LTR-1000-206558

2018/08/19

Yes

Bushehr Nuclear Power Plant Company

To: Mr.A.V.Vostrikov

Deputy General Director of Rusatom Service JSC for Operation Support – ATEX JSC Managing Director

Sub: Technical Support to TAVANA Co

Dear Sir,

Pursuant to the letter No. 340-01.20/1063 dated 02.08.2018 regarding RRC K1 Technical Support to TAVANA Co. in «Fuel analysis for availability operation (Fuel integrity)» and «Neutron physics analysis» areas, please find the attached file of Application Form for sending specialists to Tehran including detailed of requested services during a 2 weeks period of time.

Sincerely yours

H.Ghaffari

Bushehr NPP Manager and Managing Director

Add: Bushehr, P.O.BOX: 75181/111 , Tel:(+98)-77-31119393 , Fax: :(+98)-77-31112710

Email: sec.bnpp@nppd.co.ir

-APPENDIX 2 - Application Form for sending specialists to Tehran (TAV ANA Company)

To: Authorized Representative of the Contractor:

Please, be notified that the following specialists are required to be dispatched for performing Services on Technical and Engineering Support under the Contract No. CNT-ETS/4100-1 date 25.02.2015, at Tehran (TAVANA Company) as per the following table. You are kindly requested to issue due instruction as to assign qualified specialists and take necessary implementation according to the Appendix 4, item 4.1.1 of the Contract.

No.	Duties	Company, position	Grade	Man-months	Date
	Analysis of Fuel Integrity **Technical assistance' consultation for (detailed):**				
1.	**No.** **Topic**				
	1 **An introduction to:** • Online and offline fuel integrity monitoring systems • Liquid and gas sampling method from primary circuit and other places and systems with type and frequency detail • Liquid and gas sampling analyzing method • Instrumentations. equipment and computer codes and their applications, capabilities and accuracy in fuel integrity monitoring systems				
	2 **An introduction to:** • Type of radionuclides and their release type that are important to fuel integrity monitoring and analyzing • Acceptance criteria for fuel integrity • Making decision about defected fuel by means of using again or storing in spent fuel pool • Type of defects and their root cause and preventive actions • Recent experiences in fuel integrity monitoring and defected fuel	TRINITEKurchatov	6B	2 weeks	To be determined after receiving of CV
	3 Introduction to RELWWER computer code				
	4 Introduction to RTOP computer code				
	5 Using РД ЭО 1.1.2.10.0521 for estimation of failed fuels				
	6 Diagnostics of leaking FA parameters (FFD) during reactor operation(number of leaking FE and their burn-up. penetration defects dimensions) analyzing method				

Duties			Company, position	Grade	Man-months	Date
Continue...						
No.		**Topic**				
	7	Detection of leaking FA (FFD) on a shut-down VVER reactor analyzing method by operational data				
	8	Diagnostics of leaking FA parameters (FFD) during reactor operation(number of leaking FE and their burn-up, penetration defects dimensions) analyzing by operational data -an example with BNPP1 data for cycle 4				
	9	Detection of leaking FA (FFD) on a shut-down VVER reactor analyzing by operational data -an example with BNPP1 data for cycle 4				
	10	Diagnostics of leaking FA parameters (FFD) during reactor operation(number of leaking FE and their burn-up. penetration defects dimensions) analyzing by RTOP -an example with BNPP1 data for cycle 4				
	11	Detection of leaking FA (FFD) on a shut-down VVER reactor analyzing by RTOP -an example with BNPP1 data for cycle 4				
2	**Neutron Physics Analysis** Technical assistance." consultation for (detailed):		Kurchatov Inst.	6B	2 weeks	to be determined . after receiving of CV
	No.	**Topic**				
	1	.An introduction to structure of Bippar, Permpar, Teplopar, Proropar and Chud files.				
	2	Procedure of comparing of operational and calculated data given in Fuel Management Report (FMR) using PIR-A code or other similar software				
	3	Procedure for extracting data from binary files such as VARTMP and PSIPER.TMP (with SFACTOR.dll or other modules)				
	4	Procedure of providing BIPR and PERMAK libraries by TVS-M code for TVS-2M fuel type				
	5	Methods and procedure for designing an optimized core map by PROROK in following states: Mixed core including UTVS and TVS-2m with blanket (cycles 7 to12) Core including TVS-2m without blanket (from cycle 13)				
	6	Procedure of performing necessary modifications in source code of KASKAD including introducing of source code, important variables and binary files				
	7	Procedure of calculation of residual heat of spent fuel assemblies by KASKAD package (including TVSRAD and SFUEL module)				
	8	Familiarity- with TVSRAD code with some examples				

Approved by Authorized Representative of the Principal E. Deylami - BNPP-1 Deputy Chief Engineer for Technical and Engineering