
	Feasibility of Geothermal Energy Utilization for Electric Power Generation in Jamaica Technical Proposal	Proposal: 010-CCS-2011 Page: 12 of 21 Revision: 0 Date: May 11, 2011
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Annex I
CURRICULUM VITAE (CV) FOR PROPOSED PROFESSIONAL STAFF
1 of 5

1. Proposed Position:	Coordinator		
2. Name of Firm:	PROYNCA		
3. Name of Staff:	Gilberto Aldana		
4. Date of Birth:	1949	Nationality:	Venezuelan
5. Education:	Kansas University, Chemical Engineer, 1977 Catholic University, Graduate Courses in the School of Economics, 1985		
6. Membership of Professional Associations: Engineering College de Venezuela (CIV)			
7. Other Training: Project Management, Gas Business Management, Gas Processing, Improved Oil Recovery/Decision Risk Management, Natural Gas processing equipment operation, EOR by CO ₂ Injection, Analysis and Characterization of liquid and gaseous hydrocarbons. Process Simulation, H ₂ S handling in drilling operations.			
8. Countries of Work Experience: Venezuela, USA, Jamaica, Bolivia, Caribbean Region, Colombia, Nigeria			
9. Languages: Spanish and English			
10. Employment Record: <p>2003 – Present: Employer: PROYNCA Positions Held: Senior Process Engineer / Project Manager / Director</p> <p>2000-2003 Employer: PDVSA INTEVEP, Gas Exploitation Department, E & P Positions Held: Project Leader: Technical Assistance for Plataforma Deltana Offshore Gas Project (Upstream and Gas Processing Options) and Gas Recovery Opportunities in Venezuela Project</p> <p>1989-2000 Employer: PROCEGAS, C.A (Engineering Company): Positions Held: Senior Process Engineer / Project Manager / Director</p> <p>1978-1989 Employer: PDVSA INTEVEP Petroleum Engineering Department (later Reservoir Dpt.) / Gas Technology Section Group Positions Held: Research engineer, gas processing unit leader, project leader, gas section leader.</p> <p>1977-1978 Employer: Ministry of Energy: Hydrocarbons Direction-Gas Department Positions Held: Project Engineer Evaluation of gas utilization projects submitted for approval by oil & gas operating</p>			

	Feasibility of Geothermal Energy Utilization for Electric Power Generation in Jamaica Technical Proposal	Proposal: 010-CCS-2011 Page: 13 of 21 Revision: 0 Date: May 11, 2011
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companies in the Venezuelan oil & gas industry

11. Detailed Tasks Assigned: Coordination

12. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned:

Year: 2003- Present

Location: Venezuela, Jamaica, Bolivia, Caribbean Region, Colombia, USA

Projects:

- Pre-feasibility Study on an implementation of LPG as Vehicles fuel in Jamaica
- Pre-feasibility of a LNG Hub in Jamaica.
- Conceptual Study on the Natural , CNG and LNG supply to the Caribbean Region
- Visualization and Conceptual Engineering of the "Gran Gasoducto del Sur Project"
- Details Engineering of the Heavy Oil Treating Facilities Expansion Project- Hopkins Lease, California

Procuring Entity: PDVSA, REPSOL Bolivia, Petroleum Corporation of Jamaica, Pacific Rubiales, Alange Energy, Halliburton-Ecopetrol, Norwest Questa Engineering, USA, Nuevo Energy (California)

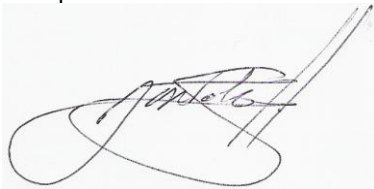
Main project features: The referred project might be a sample of multidisciplinary projects that included activities such as: gas treatment and processing technologies for onshore and offshore oil & gas surface facilities; Oil & gas surface facilities process design, front-end engineering and detail engineering; Strategies for development of oil & gas gas reservoirs and fields considering integration of sub-surface and surface related disciplines. Troubleshooting and technical audits of gas processing and transportation systems.

Positions Held: Senior Process Engineer / Project Manager

Activities performed: Evaluation of gas treatment and processing technologies for onshore and offshore oil & gas surface facilities. Oil & gas surface facilities process design, front-end engineering and detail engineering. Participation in gas reservoirs and oil and gas field development projects and integrated 2-S oil & gas reservoir development studies. Troubleshooting and technical audits of gas processing and transportation systems. Performing and coordination of basic engineering design packages and technical-economic feasibility studies for oil and gas production systems. Participation in several EOR projects and studies by gas injection (CO₂, N₂, Flue Gases), including reservoir aspects, sources of CO₂ and conceptual design of facilities.

13. Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.




[Signature of staff member or authorized representative of the staff]

Date: 11/05/2011


Day/Month/Year

Full name of authorized representative: José Soto Colménter

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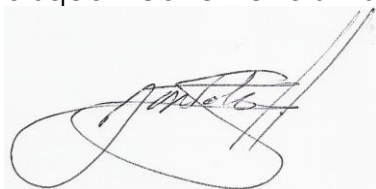
Annex I
CURRICULUM VITAE (CV) FOR PROPOSED PROFESSIONAL STAFF
2 of 5

1. Proposed Position:	Geologist		
2. Name of Firm:	PROYNCA		
3. Name of Staff:	Raimundo E. Ronny Franco		
4. Date of Birth:	1954	Nationality:	Venezuelan
5. Education:	Engineering Geologist - Geosciences		
6. Membership of Professional Associations:			
7. Other Training: Landmark Applications in Workstation. Map Plus, Seismic 2D/3D. Applications Schlumberger: Geo Frame, Strat log, CPS-3. Integrated Data Environment Microsoft Office: Word, Excel, Power Point, Outlooks Project for Windows.			
8. Countries of Work Experience: Venezuela, Mexico and Argentina			
9. Languages: Spanish and English			
10. Employment Record: 2009 –2011 - NCT Energy Mexico Independent Consultant and Professor of Production Geology Instructor May 2008 - April 2009 – NCT Energy Mexico Geosciences Geologist Integrator October 2007 - December 2007: (CANADIAN TRITON INTERNATIONAL LTD, México). Consultant Production and Engineering Geology Reservoir Jul 2006 - May 2007: (PETROZUATA, , Venezuela) Operations Geologist and Reservoir Development September 2005 - July 2006: (ORIFUEL SINOVEN S, Venezuela) Operations Geologist and Reservoir Development July 2004 – February 2005: (INVIOBRAS BOLÍVAR, Venezuela) Planning Management Advisory November 2003 – June 2004: (IUTA -, Venezuela) Professor of Geology Instructor Anzoátegui, Venezuela) January 1998 – January 2003: (PETROLEOS DE VENEZUELA - PDVSA Venezuela) Manager Integrated Reservoir Studies Mayo 1996 - Enero 1998: (PETROLEOS DEVENEZUELA / PDVSA Venezuela) Manager-Economic Geology, July 1978 - May 1996: (PETROLEOS DE VENEZUELA - PDVSA, Venezuela) Geological Operations Unit Supervisor			
11. Detailed Tasks Assigned: Review of Information - Regional Geology, Maps, Prospective Regions, similarities in the Caribbean Region, etc . Participation in Road Map development of Geothermal Resources			
12. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned: Year: 2003- Present Location: Venezuela, Mexico, Argentina Project Production and Infrastructure Optimization, Generating Potential and Reserves Well as plans for drilling and industrial safety in populated areas of operation. Selection and Analysis Geological Reservoir Integrated Reservoir Study and the incorporation of prospective areas- Static Model			

	<p>Feasibility of Geothermal Energy Utilization for Electric Power Generation in Jamaica</p> <p>Technical Proposal</p>	<p>Proposal: 010-CCS-2011 Page: 15 of 21 Revision: 0 Date: May 11, 2011</p>
<p>Procuring Entity: PDVSA, UDSS INC. - HALLIBURTON, YPFREPSOL, Comodoro Rivadavia, Argentina, CANADIAN TRITON INTERNATIONAL LTD, Instituto Mexicano del Petróleo (IMP), México</p>		
<p>Main project features:</p> <ul style="list-style-type: none"> - Integrated Reservoir Management - Integrative Geosciences - Static and Dynamic Models - interpretation of geological, seismic - Reservoir Characterization - Stratigraphic Modeling 		
<p>Positions Held: Integrated Reservoir Engineering Manager, Geologist Geosciences Integrator, Planning Management Advisory,</p>		
<p>Activities performed: Geological Engineering, Geosciences Consultant Integrator by applying the fundamentals of the methodology FEL (Front End Loading), Advisor Technology Application Projects and Best Practices, Development and Recruitment, Monitoring and Control of Geological Drilling Vertical, horizontal and multilateral, as well as workover, Integrated Reservoir Studies and Management of Integrated Data Base. Deep knowledge acquired during fifteen (15) years of experience as Head of the Business Plan Development, Production, Data Capture Software and Investment Budgets and Expenditure.</p>		


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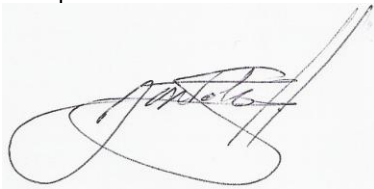
Annex I
CURRICULUM VITAE (CV) FOR PROPOSED PROFESSIONAL STAFF
3 of 5

1. Proposed Position:	Project Engineer		
2. Name of Firm:	PROYNCA		
3. Name of Staff:	Benigno Sánchez		
4. Date of Birth:	1965	Nationality:	Venezuelan
5. Education:	Petroleum Engineer		
6. Membership of Professional Associations: Engineering College de Venezuela (CIV)			
7. Other Training: He has received more than 3,000 man-hours of specialized training in HSE, as well as in Personal Development, Supervisory and Managerial Skills, in Venezuela and in the USA. This included four levels of spoken and written English in an accredited Venezuelan English institution as well as a Solid knowledge handling Microsoft Windows Packages: Microsoft Word, Microsoft Power Point, Microsoft Excel and the INTERNET			
8. Countries of Work Experience: Venezuela, Mexico			
9. Languages: Spanish and English			
10. Employment Record: 2003 – Present - PROYNCA Leader of team work Unit Prevention and Control of Spills of Hydrocarbons and National Plan of Contingencies Coordinator, Health, Safety and Environment Management, Responsibility Principals: 1. - Planning and Programming to recover of spill oil strategic. 2. - Control and Design Risk Analysis System. 3. - Oil recovers pre plan operations coordination. 4. - Final waste disposition chooses areas. 5. - Operation and Maintenance of special skip to recover oil spills. JANUARY 1998 / December 2002: PDVSA WESTERN PRODUCTION DIVISION Responsible for all the planning and programming of oil spill recovery on the Maracaibo Lake and adjoining rivers. Responsible for the HSE technical support, in the activities of exploration, drilling and well services. This position included risk analysis, HSE training, accident investigation, emergency response, handling of relationships with government entities (Environment Ministry, Public Health, etc.) and the field evaluation and supervision of contractors' HSE programs. JULY 1997 / DECEMBER 1998. PDVSA WESTERN PRODUCTION DIVISION. Responsible for coordinating the training programs for company employees and the community, as to what to do in case the 34-Km long 8-m high earth dike broke. This included the coordination and implementation of massive population evacuation practices, and the control and maintenance of the population awareness alarms system located in the different towns along the dike. JANUARY 1993 / JULY 1997: PDVSA WESTERN PRODUCTION, DIVISION. Responsible for coordinating the HSE programs for the activities of drilling and oil production. This included risk analysis, HSE training, accident investigation, evaluation of the permits to work system, and the evaluation and supervision of contractors HSE programs JANUARY 1991 / DECEMBER 1992: PDVSA WESTERN PRODUCTION DIVISION. Responsible for coordinating the HSE programs for the Maintenance and Services Department. This included work procedures analysis, risk analysis, HSE training, accident investigation, evaluation of the permits to work system, and the evaluation and supervision of contractors HSE programs. MARCH 1987/ JANUARY 1991: PDVSA REFINING DEPARTMENT. Responsible for the HSE field activities in the refinery, with special attention to contractor safety. This included field safety evaluations and inspections, risk analysis, HSE training, accident investigation, work procedures analysis and evaluation of the permits to work system.			

	<p>Feasibility of Geothermal Energy Utilization for Electric Power Generation in Jamaica Technical Proposal</p>	<p>Proposal: 010-CCS-2011 Page: 17 of 21 Revision: 0 Date: May 11, 2011</p>
<p>11. Detailed Tasks Assigned: Review of Information - Previous Studies, Existing and Conceptual Technologies, Electricity and non-electricity applications, among others). Road Map development of Geothermal Resources Geothermal Resources Assessment, Development Scheme, Environmental Impact Mitigation, etc. Assessment of Required Geothermal Fluids Handling and Power Generation Facilities</p>		
<p>12. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned: Year: 2003- Present Location: Venezuela, Mexico Project: Project Definition Rating Index – PDRI. Preliminary Hazard Analysis (PHA) for Ternium Sidor’s . Maintenance services of the gas plants. Production systems, Separation and Transport of Petroleum and Gas, Platforms of Flow, Plants Water Injection and Polymers for Crude Secondary Recovery, and others</p>		
<p>Procuring Entity: PDVSA, Ternium, SIDOR</p>		
<p>Main project features: Planning and Programming to recover of spill oil strategic. Control and Design Risk Analysis System. Oil recovers pre plan operations coordination. Final waste disposition chooses areas. Operation and Maintenance of special skip to recover oil spills</p>		
<p>Positions Held: Leader HSE</p>		
<p>Activities performed: More than twenty two (22) years working in the areas of Health, Safety and Environment. Extensive experience in Risks Control Engineering, Emergency Response, Design of Safety and International Maritime Standards, System of Command of Accidents in Scenes, Operations with Dangerous Materials, Waste Disposal, Oil Spills Prevention and Control, Selection of Personal Protection Equipment, LGN Safety Technology, Safety in Industrial Diving and Production.</p>		


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	Feasibility of Geothermal Energy Utilization for Electric Power Generation in Jamaica Technical Proposal	Proposal: 010-CCS-2011 Page: 18 of 21 Revision: 0 Date: May 11, 2011
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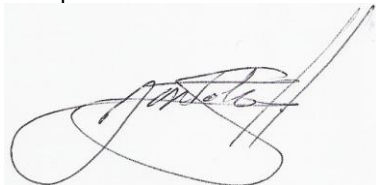
Annex I
CURRICULUM VITAE (CV) FOR PROPOSED PROFESSIONAL STAFF
4 of 5

1. Proposed Position:	Project Engineer		
2. Name of Firm:	PROYNCA		
3. Name of Staff:	Myrna Azancot de Cressa		
4. Date of Birth:	1954	Nationality:	Venezuelan
5. Education:	Petroleum Engineer		
6. Membership of Professional Associations: Engineering College de Venezuela (CIV), Venezuelan Society of Petroleum Engineers (SVIP)			
7. Other Training: She has received more than 3,000 man-hours of specialized training in Economic Evaluation. Risk Analysis. Prospective Technology. Strategy Planning. Budgeting. Simulation and Integrated Reservoir Engineering. Financing. Balanced Scorecard and Supply Chain			
8. Countries of Work Experience: Venezuela, Jamaica, Bolivia, Caribbean Region			
9. Languages: Spanish and English			
10. Employment Record: 2006 - Present PROYNCA Leader Cost and Planning 2003-2006 Engineering – Central University of Venezuela (UCV) – Identification and measuring of the Technical Competitions. Research Projects for the Universidad Central de Venezuela, UCV, in the Sector Oil and Gas. 1979 - 2002 PDVSA – Leader Strategic Planning – Leader Oil and gas fields development			
11. Detailed Tasks Assigned: Review of Information (Previous Studies, Existing and Jamaica Energy Demand, Pricing Structure, Existing Legislation and Regulatory Frameworks, among others) Preliminary Assessment of the Geothermal Resources in Jamaica Prospective Regions, similarities in the Caribbean Region, etc.) Road Map development of Geothermal Resources Cost Estimation, etc. Assessment of Required Geothermal Fluids Handling and Power Generation Facilities Progress, Final Report And Results Presentation			
12. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned: Year: 2003- Present Location: Venezuela, Jamaica, Bolivia, Caribbean Region Project <ul style="list-style-type: none"> • Pre-feasibility Study LPG for Vehicle and Hub GNC • Visualization and Conceptualization studies related to natural gas exports as CNG, LNG, GTL and long pipelines • Visualization Study on the Natural Gas and Condensate Production and Treating Facilities 			
Procuring Entity: PDVSA, REPSOL Bolivia, Petroleum Corporation of Jamaica			
Main project features: <ul style="list-style-type: none"> – Studies of Simulation for Locations, Secondary Recovery, and Production Geology – Conformation of the cases for business projects – Analysis of costs for the Areas and unit of exploitation and field 			

	<p>Feasibility of Geothermal Energy Utilization for Electric Power Generation in Jamaica</p> <p>Technical Proposal</p>	<p>Proposal: 010-CCS-2011 Page: 19 of 21 Revision: 0 Date: May 11, 2011</p>
<ul style="list-style-type: none"> – Economic Appraisal of Oil & Gas Projects – Develop Models of Competitions – Definition of the Balanced Scorecard, BSC of the Production Business – Strategic Planning, Business Plans, Budgeting 		
<p>Positions Held:</p> <ul style="list-style-type: none"> – Leader Cost Estimation – Leader Planning and Development Field 		
<p>Activities performed:</p> <ul style="list-style-type: none"> – Integrated Reservoir Studies – Engineering Project Management – Process Engineering – Evaluation of Supply Chains – Cost Estimation /Project Economic Evaluation – Prospective Technology – Strategy Planning 		


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	Feasibility of Geothermal Energy Utilization for Electric Power Generation in Jamaica Technical Proposal	Proposal: 010-CCS-2011 Page: 20 of 21 Revision: 0 Date: May 11, 2011
--	---	---

Annex I
CURRICULUM VITAE (CV) FOR PROPOSED PROFESSIONAL STAFF
5 of 5

1. Proposed Position:	Project Engineer		
2. Name of Firm:	PROYNCA		
3. Name of Staff:	Larry Marquina		
4. Date of Birth:	1952	Nationality:	Venezuelan
5. Education:	Electrical Engineer / Specialist in Integrated Management of Oil Reservoirs		
6. Membership of Professional Associations: Engineering College de Venezuela			
<ul style="list-style-type: none"> 7. Other Training: He has received more than 3,500 man-hours of specialized training in Cryogenic Gas Plants, Hanover, Field Handling of Natural Gas, Rike Service, Oil Production Surface, Rike Service, Behavior, Completion, and Stimulation Reservoirs and Horizontal Wells, Basics of Reservoir Engineering, Mechanical Pumping, Nodal Analysis, Artificial Rising by Gas, Completion and Reconditioning of Reservoirs, Geology, Analysis & Decision Making under Risk and Uncertainty, ISO-14000, ISO-9000 			
8. Countries of Work Experience: Venezuela, Nigeria			
9. Languages: Spanish and English			
10. Employment Record: AUG 2006 – present: Procesos y Negocios Integrales, C.A. (PROYNCA) Assignment in GLOBAL GAS & REFINING LTD. – NIGERIA - PROJECT MANAGER – PORT HARCOURT APR 2005 – SEPT 2006: REXIM DE VENEZUELA, C.A. – VENEZUELA REGIONAL MANAGER VALENCIA BRANCH 2003 – 2005: INDEPENDENT CONSULTANT – VENEZUELA 2001 – 2003: PDVSA E&P – EASTERN DIVISION – VENEZUELA SUPERINTENDENT OF WATER OPERATIONS – FURRIAL PLANT 2000 – 2001: PDVSA E&P – EASTERN DIVISION – VENEZUELA MAINTENANCE SUPERVISOR COJ - PLANTS 1999 – 2000: CORPOVEN E&P – EASTERN DIVISION – VENEZUELA PRODUCTION OPERATION ENGINEER – LIGHT-MEDIUM U.E. 1995 – 1999: CORPOVEN E&P – EASTERN DIVISION – VENEZUELA PRODUCTION TECHNICAL SUPPORT ENGINEER – LIGHT-MEDIUM U.E. 1992 – 1995: CORPOVEN E&P – EASTERN DIVISION – VENEZUELA DRILLING SUPPORT & LOGISTIC ENGINEER – DRILLING 1991 – 1992: ASEA BROWN BOVERY, ABB – VENEZUELA TECHNICAL SUPPORT TRAINEE 1990 -1991: INELECTRA – VENEZUELA THESIS: Develop a computerized program to graphic and coordinate protections for the industrial electric systems of low and medium tension. 1989 – 1989: C. V. G. SIDOR – VENEZUELA INTERNSHIP: Develop standards and guidelines of maintenance for the steel lamination			

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11. Detailed Tasks Assigned:

Review of Information - Previous Studies, Existing and Conceptual Technologies, Electricity and non-electricity applications, among others). Road Map development of Geothermal Resources Geothermal Resources Assessment, Development Scheme, Environmental Impact Mitigation, etc. Assessment of Required Geothermal Fluids Handling and Power Generation Facilities Final Report And Results Presentation

12. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned:

Year: 2003- Present **Location:** Nigeria

Project

PROJECT MANAGER – PORT HARCOURT

The Cawthorne Channel Project Manager is responsible for the profitability and safe operations of the Cawthorne Channel processing plant. Implements operating and maintenance policies and engineering best practices. The platform is located in Port Harcourt – Off Shore - Niger Delta, process capacity 100 MMSCFD and daily production 7000 BPD of C3+.

Procuring Entity: PDVSA - Venezuela, GLOBAL GAS & REFINING LTD. – NIGERIA

Main project features: Electrical Engineer with 15 years of professional experience, 11 in oil & gas Venezuelan production industry, focusing on production eng., projects execution, operation and maintenance of natural gas handling and compression systems, operation and maintenance flow stations, production facilities & equipment. Project execution, commissioning and start up of Gas Compression/Processing, water-flood plants, LNG and oil Facilities. Supervision of Engineering Teams of Surface crude oil Production Facilities and Gas Processing. Strong technical knowledge in oil reservoirs. Strong technical and management skills in production facilities planning and reliability based maintenance. Production Engineer.

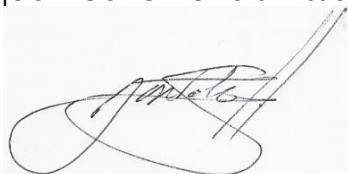
Positions Held: Project Engineer

Activities performed:

- Integrated Reservoir Studies
- Engineering Project Management
- Process Engineering
- Operation and maintenance of natural gas handling and compression systems
- Technical and management skills in production facilities planning Reservoir

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