@worldbank.org, daronson@worldbank.org, royeneyin@worldbank.org, royeneyin@worldbank.org
From: aarmar@worldbank.org
Date: Fri, 14 Jan 2005 16:28:34 -0500

Dear Ricky:

Further to our wrap up discussions this morning, attached please find the detailed comments/suggestions of John Boyle on the EA submitted by VRA for the proposed 330 kV Aboadze-Volta Transmission Line project. I look forward to VRA’s response, as agreed by the end of January 2005, at the latest, so that we can expedite the disclosure process.

Regards
Kwei Armar

Amarquaye Armar
Lead Energy Specialist
Energy and Water Department, INF
The World Bank (F4K-228)
Tel: 202-473-0902; Fax: 202-522-3483;
E-mail:aarmar@worldbank.org

----- Forwarded by Amarquaye Armar/Person/World Bank on 01/14/2005 04:12 PM
John A. Boyle
To: Amarquaye Armar 01/14/2005 08:55 AM
cc: Dan R. Aronson,Fanny Missfeldt-Ringius, Thomas E. Walton, Kristine M. Ivarsdotter, Kristine Schwebach, Maria Mirs, Genet Telahun 35224 AFTS1
Subject: WAPP Market Development APL -- Review of Aboadze-Volta T/L EIS
(Document ink: Amarquaye Armar)

Dear Kwei,

I have reviewed this EA document, prepared for the Volta River Authority in early 2003 by Refast of Tema, Ghana. The Aboadze-Volta transmission Line will be located roughly parallel to, and inland of, the south coast of Ghana. The right-of-way (ROW) will be about 215 km in length and 40 m wide, and Cross lands where agriculture is the main livelihood activity.

This EA document has been reviewed by the Ghana EPA, and an environmental Permit issued on February 27, 2004. Nonetheless, the EA needs to be reviewed by the Bank to ensure it meets our standards for public disclosure. For the most part, the EA is of acceptable quality. Construction and Operation activities are well-described, impact predictions and associated Mitigation measures are well-documented and reasonable, and there is a well-articulated environmental monitoring and management plan. At the same time, two clarifications are required before the document can be considered for disclosure.
These are:

1. The consideration of alternatives (Section 6) is very weak, especially concerning route selection where, apparently, no alternatives were considered during the EA (the line was surveyed two years before the EA was prepared (p.78)). On linear projects like this, route selection offers the greatest opportunity for avoiding or minimizing adverse environmental and social impacts. The EA does recommend diversions to avoid environmentally and socially sensitive sites, but we don't know exactly where the diversions would run or if VRA is committed to implementing them. These sites include 11 sacred groves/shrines (p.30), delicate habitats that may harbour rare and endemic species (p.43), and community properties (p.87).

2. The EA analyses social and socio-economic impacts due to acquisition of the ROW and consequent restrictions on future activities in the ROW without specifying what they are. These issues are more properly addressed in the project resettlement Action Plan (RAP), which we have received and are reviewing separately, and which may well be inconsistent with what is in the EA document.

To expedite matters, I suggest that this document be left as it is and the VRA prepare a short supplemental EA document that: Maps the ROW as surveyed and considered in the EA, and maps the diversions that will be undertaken to address the concerns summarized in #1 above; Acknowledges the preliminary nature of the analysis of social and socio-economic impacts outlined in #2 above, and refers readers to the RAP for the current information. The RAP may or may not need amending to account for the above diversions; and Commits VRA to implementing the environmental monitoring and management activities described in the EA, and the diversions to be documented in the supplemental EA document.

Once we have reviewed and cleared the supplemental EA document for disclosure, the two documents can then be disclosed as a package. I will be away on mission from tomorrow through February 3 or 4. If the supplemental EA becomes available before then, please contact Tom Walton or Kristine Ivarsdotter to have someone else review it. I expect there is enough information above to expedite the review and clearance for disclosure. The original EA document is on my desk.

Regards,

John

John Boyle, Senior Environmental Specialist
World Bank, Africa Region
Tel: 202-473-5224, Fax: 202-473-8185, Em: JBoyle@worldbank.org

This message has been scanned by F-Secure Anti-Virus for Microsoft Exchange. For more information, connect to http://www.F-Secure.com/
APPENDIX 3

Figures 1 -6 showing sketches of six affected community properties in relation with the proposed route and nearby settlements
Figure 1: Sketch showing relation between the Borborygema Sacred Grove at Nyankrom with the proposed route and nearby settlements
Figure 2: Sketch showing relation between the Hahmeed Islamic School at Mankessim with the proposed route and nearby settlements
Figure 3: Sketch showing relation between the Public cemetery at Ekotsi with the proposed route and nearby settlements.
Figure 4: Sketch showing relation between the Nana Obokyam & Nana Obusiwa at Ekurabandze with the proposed route and nearby settlements
Figure 5: Sketch showing relation between the Abeka Mpow at Edukrom with the proposed route and nearby settlements
Figure 6: Sketch showing relation between the Nana Abeka Shrine at Nkotrodo with the proposed route and nearby settlements
APPENDIX 4

Notes of the meeting outlining issues agreed upon with the community during the follow up visit in February 2005
CONFIRMATION OF MITIGATIVE ACTIONS FOR AFFECTED CULTURAL PROPERTIES

DATE: 2/1/2005
TIME: 9:15 a.m.

COMMUNITY: Don't intrusive
AFFECTED CULTURAL PROPERTY: Public Cemetery

Notes on Issues Addressed:
1. Public cemetery not in the vicinity
   of the project.
2. VKA should conduct environmental impact
   studies.

REPRESENTATIVES

Name Signature / RTP
Saaddi Shebab
M. Ali
E. D. Abass

VRA
VRA
VRA

Quaikymase
Quaikymase
Quaikymase
Quaikymase

Musabura Isaac
Shebab Almass
Qadmus Aneesh
Abass Annal
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