

Pre-Bid Clarifications CD — ALHPP EPC Package-III (E&M)

预投标澄清问题(经复核) — 阿塔巴德水电站 EPC Package-III 机电工程

Contractor: CDigital | Employer: WAPDA Pakistan | Prepared for Pre-Bid Meeting

This document contains verified clarification questions for the pre-bid meeting. Each row shows a KEPT or NARROWED status badge. Narrowed rows additionally show a Self-Verification note describing what the spec already addresses.

Status legend: KEPT (blue) = full question retained, the spec does not address it. NARROWED (amber) = only the unresolved sub-question is asked; see the Self-verification note for what the spec already covers.

ID / Status 编号 / 状态	Reference 参考文件	Topic 主题	Spec / Ambiguity 规范内容 / 含糊点	Clarification Query 澄清问题
Technical Provisions 技术规范 — 设备与技术规格的含糊之处				
TP-1 NARROWED 已缩窄	2026-03-11 PKG III Technical Provisions §3.1.17 Bearings Page 3-6	Generator bearing type specification 发电机轴承类型规范	Spec: Guide bearings shall be of the segmented multiple pad design, oil lubricated self-pumping type. The specification covers upper guide, thrust, and lower guide bearings with oil cooling. Ambiguity: The specification does not clarify whether thrust bearings shall be rubber or tilting pad type, or specify pad material composition (white metal thickness, backing material). No thrust bearing temperature limits or maximum pad pressure are stated. 含糊点: 规范未说明推力轴承是橡胶还是倾斜垫型，或未指定垫片材料成分（白金属厚度、背衬材料）。未规定推力轴承温度限制或最大垫片压力。 Self-verification: Spec partially addresses this: "segmented multiple pad design, oil lubricated self-pumping type... high grade white metal, no less than 5mm thick, securely bonded to the pads"	澄清 / Query (中文): 需要什么垫衬背材料类型和规格?最大允许推力垫压力和温度限制是多少? Clarification / Query (English): What backing material type and specifications are required? What are maximum allowable thrust pad pressure and temperature limits?
TP-2 NARROWED 已缩窄	2026-03-11 PKG III Technical Provisions §3.2 Excitation System Page 3-20 to 3-22	Generator excitation system type and redundancy 发电机励磁系统类型 和冗余配置	Spec: Three (03) static excitation systems along with complete protection and three phase dry type transformers shall be supplied. The forced air-cooled thyristor bridge rectifier shall be controlled by stabilized firing circuits. A solid-state microprocessor based dual channel digital excitation controller with redundant controls shall be provided. Ambiguity: While dual-channel redundancy is mentioned, the specification does not clarify: (1) whether redundancy is 1oo2 (1-out-of-2) or 2oo3 (2-out-of-3); (2) voting/arbitration logic for	澄清 / Query (中文): 架构是明确的 1-out-of-2 投票还是可能是 2-out-of-3?指定的故障检测和故障转移响应时间是什么? Clarification / Query (English):

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			controller switchover; (3) synchronization requirements between channels; (4) automatic vs manual changeover protocol. 含糊点: 虽然提到了双通道冗余, 但规范未说明: (1) 冗余应为 1oo2 还是 2oo3; (2) 控制器切换的投票/仲裁逻辑; (3) 通道间同步要求; (4) 自动或手动切换协议。 Self-verification: Spec partially addresses this: "dual channel digital excitation controller with redundant controls... dual voltage transformer with a continuous voltage comparator to detect failure of either set of voltage trans..."	Is the architecture explicitly 1-out-of-2 voting or could it be 2-out-of-3? What are the specified fault detection and failover response times?
TP-4 KEPT 保留	2026-03-11 PKG III Technical Provisions §3.10 Cables Page 3-60 to 3-63	Cable type, fire resistance class, and armoring 电缆类型、防火等级和钢铠	Spec: Power cables with extruded insulation shall be supplied. Cables shall be zero halogen (LSZH) and either of fire retardant or of fire resistance characteristics suitable to IEC 60332. All cables shall be armored. Ambiguity: The specification does not clarify: (1) whether XLPE, EPR, or other insulation material is required; (2) distinction between fire retardant and fire resistance—which is required?; (3) whether armor shall be copper or steel, single or double; (4) armor grounding method and continuity requirements. 含糊点: 规范未说明: (1) 需要 XLPE、EPR 或其他绝缘材料; (2) 防火阻燃和防火阻力的区别—需要哪一种; (3) 钢铠应为铜或钢、单层或双层; (4) 钢铠接地方式和连续性要求。	澄清 / Query (中文): 电缆应采用 XLPE 还是 EPR 绝缘? 需要防火阻燃(IEC 60331-1)还是防火阻力(IEC 60332)特性, 两者在承包商范围内有什么区别? 钢铠应为铜还是钢, 应采用单层还是双层钢铠? 应满足什么钢铠接地连续性和跨接要求? Clarification / Query (English): Shall cables use XLPE or EPR insulation? Are fire retardant (IEC 60331-1) or fire resistance (IEC 60332) characteristics required, and what is the difference in the Contractor's scope? Shall armor be copper or steel, and shall single or double armoring be applied? What armor grounding continuity and bonding requirements must be met?
TP-5 NARROWED 已缩窄	2026-03-11 PKG III Technical Provisions §3.7.6 Batteries Page 3-49 to 3-51	DC/UPS battery technology and autonomy period 直流/不间断电源电池技术和自主期	Spec: Lead acid batteries shall be provided sized for 10-hour discharge rate. End cell voltage shall be 1.80V. The batteries shall be of VRLA lead acid type in accordance with the latest applicable standard of IEC. Batteries shall have design life of 20 years at 25°C. Ambiguity: The specification fixes VRLA lead acid technology but does not: (1) state required autonomy (backup duration in hours) for full DC load; (2) specify whether 10-hour, 8-hour, or other discharge profile applies to the stated load; (3) clarify UPS backup autonomy (stated as 90 minutes in §4.7.4 but not linked to battery sizing); (4) specify battery room ventilation class or hydrogen detection requirements.	澄清 / Query (中文): 在没有交流电源的满负荷情况下,所需的最小直流系统自主性时间是多少小时? Clarification / Query (English): What is the minimum required DC system autonomy duration in hours at full load without AC mains?

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			含糊点: 规范规定了 VRLA 铅酸电池技术, 但未: (1) 说明所需的自主期 (小时为单位的备用时长); (2) 指定应用 10 小时、8 小时或其他放电曲线到所述负荷; (3) 澄清 UPS 备用自主期 (在 §4.7.4 中称为 90 分钟, 但未与电池尺寸关联); (4) 指定电池室通风等级或氢气检测要求。 Self-verification: Spec partially addresses this: "Batteries shall have design life of 20 years at 25°C ambient temperature... guaranteed operation for 10 years under rated operating conditions... Capacity of each battery Ah 500 (P..."	
TP-6 KEPT 保留	2026-03-11 PKG III Technical Provisions §3.4.4 Functional Specifications Page 3-27	Transformer cooling type and OLTC operation mode 变压器冷却类型和有 载分接开关操作模式	Spec: The cooling type shall be ONAN/ONAF and the transformers shall be provided with fire detection and alarm system. The transformers shall be equipped with a motor-operated 17 position on-load tap changer (OLTC) on the HV side, with a regulating range of $\pm 8 \times 1.25\%$. The OLTC shall be manually controlled by the operator, not having an automatic voltage regulator. Ambiguity: The specification does not clarify: (1) under what conditions ONAF cooling switches on (temperature setpoint, fan duty cycle); (2) whether fans are modulating or on-off; (3) OLTC mechanical stepping time and motor stall torque; (4) whether transformer neutral earthing point shall be at the star point or via a neutral grounding transformer. 含糊点: 规范未说明: (1) ONAF 冷却在什么条件下启动 (温度设定点、风扇工作周期); (2) 风扇是调节还是开关型; (3) OLTC 机械步进时间和电动机卡死扭矩; (4) 变压器中性点接地应在星点还是通过中性点接地变压器。	澄清 / Query (中文): 线圈温度达到多少度 (°C) 时 ONAF 冷却风扇应自动启动? 风扇应为调节还是全开/全关? OLTC 步进时间和最大电动机扭矩要求是什么? 132kV 中性点应在变压器星点直接接地, 还是通过独立的中性点接地变压器? Clarification / Query (English): At what winding temperature (in °C) shall ONAF cooling fans automatically engage? Shall fans be modulating or full on-off? What is the OLTC stepping time and maximum motor torque requirement? Shall the 132 kV neutral be solidly earthed at the transformer star point, or via a separate neutral earthing transformer?
TP-7 KEPT 保留	2026-03-11 PKG III Technical Provisions §3.5.1 Scope Page 3-32	Switchgear insulation type (GIS vs AIS) and IP rating 开关设备绝缘类型 (GIS 对 AIS) 和防护等级	Spec: Three (03) medium voltage switchgears complete in all respects. The Generator Circuit Breakers will be of vacuum type as insulating and interrupting medium. Switchgear shall be of GCB with compartments provided for connection with segregated phase bus (SPB). Ambiguity: The specification does not define: (1) whether switchgear cabinet shall be air-insulated (AIS) or gas-insulated (GIS); (2) minimum IP rating for indoor/outdoor installation; (3) whether switchgear shall be modular or monolithic; (4) arc flash incident energy rating or arc-flash PPE category requirements.	澄清 / Query (中文): 11kV 开关设备应为空气绝缘(AIS)还是气体绝缘(GIS), 理由是什么? 已安装环境 (室内电站) 需要什么最小防护等级? 设计应为模块化小室还是单一集成单元? 应声明什么电弧闪光事故能量等级 (距 12 英寸的 kA) ? Clarification / Query (English): Shall the 11 kV switchgear be air-insulated (AIS) or gas-insulated (GIS), and what is the rationale? What minimum IP rating is

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			含糊点: 规范未定义: (1) 开关柜应为空气绝缘(AIS)还是气体绝缘(GIS); (2) 室内/室外安装的最小防护等级; (3) 开关设备应为模块化还是一体化; (4) 电弧闪光事故能量等级或电弧闪光防护服等级要求。	required for the installed environment (indoor powerhouse)? Shall the design be modular cubicles or a single integrated unit? What arc-flash incident energy level (in kA at 12 inches) must be declared?
TP-8 KEPT 保留	2026-03-11 PKG III Technical Provisions §4.5.1 Plant Control System (PCS) Page 4-4	SCADA/HMI software vendor and licensing model SCADA/HMI 软件供应商和许可模式	Spec: Two (2) operator workstations with double LED monitors and alarm printers; one (1) Engineering Workstation with LED type double-monitors and laser color printers. The Contractor shall provide as part of the system documentation any required software licenses necessary for the Employer's perpetual, unrestricted use and application. Ambiguity: The specification does not identify: (1) specific SCADA/HMI software product or vendor (e.g., FactoryTalk, InduSoft, Wonderware); (2) whether software must be source-code escrow protected; (3) number of operator and engineering licenses to be provided; (4) support/maintenance period and SLA for software updates. 含糊点: 规范未确定: (1) 具体 SCADA/HMI 软件产品或供应商 (如 FactoryTalk、InduSoft、Wonderware) ; (2) 软件是否必须源代码托管保护; (3) 应提供操作员和工程师许可证的数量 ; (4) 软件更新的支持/维护期和 SLA。	澄清 / Query (中文): 哪个 SCADA/HMI 平台是强制性的 (FactoryTalk、InduSoft、Wonderware 还是开放式) ? 是否应为所有软件提供永久、不受限的源代码托管? 应包含多少并发操作员许可证和工程师许可证? 所需的软件支持和维护 SLA 期限是多少? Clarification / Query (English): Which SCADA/HMI platform is mandatory (FactoryTalk, InduSoft, Wonderware, or open)? Shall perpetual, unrestricted source code escrow be provided for all software? How many concurrent operator licenses and engineering licenses shall be included? What is the required software support and maintenance SLA period?
TP-9 NARROWED 已缩窄	2026-03-11 PKG III Technical Provisions §3.1.14 Fire Protection System Page 3-5	Fire detection and suppression system type in generator 发电机火灾检测和灭火系统类型	Spec: Generators shall be provided with a fire extinguishing system of inert gas and water spray type. The fire protection system shall comply with NFPA 851 National Fire Protection Association. The Generators shall also be provided with fire detection and alarm system. Ambiguity: The specification states both inert gas and water spray but does not clarify: (1) which inert gas (CO2, N2, FM200, Novec); (2) whether both systems are simultaneous or selective; (3) fire detection sensor type (spot heat, linear, aspiration); (4) activation sequence and manual override provisions; (5) supplier requirements for NFPA 851 certification. 含糊点: 规范同时提及惰性气体和水喷雾, 但未说明: (1) 哪种惰性气体 (CO2、N2、FM200、Novec) ; (2) 两个系统是同时还是选择性动作; (3) 火灾检测传感器类型 (点式热、线性、	澄清 / Query (中文): 哪种特定的惰性气体介质是强制性的(CO2、N2、FM200、Novec)?惰性气体和水喷雾的启动顺序和逻辑是什么? Clarification / Query (English): Which specific inert gas medium is mandated (CO2, N2, FM200, Novec)? What is the activation sequence and logic for inert gas and water spray?

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			吸气) ; (4) 启动顺序和手动覆盖条款; (5) NFPA 851 认证的供应商要求。 Self-verification: Spec partially addresses this: "Generators shall be provided with a fire extinguishing system of inert gas and water spray type... fire protection system shall comply with NFPA 851"	
TP-12 KEPT 保留	2026-03-11 PKG III Technical Provisions §3.4.4 Functional Specifications Page 3-27	Transformer oil preservation and conservator type 变压器油保存和油柜类型	Spec: All generator step-up transformers shall be oil-immersed, (ONAN/ONAF), with the oil preservation system of the constant pressure conservator type, with a flexible diaphragm to preclude direct contact of oil with air. Ambiguity: The specification does not clarify: (1) whether Buchholz relay or gas-oil discriminator is required; (2) diaphragm material (EPDM, nitrile, FKM) and expected life; (3) conservator pressurization range and relief settings; (4) air breather type and desiccant replacement frequency; (5) nitrogen blanket requirement and initial charge pressure. 含糊点: 规范未澄清: (1) 是否需要 Buchholz 继电器或油气判别器; (2) 隔膜材料 (EPDM、丁腈、FKM) 和预期寿命; (3) 油柜加压范围和释放设置; (4) 呼吸器类型和干燥剂更换频率; (5) 氮气保护毯要求和初始充气压力。	澄清 / Query (中文): 是否应提供配备油气判别器的独立 Buchholz 继电器? 应为油柜隔膜指定什么材料和预期寿命 (年数)? 应在油面上方维持什么氮气保护毯压力 (如有), 变压器冷却时的初始充气压力是什么? 空气呼吸器干燥剂的更换间隔是多少? Clarification / Query (English): Shall a Buchholz relay with gas-oil discriminator be provided as a separate device? What material and expected service life (in years) shall be specified for the conservator diaphragm? What nitrogen blanket pressure (if any) shall be maintained above the oil surface, and what is the initial charge pressure when the transformer is cool? What is the air breather desiccant replacement interval?
TP-13 KEPT 保留	2026-03-11 PKG III Technical Provisions §3.5.7 Circuit Breaker Page 3-37 onwards	Circuit breaker tripping time and auxiliary power supply 断路器跳闸时间和辅助电源	Spec: The Generator Circuit Breakers will be of vacuum type as insulating and interrupting medium and complying with IEC 62271-100 and IEC 62271-200. The Generator Circuit Breakers will be suitable for synchronizing duties and provided with interlocks. Ambiguity: The specification does not state: (1) maximum tripping time (contact separation to arc extinction); (2) opening and closing time requirements; (3) DC supply voltage (110V, 125V, 220V) for trip coils; (4) closing spring energy source and pre-compression limits; (5) mechanical life expectancy (number of operations). 含糊点: 规范未说明: (1) 最大跳闸时间 (接触分离到电弧熄灭) ; (2) 打开和关闭时间要求; (3) 跳闸线圈的直流供电电压 (110V、125V、220V) ; (4) 闭合弹簧能量源和预压缩限制; (5) 机械寿命期望 (操作次数) 。	澄清 / Query (中文): 断路器最大跳闸时间 (从跳闸命令到接触分离) 是多少毫秒? 跳闸线圈应使用什么直流供电电压 (110V、125V 或 220V), 是否应提供正常和直流备用电源之间的自动切换? 机械寿命期望 (额定电流和雷电冲击水平下的操作次数) 是多少? Clarification / Query (English): What is the maximum circuit breaker tripping time (from trip command to contacts separated) in milliseconds? What DC supply voltage (110V, 125V, or 220V) shall be used for trip coils, and shall automatic changeover between normal and DC backup supply be provided? What is the mechanical life expectancy in number of operations (at rated current and lightning impulse levels)?

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TP-15 KEPT 保留	2026-03-11 PKG III Technical Provisions §1.2.6 Pressure Oil System <i>Page 1-24</i>	Governor oil pressure system filtering and contamination limits 调速器油压系统过滤 和污染限制	Spec: Piping for the Pressure Oil System shall be of steel or copper and shall comply with ISO 1219 design recommendations. Ambiguity: The specification references ISO 1219 but does not define: (1) oil filtration class (ISO 4406 code, e.g., 16/14/11); (2) whether main pump discharge or system-wide filtration is mandatory; (3) filter element material and micron rating; (4) contamination limits for emergency closure system reliability; (5) oil sampling and condition monitoring requirements. 含糊点: 规范参考 ISO 1219 但未定义: (1) 油过滤等级 (ISO 4406 代码, 如 16/14/11) ; (2) 是否强制主泵排出或系统范围的过滤; (3) 滤芯材料和微米等级; (4) 紧急关闭系统可靠性的污染限制; (5) 油取样和状态监测要求。	澄清 / Query (中文): 应在调速器压力系统中维持什么油清洁度等级 (ISO 4406 代码) ? 应在主泵排出处放置 5 微米还是 10 微米过滤器, 是否应提供回油线或离线过滤系统? 在需要补救行动之前允许的最大颗粒污染 (每毫升 >4µm、>6µm、>14µm 的颗粒) 是多少? 是否应强制进行油状况监测 (趋势分析) ? Clarification / Query (English): What is the required oil cleanliness class (ISO 4406 code) that must be maintained in the governor pressure system? Shall a 5-micron or 10-micron filter be placed on the main pump discharge, and shall a return-line or offline filtration system be provided? What is the maximum allowable particulate contamination (particles >4µm, >6µm, >14µm per ml) before remedial action is required? Shall oil condition monitoring (trend analysis) be mandatory?
TP-16 KEPT 保留	2026-03-11 PKG III Technical Provisions §6.23.3.9 Grounding System <i>Page 6-148 onwards</i>	Protection system grounding (IEEE 80 vs IEC 62305) and touch voltage limits 保护系统接地 (IEEE 80 对 IEC 62305) 和接触电压限制	Spec: Grounding System shall be designed and installed as per applicable international standards to ensure safe operation and protection of personnel and equipment. Ambiguity: The specification does not clarify: (1) which grounding standard applies (IEEE 80 for power plants, IEC 62305 for lightning protection, or both); (2) assumed soil resistivity (ρ, ohm-m) for design; (3) acceptable step voltage and touch voltage limits (V, 50kg body weight); (4) grounding electrode depth and spacing requirements; (5) periodic testing interval and acceptance criteria. 含糊点: 规范未澄清: (1) 应用哪个接地标准 (IEEE 80 用于发电厂, IEC 62305 用于雷电保护, 或两者) ; (2) 设计所用的假定土壤电阻率 (ρ、欧·米) ; (3) 可接受的跨步电压和接触电压限制 (V、50kg 体重) ; (4) 接地电极深度和间距要求; (5) 定期测试间隔和验收标准。	澄清 / Query (中文): 应按 IEEE 80 (用于交流系统) 和/或 IEC 62305 (用于雷电保护) 设计接地系统? 应为设计假定什么土壤电阻率 (ρ), 现场测得的土壤电阻率是多少? 对人员安全可接受的跨步和接触电压限制是多少 (50kg 体重) ? 所需的接地电极到远程地面的电阻是多少, 试运行后的测试间隔是多少? Clarification / Query (English): Shall the grounding system be designed per IEEE 80 (for AC systems) and/or IEC 62305 (for lightning protection)? What soil resistivity (ρ) shall be assumed for design, and what is the measured soil resistivity at the site? What are the acceptable step and touch voltage limits for personnel safety (at 50 kg body weight)? What is the required grounding electrode resistance to remote ground, and what is the testing interval post-commissioning?

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TP-17 KEPT 保留	2026-03-11 PKG III Technical Provisions §1.6.3.1 Hydraulic Hoist <i>Page 1-17 onwards</i>	Hydraulic hoist cylinder lifting and lowering speed specification 液压起重缸升降速度 规范	Spec: The hydraulic hoist shall be provided with a hand pump and shall be suitable for lifting and lowering the generator rotor and other equipment weighing up to 100 tonnes. Ambiguity: The specification does not define: (1) lifting speed (mm/s or m/min) required; (2) lowering speed and descent control (free-fall vs controlled); (3) pressure relief settings and override logic; (4) manual pump capacity and operating strokes per lift operation; (5) lifting height range and intermediate position locking. 含糊点: 规范未定义: (1) 所需的升降速度 (mm/s 或 m/分钟) ; (2) 降速和下降控制 (自由下落对受控) ; (3) 压力释放设置和覆盖逻辑; (4) 手动泵容量和每次升降操作的工作冲程; (5) 升降高度范围和中间位置锁定。	澄清 / Query (中文): 所需的升降速度是多少 (mm/s) , 液压系统的最大工作压力是多少? 应受控 (平衡阀) 还是自由下落降速, 最大下降速度是多少? 压力释放设置是什么, 是否应有先导式安全阀防止过载? 每次升降循环需要多少手动泵冲程, 升降可能的高度范围是多少? Clarification / Query (English): What lifting speed is required (mm/s), and what is the maximum operating pressure of the hydraulic system? Shall lowering be controlled (counterbalance valve) or free-fall, and what is the maximum descent speed? What is the pressure relief setting, and shall a pilot-operated relief protect against overload? How many hand pump strokes are needed per lift cycle, and over what height range shall lifting be possible?
TP-18 KEPT 保留	2026-03-11 PKG III Technical Provisions §4.9.4 Data Acquisition and HMI Functions <i>Page 4-21 onwards</i>	SCADA cyber security requirements and IEC 62443 level SCADA 网络安全要求 和 IEC 62443 等级	Spec: The Control System Software shall include all normal Data Acquisition- and HMI- software with firewall system for the interconnection between the SCADA/DMS/ HMI and other networks. Ambiguity: The specification mentions firewall but does not define: (1) required IEC 62443 Security Level (SL1 to SL4); (2) user authentication method (password, MFA, LDAP); (3) audit logging and retention period; (4) encryption standards for SCADA communications; (5) intrusion detection/prevention requirements. 含糊点: 规范提到防火墙但未定义: (1) 所需的 IEC 62443 安全等级 (SL1 到 SL4) ; (2) 用户认证方法 (密码、多因素、LDAP) ; (3) 审计日志和保留期; (4) SCADA 通信的加密标准; (5) 入侵检测/防护要求。	澄清 / Query (中文): 所需的 IEC 62443 安全等级 (SL1-SL4) 是什么? 对操作员访问应使用多因素认证(MFA)还是单因素 (用户名/密码) ? 最少审计日志保留期是多少 (天/年) ? 应加密 SCADA 流量 (AES-256 或等效) , 远程访问应强制使用 TLS 1.2+ 吗? 是否应提供入侵检测/防护系统? Clarification / Query (English): What is the required IEC 62443 Security Level (SL1–SL4)? Shall multi-factor authentication (MFA) or single-factor (username/password) be used for operator access? What is the minimum audit log retention period (days/years)? Shall SCADA traffic be encrypted (AES-256 or equivalent), and shall TLS 1.2+ be mandatory for remote access? Shall intrusion detection/prevention systems be provided?
TP-19 KEPT 保留	2026-03-11 PKG III Technical Provisions §3.11 Emergency Diesel Generating Units (EDG) <i>Page 3-56 onwards</i>	Alternate energy source (fuel type and capacity) for EDG system	Spec: The EDG set room ventilation shall be in coordination with HVAC design, and the tank shall comply with NFPA-31 'Installation of Oil Burning Equipment'.	澄清 / Query (中文): EDG 应使用什么燃料类型 (柴油、天然气或双燃料) ? 所需的燃料罐容量应能在 75%负荷下提供多少小时的连续运行自主期? 启动电

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		备用能源（燃料类型和容量）用于应急发电机组系统	Ambiguity: The specification references NFPA-31 but does not define: (1) EDG fuel type (diesel, natural gas, dual-fuel); (2) daily fuel tank capacity and autonomy hours; (3) starting battery capacity (Ah) and number of cells; (4) emergency shutdown protocol and interlocks with main switchgear; (5) EDG load shedding sequence and priority classification of loads. 含糊点: 规范参考 NFPA-31 但未定义: (1) EDG 燃料类型 (柴油、天然气、双燃料); (2) 日燃料罐容量和自主期小时数; (3) 启动电池容量 (Ah) 和电池数量; (4) 紧急关闭协议和与主开关柜的互锁; (5) EDG 负荷脱落顺序和负荷优先级分类。	池容量 (Ah) 和电池数量是多少? EDG 启动和主断路器位置之间应有互锁吗? 负荷脱落顺序是什么, 关键和非关键负荷之间是否有优先级分类? Clarification / Query (English): What fuel type (diesel, natural gas, or dual-fuel) shall the EDG use? What is the required fuel tank capacity to provide autonomy for how many hours of continuous operation at 75% load? What is the starting battery capacity (Ah) and number of cells? Shall there be interlocks between EDG startup and main circuit breaker position? What is the load shedding sequence, and are there priority classifications for essential vs non-essential loads?
TP-20 KEPT 保留	2026-03-11 PKG III Technical Provisions §2.2 Cooling Water System <i>Page 2-1 onwards</i>	Auxiliary water system pump redundancy and treatment method 辅助水系统泵冗余和 处理方法	Spec: Open loop cooling system is foreseen; however, the Contractor shall be required to carry out detailed studies for consideration in the design of the cooling water system based on requirements. Ambiguity: The specification does not clarify: (1) whether pump redundancy (N+1) or duty/standby arrangement is required; (2) water intake quality assumptions (turbidity, pH, bacterial count); (3) treatment method (filtration class, chemical dosing, UV sterilization); (4) system pressure class and materials for raw water lines; (5) heat rejection load (MW, BTU/h) for cooler sizing. 含糊点: 规范未澄清: (1) 是否需要泵冗余(N+1)或主备用安排; (2) 水源进水质量假设 (浊度、pH、菌落数); (3) 处理方法 (过滤等级、化学加药、紫外消毒); (4) 系统压力等级和原水管线材料; (5) 冷却器尺寸的热拒绝负荷 (MW、BTU/小时)。	澄清 / Query (中文): 冷却水泵应为主备用 (N+1 冗余) 还是单泵设计? 应假设什么原水质量标准 (浊度、pH、总溶解固体、菌落数)? 系统应包括 5 微米过滤、化学预处理 (垢阻止剂、生物杀灭剂) 还是紫外消毒? 额定条件下冷却系统必须处理的设计热拒绝负荷 (MW) 是多少? 原水管道应额定为什么压力等级 (PN6、PN10、PN16)? Clarification / Query (English): Shall the cooling water pumps be duty/standby (N+1 redundancy) or single-pump design? What raw water quality standards (turbidity, pH, total dissolved solids, bacterial count) shall be assumed? Shall the system include 5-micron filtration, chemical pre-treatment (scale inhibitor, biocide), or UV sterilization? What is the design heat rejection load (MW) that the cooling system must handle at rated conditions? What pressure class (PN6, PN10, PN16) shall raw water piping be rated for?
TP-21 KEPT 保留	2026-03-11 PKG III Technical Provisions §4.9.3 Metering and Billing Functions <i>Page 4-20 onwards</i>	Metering transformer accuracy class and measurement uncertainty	Spec: The Plant Control System shall include metering functions with accuracy in accordance with applicable standards. Ambiguity: The specification does not specify: (1) CT and VT accuracy classes (0.2, 0.5, 1.0, or metering grade); (2) whether	澄清 / Query (中文): 计量系统中使用的电流互感器和电压互感器需要什么精度等级 (如 IEC 61869 中的 0.2、0.5)? 计量系统应符合收费级精度还是公用

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		计量变压器精度等级和测量不确定度	Revenue Meter Grade (RMG) or utility-standard metering is required; (3) measurement uncertainty allowance ($\pm 0.5\%$, $\pm 1.0\%$); (4) apparent energy (MVAh), reactive energy (MVArh), and distortion energy (MWh harmonic) recording requirements. 含糊点: 规范未指定: (1) CT 和 VT 精度等级 (0.2、0.5、1.0 或计量级) ; (2) 是否需要收费电表级(RMG)或公用事业标准计量; (3) 测量不确定度限额 ($\pm 0.5\%$、$\pm 1.0\%$) ; (4) 视在能量 (MVAh)、无功能量(MVArh)和畸变能量(MWh 谐波)记录要求	事业标准? 可接受的整体测量不确定度是多少 ($\pm 0.5\%$或$\pm 1.0\%$) ? 计量面板应分别记录有功能量、无功能量和谐波畸变能量吗? Clarification / Query (English): What accuracy class (e.g., 0.2, 0.5 per IEC 61869) is required for current transformers and voltage transformers used in the metering system? Shall the metering system comply with revenue-grade accuracy or utility standards? What is the acceptable overall measurement uncertainty ($\pm 0.5\%$ or $\pm 1.0\%$)? Shall the metering panel record real energy, reactive energy, and harmonic distortion energy separately?
TP-22 NARROWED 已缩窄	2026-03-11 PKG III Technical Provisions §3.10 Cables Page 3-60 onwards	Control cable type and fiber optic vs copper specification 控制电缆类型和光纤对铜的规范	Spec: The main communication buses of the Plant Control System shall be of optical fiber. The data communication system for the LCUs shall be arranged as dual optic fiber network. Ambiguity: While fiber optic is mandated for main buses, the specification does not clarify: (1) whether control and instrumentation signals (4–20 mA, 0–10 V) are copper or fiber; (2) pair count and EMC classification; (3) single-mode vs multi-mode fiber choice and wavelength; (4) cable routing and segregation from power cables (physical separation distance). 含糊点: 虽然光纤对主总线是强制的, 规范未澄清: (1) 控制和仪表信号 (4-20mA、0-10V) 是铜还是光纤; (2) 配对数和 EMC 分类; (3) 单模对多模光纤选择和波长; (4) 电缆布线和与电力电缆的隔离 (物理分离距离) 。 Self-verification: Spec partially addresses this: "The main communication buses of the Plant Control System shall be of optical fiber. The data communication system for the LCUs shall be arranged as dual optic fiber network."	澄清 / Query (中文): 模拟控制信号需要什么电缆类型/类别/光纤模式?与高压电力电缆的最小分离距离是多少? Clarification / Query (English): What cable type/category/fiber mode required for analog control signals? What is minimum separation distance from HV power cables?
TP-23 NARROWED 已缩窄	2026-03-11 PKG III Technical Provisions §1.1.6 Speed and Balance Page 1-3	Runaway speed calculation assumptions and mechanical stress limits 转轮超速计算假设和机械应力限制	Spec: The complete rotating assembly (turbine and generator) shall be designed to accommodate the maximum runaway speed, which can occur under any steady or transient condition. The maximum unit stresses for any rotating part at runaway speed shall not exceed two-third (2/3) of the respective material yield strength.	澄清 / Query (中文): 引水阀+导叶同时故障还是仅引水阀故障时的失控转速基于哪种情景?转轮/轴/上导叶的材料屈服强度(MPa)是多少?是否应应用动态应力放大系数? Clarification / Query (English):

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			Ambiguity: While stress limits are stated, the specification does not clarify: (1) whether runaway speed of 655 rpm includes or excludes generator friction/windage losses; (2) whether dual-load rejection (MIV + guide vane failure) is the design case; (3) material yield strength values assumed for different components (runner, shaft, etc.); (4) dynamic impact factor for transient conditions. 含糊点: 虽然说明了应力限制, 规范未澄清: (1) 655 rpm 超速是否包括或排除发电机摩擦/风磨损失; (2) 双负荷脱落(MIV+导叶失效)是否是设计情况; (3) 不同部件(转轮、轴等)的假定材料屈服强度值; (4) 瞬态条件的动态冲击系数。 Self-verification: Spec partially addresses this: "Maximum stresses at runaway speed shall not exceed 66.67% of yield stress."	Is runaway speed (655 rpm) based on simultaneous MIV+guide vane closure failure or MIV failure alone? What material yield strengths (MPa) apply to runner/shaft/stay ring? Shall dynamic stress amplification factor be applied?
TP-24 KEPT 保留	2026-03-11 PKG III Technical Provisions §6.3 132kV Remote End Page 6-35 onwards	Switchyard 132 kV earthing transformer requirements 开关站 132kV 接地 变压器要求	Spec: The neutral point of the 132 kV windings shall be solidly earthed per the specifications and all requirements in these Technical Provisions. Ambiguity: While solid earthing is required, the specification does not clarify: (1) whether a separate earthing transformer is required or direct solidly-earthed neutral; (2) if a transformer is used, its kVA rating and impedance; (3) earth-fault current limitation (whether neutral is directly grounded or via resistor); (4) whether the transformer windings are delta-delta or delta-Y with tertiary. 含糊点: 虽然要求实心接地, 规范未澄清: (1) 是否需要独立接地变压器或直接实心接地中性点; (2) 如果使用变压器, 其 kVA 额定值和阻抗; (3) 故障电流限制(中性点是直接接地还是通过电阻); (4) 变压器线圈是三角-三角还是三角-Y 带三次绕组。	澄清 / Query (中文): 132kV 中性点应直接连接(实心接地)到接地电极, 还是应提供独立的接地变压器? 如果需要接地变压器, 其 kVA 额定值和阻抗(欧、%)是多少? 接地点应直接接地还是由中性点接地电阻保护, 如果是, 什么电阻值(欧)限制故障电流到可接受水平? Clarification / Query (English): Shall the 132 kV neutral point be directly connected (solidly earthed) to a grounding electrode, or shall a separate earthing transformer be provided? If an earthing transformer is required, what is its kVA rating, and what is the impedance (ohms, %)? Shall the earthing point be directly grounded or protected by a neutral grounding resistor, and if so, what resistance value (ohms) limits earth-fault current to acceptable levels?
TP-25 NARROWED 已缩窄	2026-03-11 PKG III Technical Provisions §1.1.16.3 Cavitation Guarantees Page 1-11	Turbine cavitation guarantees and damage evaluation criteria 涡轮空蚀保证和损伤 评估标准	Spec: Cavitation guarantees shall be given based on the plant sigma (NPSH) and shall be evaluated in accordance with IEC 60609-1. Ambiguity: While reference to IEC 60609-1 is made, the specification does not define: (1) acceptable cavitation erosion rate (mg/h or mm/year); (2) acceptable pit depth (mm) after operating period; (3) cavitation severity zone boundaries (sigma values at which erosion becomes unacceptable); (4) inspection method (visual, profilometry, ultrasonic thickness).	澄清 / Query (中文): 可接受的空蚀侵蚀速率(mg/h 或 mm/year)是多少?1 年后最大坑深度是多少?在什么 sigma 值时损伤不可接受?需要什么检查方法? Clarification / Query (English):

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			含糊点: 虽然参考了 IEC 60609-1, 规范未定义: (1) 可接受的空蚀侵蚀速率(mg/h 或 mm/年); (2) 运行期后可接受的凹陷深度(mm); (3) 空蚀严重程度区域边界(可接受侵蚀的西格玛值); (4) 检查方法(目视、轮廓测量、超声厚度)。 Self-verification: Spec partially addresses this: "Cavitation guarantees shall be given based on the plant sigma (NPSH) and shall be evaluated in accordance with IEC 60609-1...8,000 operating hours from the date each unit is placed..."	What is acceptable cavitation erosion rate (mg/h or mm/year)? What is maximum pit depth after 1 year? At what sigma is damage unacceptable? What inspection method is required?
TP-26 KEPT 保留	2026-03-11 PKG III Technical Provisions §3.1.15 Cooling System Page 3-5 to 3-6	Generator cooling water system material compatibility and treatment 发电机冷却水系统材料兼容性和处理	Spec: All equipment and materials related to the cooling system of each generator such as valves, fittings, strainers, pipe-work etc. shall be provided by the Contractor. With one complete heat exchanger out of service, the maximum continuous output shall be maintained. Ambiguity: The specification does not clarify: (1) cooling water source (local raw water or demineralized); (2) expected water chemistry (conductivity, pH, hardness limits); (3) material selection for coolers (aluminum, stainless steel, cupronickel); (4) fouling factor and design heat transfer coefficient; (5) coolant additives (inhibitor, biocide) requirement and concentration limits. 含糊点: 规范未澄清: (1) 冷却水源(当地原水或软化水); (2) 预期水化学(电导率、pH、硬度限制); (3) 冷却器材料选择(铝、不锈钢、铜镍); (4) 污垢系数和设计传热系数; (5) 冷却液添加剂(阻止剂、生物杀灭剂)要求和浓度限制。	澄清 / Query (中文): 冷却水应经处理 (软化、缓冲 pH) 还是原始湖水? 必须符合什么冷却水质量限制 (电导率 $\mu\text{S}/\text{cm}$、pH、总硬度 mg/L) 以防止冷却器污垢和腐蚀? 冷却器管应为铝、不锈钢(304/316)还是铜镍(90/10)? 冷却器尺寸假定的污垢系数($\text{m}^2\text{K}/\text{W}$)是多少, 最小传热系数($\text{W}/\text{m}^2\text{K}$)是多少? Clarification / Query (English): Shall the cooling water be treated (demineralized, pH-buffered) or raw lake water? What cooling water quality limits (conductivity $\mu\text{S}/\text{cm}$, pH, total hardness mg/L) must be met to prevent cooler fouling and corrosion? Shall cooler tubes be aluminum, stainless steel (304/316), or cupronickel (90/10)? What fouling factor ($\text{m}^2\text{K}/\text{W}$) is assumed for cooler sizing, and what is the minimum heat transfer coefficient ($\text{W}/\text{m}^2\text{K}$)?
TP-27 KEPT 保留	2026-03-11 PKG III Technical Provisions §3.4.4 Functional Specifications Page 3-27	Transformer on-load tap changer (OLTC) manual control interface and settings 变压器有载分接开关(OLTC)手动控制接口和设置	Spec: The transformers shall be equipped with a motor-operated 17 position on-load tap changer (OLTC) on the HV side, with a regulating range of $\pm 8 \times 1.25\%$. The OLTC shall be manually controlled by the operator. Ambiguity: While manual control is specified, the specification does not define: (1) control logic at the Local Control Unit or central control room; (2) tap position feedback mechanism (resolver, encoder, contacts); (3) step delay between tap changes (to prevent hunting); (4) remote indication of tap position and voltage at remote sites; (5) tap position limit switches and mechanical constraints.	澄清 / Query (中文): OLTC 分接控制应为本地 (变压器处) 还是远程 (从中央控制室)? 分接位置反馈机制是什么(旋转变压器、绝对编码器或机械计数器)? 相邻分接变化之间的最少延迟时间是多少, 防止振荡和变压器应力? 应向控制系统提供当前分接位置和二次电压的远程指示吗? 机械限制是什么(前向/反向界限)防止分接位置溢出? Clarification / Query (English):

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			含糊点: 虽然指定了手动控制, 规范未定义: (1) 本地控制单元或中央控制室的控制逻辑; (2) 分接位置反馈机制(旋转变压器、编码器、接触); (3) 分接变化之间的步进延迟(防止振荡); (4) 远程地点分接位置和电压的远程指示; (5) 分接位置限制开关和机械约束。	Shall OLTC tap control be local (at the transformer) or remote (from central control room)? What is the tap position feedback mechanism (resolver, absolute encoder, or mechanical counters)? What is the minimum time delay between consecutive tap changes to prevent hunting and transformer stress? Shall remote indication of the current tap position and secondary voltage be provided to the control system? What are the mechanical limits (forward/reverse bounds) to prevent tap position overflow?
TP-28 NARROWED 已缩窄	2026-03-11 PKG III Technical Provisions §3.1.20.4 Unit Reliability Run Test Page 3-8	Commissioning test duration and performance guarantee test procedure 试运行试验期间和性能保证试验程序	Spec: Stable and reliable operation for at least 24 hours at varying outputs between maximum possible and minimum possible allowable capacity of the unit without any defects. Ambiguity: The specification requires 24-hour reliability test but does not clarify: (1) whether continuous 24 hours or 24 hours of cumulative operation over multiple days; (2) failure criteria and acceptable alarm/alert thresholds during test; (3) whether performance guarantee tests (efficiency, cavitation, noise) are part of or separate from commissioning; (4) defect correction and re-test requirements if failures occur. 含糊点: 规范要求 24 小时可靠性试验但未澄清: (1) 连续 24 小时还是多天累计 24 小时运行; (2) 试验期间的故障标准和可接受的告警/警报阈值; (3) 性能保证试验(效率、空蚀、噪声)是否是试运行的一部分或独立于试运行; (4) 如果发生故障缺陷修正和重新试验要求。 Self-verification: Spec partially addresses this: "Stable and reliable operation for at least 24 hours at varying outputs...Stable and reliable operation within a continuous 72 hours period, at least 10 successive cycles of startin..."	澄清 / Query (中文): 24 小时测试是连续进行还是累积进行?什么定义需要重新测试的缺陷(例如,轴承温度>60°C,振动>10 mm/s)?性能保证测试是否属于调试的一部分或独立进行? Clarification / Query (English): Is 24-hour test continuous or accumulated? What defines a defect requiring re-test (e.g., bearing temp >60°C, vibration >10 mm/s)? Are performance guarantee tests part of commissioning or separate?
TP-29 KEPT 保留	2026-03-11 PKG III Technical Provisions §4 Plant Control and Instrumentation System Page 4-1 onwards	Operation and Maintenance training scope and location 运行和维护培训范围和地点	Spec: The Contractor shall provide comprehensive training and documentation for operation and maintenance of all supplied equipment. Ambiguity: While training is required, the specification does not specify: (1) number of trainees per discipline (operations, maintenance, electrical, mechanical); (2) training location (OEM factory, site, or combination); (3) training duration (days/weeks) and course content breakdown; (4) language (English, Urdu, or both); (5) post-commissioning refresher training interval.	澄清 / Query (中文): 应为每个学科(运行、机械维护、电气维护)培训多少人, 培训应在 OEM 工厂、现场还是两者? 总培训时长(人-天)是多少, 应涵盖的具体模块有哪些(如 SCADA 运行、涡轮维护、保护继电器设置)? 培训材料应为英文、乌尔都文还是两者? 应提供年度进修培训, 如果是, 多少天? Clarification / Query (English):

ID / Status 编号 / 状态	Reference 参考文件	Topic 主题	Spec / Ambiguity 规范内容 / 含糊点	Clarification Query 澄清问题
			含糊点: 虽然要求培训, 规范未指定: (1) 每个学科(运行、维护、电气、机械)的培训人数; (2) 培训地点(OEM 工厂、现场或组合); (3) 培训时长(天/周)和课程内容分配; (4) 语言(英文、乌尔都文或两者); (5) 试运行后进修培训间隔。	How many trainees shall be trained for each discipline (operations, mechanical maintenance, electrical maintenance), and shall training be at the OEM factory, on-site, or both? What is the total training duration (man-days), and what are the specific modules to be covered (e.g., SCADA operation, turbine maintenance, protection relay settings)? Shall training materials be in English, Urdu, or both? Shall annual refresher training be provided, and if so, for how many days?
TP-30 KEPT 保留	2026-03-11 PKG III Technical Provisions §3.4.8 SERGI Transformer Fire Protection System <i>Page 3-28</i>	Transformer fire protection system activation logic and response time 变压器火灾保护系统启动逻辑和响应时间	Spec: Transformers shall be equipped with transformer explosion prevention system of SERGI type complete with sensors, control unit, and interfaces. Ambiguity: While SERGI system is specified, the specification does not clarify: (1) SERGI sensor detection method (pressure rise rate, absolute pressure threshold); (2) actuation logic (single-sensor or dual-sensor logic); (3) gas injection timing and pressure relief coordination; (4) manual activation capability during operation; (5) post-discharge recovery/reset procedure. 含糊点: 虽然指定了 SERGI 系统, 规范未澄清: (1) SERGI 传感器检测方法(压力升高速率、绝对压力阈值); (2) 启动逻辑(单传感器或双传感器逻辑); (3) 气体注入时间和压力释放协调; (4) 运行期间的手动启动能力; (5) 放电后恢复/复位程序。	澄清 / Query (中文): SERGI 系统如何检测故障: 通过监测压力升高速率(bar/s)还是绝对压力阈值(bar)? 启动应需要单传感器信号还是双传感器巧合逻辑? 从检测到气体释放的气体注入响应时间(毫秒)是多少? 当变压器运行时是否可通过按钮或远程进行手动启动? 放电后系统如何复位, 充电的预备时间是多少? Clarification / Query (English): How does the SERGI system detect faults: by monitoring the rate of pressure rise (bar/s) or absolute pressure threshold (bar)? Shall activation require a single sensor signal or dual-sensor coincidence logic? What is the gas injection response time (milliseconds) from detection to gas release? Shall manual activation (via push-button or remote) be available when the transformer is in service? How is the system reset after discharge, and what is the lead time for recharge?
TP-31 KEPT 保留	2026-03-11 PKG III Technical Provisions §6.1 Scope of Work — 132 kV Switchyard and 132 kV Line End Bays <i>Page 6-2 (BD-ALHPP-03 (V2-II))</i>	Switchyard civil works — control house building and main ground grid 开关站土建范围 — 控制楼建筑与主接地网	Spec: "The civil works required for all the above-mentioned facilities (except for Two (2) 132 kV Line End Bays at 132 kV Aliabad Regional Grid Station) are not a part of E&M Scope. The Civil Scope (except two (02) 132 kV Line End Bays at 132 kV Aliabad Regional Grid Station) shall be provided by Civil Contractor (Package-I)." — §6.1, page 6-2. §6.1(a)(10) states E&M scope for switchyard grounding covers "Only Equipment Protective Earthing Connection". §6.1(a)(20) refers to "cable trays, ladders, conduits and accessories inside the switchyard and control house building/generator room".	澄清 / Query (中文): 请确认: (a) 132 kV 开关站控制楼建筑本体 (基础、墙体、屋顶、门窗、HVAC、照明及内部装修直至交付可接收 E&M 机柜的完工楼板) 全部属于 Package-I (土建承包商) 范围; (b) 132 kV 开关站主埋地接地网 (接地网导体、接地极、接地井、引至各设备接地端子的引上扁钢, 以及土壤电阻率、接地网电阻、接触/跨步电压测试) 全部属于 Package-I 范围, Package-III (机电) 仅负责从各设备至 Package-I 所供接地引上扁钢的保护性接地连接。若上述

ID / Status 编号 / 状态	Reference 参考文件	Topic 主题	Spec / Ambiguity 规范内容 / 含糊点	Clarification Query 澄清问题
			Ambiguity: §6.1 clearly allocates civil works for the main 132 kV AIS switchyard to Package-I (Civil Contractor) and CDigital accepts this. Civil works for the main 132KV AIS switchyard at the powerhouse are not clear. Whether it has to be carried out by the civil contractor or the E&M contractor Two sub-scopes within that boundary are not explicitly addressed: (i) The switchyard control house building itself (foundations, walls, roof, doors, HVAC, internal fit-out, floor trenches and cable risers) is referenced in §6.1(a)(20) as a facility that houses E&M equipment, but the spec does not explicitly state which Package designs and constructs the building shell. A literal reading implies Package-I, but this is on the critical path for E&M installation and commissioning and needs explicit confirmation. (ii) §6.1(a)(10) uses the word "Only" to limit E&M grounding scope to the equipment protective earthing connection, implying the buried main ground grid, riser conductors, ground rods, earth pits, mesh, and touch/step-voltage measurements are Package-I's. This interpretation needs explicit confirmation given the significant cost and test-acceptance implications. 含糊点: §6.1 已明确将厂房主 132 kV AIS 开关站的土建工程划归 Package-I (土建承包商), CDigital 接受此范围划分。但在该界面内仍有两个子范围未明确界定: (i) 开关站控制楼建筑本体 (基础、墙体、屋顶、门窗、HVAC、内部装修、电缆沟与电缆竖井) 在 §6.1(a)(20) 中被提及为容纳 E&M 设备的场所, 但规范未明确说明该建筑的设计与施工由哪个 Package 承担。按字面解读应为 Package-I, 但由于该建筑位于 E&M 安装调试的关键路径上, 需予以明确确认。 (ii) §6.1(a)(10) 使用「Only」(仅) 一词将 E&M 接地范围限制于「设备保护性接地连接」, 暗示埋地主接地网、引下线、接地极、接地井、网格及接触/跨步电压测试均属于 Package-I 范围。该解读需明确确认, 因对 E&M 设备保护系统的成本及验收具有重大影响。	(a) 或 (b) 的任何部分属于 Package-III 范围, 请明确具体子项, 并指明应遵循的土建规范章节与设计标准。 Clarification / Query (English): Please confirm: (a) that the construction of the 132 kV switchyard control house itself (foundations, walls, roof, doors, windows, HVAC, lighting, and internal fit-out up to the finished slab ready to receive E&M cabinets) is wholly within Package-I (Civil Contractor) scope; and (b) that the buried main ground grid of the 132 kV switchyard (ground mat conductors, ground rods, earth pits, riser straps up to each equipment's earthing pad, and the soil-resistivity / grid-resistance / touch-and-step voltage measurements) is wholly within Package-I scope, with Package-III (E&M) responsible only for the final protective earthing connection from each piece of equipment to the Package-I-supplied riser strap. If either (a) or (b) is, in whole or in part, within Package-III scope, please specify which sub-items and identify the governing civil specification sections and design criteria to be followed.
Specific Provisions 专用条款 — 商务、合约与范围界面之含糊之处				
SP-2 NARROWED 已缩窄	Attabad Lake Hydropower Project (54 MW) - EPC Package-III	132kV Line End Bays civil works	Spec: The Civil Works shall be executed in accordance with the relevant technical specifications, material standards, workmanship requirements, inspection and testing procedures	澄清 / Query (中文):

ID / Status 编号 / 状态	Reference 参考文件	Topic 主题	Spec / Ambiguity 规范内容 / 含糊点	Clarification Query 澄清问题
	Specific Provisions, March 2026 §1.1.1.1 Civil Works for 132kV Line End Bays at Remote End <i>1-2</i>	scope boundary with Package-I 132kV 线路末端湾与 Package-I 的土建范围边界	defined under Package-I...In the event of any discrepancy between the provisions of Package-I and this Package, the provisions of this Package shall prevail. Ambiguity: E&M Contractor must comply with Package-I civil specs 'insofar as they are applicable' but conflict resolution is unclear. Package-I specifications may not fully address remote site conditions (Aliabad grid station). Which contractor is responsible if Package-I specs are non-compliant with actual site conditions? 含糊点: E&M 承包商必须遵守 Package-I 土建规范, 但冲突解决不清楚。Package-I 规范可能不完全适应偏远地点条件。如果 Package-I 规范与实际现场条件不符, 哪个承包商负责? Self-verification: Spec partially addresses this: "In the event of any discrepancy between the provisions of Package-I and this Package, the provisions of this Package shall prevail."	如果在设计评审期间发现不一致,谁正式批准修改,谁承担成本/进度影响? Clarification / Query (English): If discrepancies are discovered during design review, who formally approves modifications and who bears cost/schedule impacts?
SP-3 NARROWED 已缩窄	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.8 Environmental Compliance and §4.2 ESHS Requirements <i>1-16 to 1-17 and 4-3</i>	Environmental permits and NOC responsibility allocation 环境许可证和 NOC 的责任分配	Spec: The Contractor shall comply with...the conditions that will be laid down in 'No Objection Certificate (NOC)'....The Contractor shall apply for the operational stage NOC after the completion of the Construction works with GB EPA...The Contractor shall (prepare)...Site-Specific Environmental Management Plan (SSEMP). Ambiguity: Document requires contractors to apply for 'operational stage NOC' but is unclear whether construction phase NOC (if required by GB EPA) is Employer or Contractor responsibility. No timeline is specified for NOC issuance or delays. What happens if GB EPA withholds NOC post-completion? 含糊点: 文件要求承包商申请'运营阶段 NOC', 但不清楚施工阶段 NOC (如果 GB EPA 要求) 是雇主还是承包商的责任。未规定 NOC 签发或延迟的时间表。如果 GB EPA 在完成后扣留 NOC 怎么办? Self-verification: Spec partially addresses this: "The Contractor shall apply for the operational stage NOC after the completion of the Construction works with GB EPA...The Contractor shall (prepare)...Site-Specific Environmental M..."	澄清 / Query (中文): 施工阶段环境许可是雇主责任吗?如果 NOC 颁发延迟,这是不可抗力还是承包商责任? Clarification / Query (English): Is construction-phase Environmental Clearance an Employer responsibility? If NOC issuance is delayed, is this force majeure or Contractor liability?
SP-4 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III	Import duties, taxes, and	Spec: Cost of mobilization and demobilization shall be deemed to cover in overall Contract Price, and no separate payment shall be made.	澄清 / Query (中文):

ID / Status 编号 / 状态	Reference 参考文件	Topic 主题	Spec / Ambiguity 规范内容 / 含糊点	Clarification Query 澄清问题
	Specific Provisions, March 2026 §1.11 Mobilization and Demobilization; Conditions of Contract reference 1-18	VAT/GST responsibility 进口关税、税费和增值税/商品及服务税责任	Ambiguity: Document does not explicitly state who bears import duties, custom taxes, sales tax (VAT/GST), or other duties on imported E&M equipment. It is unclear whether the lump-sum contract price is on a CIF Islamabad/CFR Gilgit-Baltistan basis, or if Contractor must pay all duties. 含糊点: 文件未明确说明谁承担进口关税、海关税、销售税（增值税/商品及服务税）或其他进口 E&M 设备税费。不清楚固定合同价格是否基于到岸价（CIF）伊斯兰堡/运费到付（CFR）吉尔吉特-巴尔蒂斯坦，或承包商是否必须支付所有税费。	合同是否将规定设备定价为 CIF 伊斯兰堡、CFR 现场还是 DDP（承包商支付所有税费）？进口税、关税和增值税是承包商的责任还是由雇主报销？ Clarification / Query (English): Will the contract specify whether equipment pricing is CIF Islamabad, CFR site, or DDP (Contractor pays all duties)? Are import taxes, customs duties, and VAT the Contractor's liability or are they reimbursable by the Employer?
SP-5 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.13 Contractor Submittals; Conditions of Contract (General) 1-20	Currency split and exchange rate fluctuation risk 货币分割和汇率波动风险	Spec: Price and Payment schedule (to be submitted with proposal) Ambiguity: The RFP/Conditions of Contract are not provided in this Specific Provisions document. No clarity on whether contract is in USD, PKR, or a split; nor on exchange rate mechanism, hedging provisions, or who bears currency loss if PKR devalues during project duration. 含糊点: RFP/Conditions of Contract 文件未在本 Specific Provisions 文件中提供。不清楚合同是以美元、巴基斯坦卢比还是分割计价；也不清楚汇率机制、对冲条款，或在项目期间 PKR 贬值时谁承担货币损失。	澄清 / Query (中文): 合同价格的货币组成是什么（美元/巴基斯坦卢比）？如果分割，如果动员和施工期间 PKR/USD 汇率大幅变化，汇率调整机制是什么？ Clarification / Query (English): What is the currency composition of the contract price (USD/PKR)? If split, what is the mechanism for exchange rate adjustment if the PKR/USD rate changes significantly during mobilization and construction?
SP-6 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.11 Mobilization; Conditions of Contract (not provided in Specific Provisions) 1-18	Advance payment percentage and security requirements 预付款百分比和安全要求	Spec: N/A - Conditions of Contract document not included Ambiguity: The Specific Provisions document does not detail advance payment percentages, conditions for release, or whether the Contractor must post a bank guarantee to secure advance payments. Standard practice is 10-15% mobilization advance, but no rate is stated here. 含糊点: Specific Provisions 文件未详细说明预付款百分比、释放条件，或承包商是否必须张贴银行担保以保证预付款。标准做法是 10-15% 动员预付款，但这里未规定费率。	澄清 / Query (中文): 将允许多少百分比的预付款，以及在什么条件下（例如，呈现覆盖预付款 100-150% 的银行担保）？预付款是否可从每月进度付款中退款？ Clarification / Query (English): What percentage advance payment will be allowed, and under what conditions (e.g., presentation of bank guarantee covering 100-150% of advance)? Is the advance refundable from monthly progress payments?

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SP-7 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.11, §1.13 Contractor Submittals; Conditions of Contract <i>1-18, 1-20</i>	Retention and milestone payment schedule clarity 保留和里程碑付款时间表的清晰度	Spec: Price and Payment schedule (to be submitted)...Cost of mobilization and demobilization shall be deemed to cover in overall Contract Price Ambiguity: Retention percentage, release conditions, and the treatment of defects liability period are not specified in the Specific Provisions. Standard EPC contracts retain 5-10% until completion certificate, but the document is silent. When is retention released post-defect notification period (DNP)? 含糊点: Specific Provisions 中未指定保留百分比、释放条件和缺陷责任期的处理。标准 EPC 合同在完工证书前保留 5-10% , 但文件未提及。缺陷通知期 (DNP) 后何时释放保留?	澄清 / Query (中文): 每月发票的保留百分比是多少, 何时完全释放 (例如, 在签发交接证书时, 或 DNP 完成后) ? 保留是否有利息收入? Clarification / Query (English): What is the retention percentage from monthly invoices, and when is it fully released (e.g., at Taking-Over Certificate issuance, or after DNP completion)? Is there interest earned on retention?
SP-8 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.15.6 Tests on Completion (Schedule section not provided in detail); Conditions of Contract <i>1-38 onwards</i>	Liquidated damages for schedule delay and performance shortfall 进度延迟和性能不足的违约金	Spec: Time for Completion given in Contract could be achieved...The integrated Project schedule shall provide schedule dates for all Milestone Dates Ambiguity: The Specific Provisions document references 'Conditions of Contract' for liquidated damages but does not state the amount per day of delay, cap on total LD (if any), or whether LDs apply to intermediate milestones or only final completion. No LD for efficiency/performance shortfall is mentioned. 含糊点: Specific Provisions 文件参考 'Conditions of Contract' 的违约金, 但未说明每天延迟的金额、违约金总额的上限 (如有)、LD 是否适用于中间里程碑或仅最终完成。未提及效率/性能不足的 LD。	澄清 / Query (中文): 进度延迟的违约金率是多少 (例如, 每天每 MW 输出) ? 违约金总额是否有上限? 效率不足或发电不足与可用性不足是否有单独的 LD? Clarification / Query (English): What are the liquidated damages rates for schedule delay (e.g., per day per MW output)? Is there a cap on total LD exposure? Are there separate LDs for efficiency shortfall or generation shortfall vs. availability shortfall?
SP-9 NARROWED 已缩窄	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.15.3 Testing and Verification of Performance and Guarantees; §1.13.23.1 Factory Acceptance Tests <i>1-34, 1-38</i>	Performance guarantees for turbine efficiency and generator output 涡轮效率和发电机输出的性能保证	Spec: If the efficiency of the turbine during turbine model test is lower than required efficiency the Employer have right to reject the test...Efficiency/performance tests shall be conducted on at least one turbine...(720 hour reliability run). Ambiguity: The document specifies model test efficiency requirement and 720-hour reliability run but does not quantify the guaranteed turbine efficiency (%) or generator output (MW). No detail on what happens if efficiency shortfall is detected during 720-hour test or commissioning test - is it a defect or a performance guarantee breach?	澄清 / Query (中文): 额定水头下保证的最小涡轮效率(%)和发电机输出(MW)是多少?如果效率不足,承包商是否必须免费更换涡轮? Clarification / Query (English): What are the guaranteed minimum turbine efficiency (%) and generator output (MW) at rated head? If shortfall occurs, must Contractor replace turbine at no cost?

ID / Status 编号 / 状态	Reference 参考文件	Topic 主题	Spec / Ambiguity 规范内容 / 含糊点	Clarification Query 澄清问题
			含糊点: 文件规定了型号测试效率要求和 720 小时可靠性运行, 但未量化保证涡轮效率 (%) 或发电机输出 (MW)。如果在 720 小时测试或试运行期间检测到效率不足怎么办, 未说明 - 这是缺陷还是性能保证违反? Self-verification: Spec partially addresses this: "If the efficiency of the turbine during turbine model test is lower than required efficiency the Employer have right to reject the test...Efficiency/performance tests shall be cond..."	
SP-10 NARROWED 已缩窄	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.10 Joint Operation and Defect Notification Period; §1.15.2 Tests on Site 1-17, 1-38	Warranty and defect liability period trigger and duration 保修和缺陷责任期的触发和持续时间	Spec: The E&M Works Contractor shall successfully complete the joint operation...for a period of Two (02) years, which shall run concurrently with the Defect Notification Period (DNP)...The Contractor shall remain fully responsible for rectifying defects within its scope during the Defect Notification Period at no additional cost to the Employer. Ambiguity: The 2-year DNP is stated to run 'from Commercial Operation Date' but it is unclear whether defects found during the 720-hour reliability run (which may occur before formal CoD if CoD is defined as first synchronized generation) extend the DNP, and whether component-specific warranties (e.g., 5-year turbine warranty) supersede the 2-year DNP. 含糊点: 2 年 DNP 规定从商业运营日期开始运行, 但不清楚在 720 小时可靠性运行期间发现的缺陷 (如果 CoD 定义为首次同步发电, 可能在正式 CoD 之前发生) 是否延长 DNP, 以及组件特定保修 (例如, 5 年涡轮保修) 是否取代 2 年 DNP。 Self-verification: Spec partially addresses this: "The E&M Works Contractor shall successfully complete the joint operation...for a period of Two (02) years, which shall run concurrently with the Defect Notification Period (DNP)....."	澄清 / Query (中文): 2 年 DNP 是从第一份交付证书还是所有机组投入运行时开始?720 小时测试中发现的缺陷是否延长 DNP? Clarification / Query (English): Does 2-year DNP commence from first Taking-Over Certificate or when all units are operational? Do defects found in 720-hour tests extend DNP?
SP-11 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.6 Provision of Field Camps and Offices; §1.11 Mobilization 1-8 to 1-9, 1-18	Employer-furnished items and site facilities scope 雇主提供的项目和现场设施范围	Spec: The Contractor shall establish site office on temporary land at his own cost...Overall development of the Contractor Camp for their own staff is the responsibility of the Contractor...Contractor shall maintain and operate suitable capacity diesel generators...Contractor shall be responsible for the supply of adequate potable water. Ambiguity: While the document states Contractor is responsible for camps, water, and power, it is unclear what the Employer will provide. Will WAPDA provide main access road (assumed existing from civil works?), security (military or	澄清 / Query (中文): WAPDA 是否会提供: (a) 主要进出道路维护和冬季扫雪; (b) 电网电源连接点和可供承包商营地使用的容量; (c) 来自土建工程的供水; (d) 安全周边/检查点? 如果承包商必须从头开始建造所有设施, 估计的成本影响是多少? Clarification / Query (English):

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			civilian?), or basic site utilities (grid power availability, water mains from Package-I)? No Employer-furnished items list is included. 含糊点: 虽然文件规定承包商负责营地、水和电, 但不清楚雇主将提供什么。WAPDA 是否会提供主要进出道路 (假设来自土建工程现有?)、安全 (军事还是民事?) 或基本现场设施 (电网电源可用性、来自 Package-I 的供水管线)? 文件中未包括雇主提供的项目清单。	Will WAPDA provide: (a) main access road maintenance and winter snow clearance; (b) grid power connection point and capacity available to contractor camps; (c) water supply from civil works; (d) security perimeter/checkpoints? If Contractor must build all from scratch, what is the estimated cost impact?
SP-12 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.6.3 Security; §1.6.2 Workforce composition (not explicitly detailed) 1-9	Site security and military clearance for foreign personnel 外国人员的现场安全和军事许可	Spec: The Contractor shall provide an adequate number of trained and licensed security guards for site security...Security inside the perimeter of the Contractor camp shall be the responsibility of the Contractor. Ambiguity: The document requires Contractor to provide site security but does not clarify whether Contractor is responsible for obtaining military clearance, ISI/IB vetting, or travel permits for foreign nationals. Gilgit-Baltistan is a sensitive area with military administration. No clarity on foreign expat quota, visa processing timeline, or liability if visa is denied. 含糊点: 文件要求承包商提供现场安全, 但未澄清承包商是否负责获取军事许可、ISI/IB 审查或外国人的旅行许可。吉尔吉特-巴尔蒂斯坦是军事管制的敏感地区。未说明外国侨民配额、签证处理时间表或签证被拒的责任。	澄清 / Query (中文): 谁为外国承包商人员获取军事许可和 ISI/IB 安全审查? 现场允许多少外国侨民? 签证处理的时间表是什么, 如果签证被拒, 这是否被视为不可抗力或承包商责任? Clarification / Query (English): Who obtains military clearance and ISI/IB security vetting for foreign contractor personnel? How many foreign expats are allowed on-site? What is the timeline for visa processing, and if visas are denied, is this treated as force majeure or Contractor liability?
SP-13 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §4.2 ESHS Requirements; Table 4-1 Contractor's Staff for ESHS 4-3 to 4-5	Local content and minimum Pakistani workforce percentage 本地内容和最低巴基斯坦工人百分比	Spec: Number of female workers, percentage of workforce...Gender issues raised and dealt with...Carry out the consultations with local community Ambiguity: The document requires employment of local community staff and gender-balanced hiring but does not specify a mandatory local content percentage (e.g., minimum 30% Pakistani workforce, minimum 5% local GB residents). No penalty is stated for non-compliance with local hiring targets. 含糊点: 文件要求雇用当地社区员工和性别平衡的招聘, 但未规定强制性的本地内容百分比 (例如, 最少 30% 的巴基斯坦劳动力, 最少 5% 的本地 GB 居民)。未按规定不遵守本地招聘目标的处罚。	澄清 / Query (中文): 是否有强制性的最低本地 GB 劳动力百分比? 是否有从特定地区 (蕨类、纳格尔) 招聘的目标? 如果目标未达到, 后果是什么 (LD、拒绝工人)? Clarification / Query (English): Is there a mandatory minimum percentage of local GB workforce? Are there targets for hiring from specific districts (Hunza, Nagar)? If targets are missed, what are the consequences (LDs, rejection of workers)?

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SP-14 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §4.2.3 Organization and Responsibility; Table 4-1 4-3 to 4-4	HSE staffing levels and qualifications HSE 人员配备水平和资格	Spec: Environmental Expert (01), Health and Safety Expert (01), Social Expert (01)...duration: Whole Construction Phase...The proposed Contractor staff will be selected in collaboration with the Employer after the prior approval. Ambiguity: Table 4-1 specifies one Environmental Expert, one Health & Safety Expert, and one Social Expert but does not define qualifications (BSc/MSc requirement, certifications, years of experience). No detail on whether these roles are full-time on-site or can be shared across multiple projects. Cost impact of these roles is unclear. 含糊点: 表 4-1 规定一名环境专家、一名健康安全专家和一名社会专家，但未定义资格（BSc/MSc 要求、认证、年工作经验）。未说明这些角色是否全职在现场或可以在多个项目中共享。这些角色的成本影响不清楚。	澄清 / Query (中文): 每个 ESHS 专家职位的最低资格是什么（学位、认证、实地经验）？这些角色是否预算用于整个施工阶段 + 2 年 DNP，这些员工的成本是否包含在合同价格中？ Clarification / Query (English): What are the minimum qualifications for each ESHS expert role (degree, certification, field experience)? Are these roles budgeted for the entire construction phase + 2-year DNP, and are costs for these staff included in the Contract Price?
SP-16 NARROWED 已缩窄	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.7 Quality Assurance/Quality Control; §1.13.21 Inspection and Test Plan 1-13 to 1-15, 1-24	Quality Assurance/QC plan approval and hold points 质量保证/QC 计划批准和保留点	Spec: The Contractor shall prepare and submit Method Statement for the review and approval of Employer prior to the execution of any permanent works...The Contractor shall specify applicable points for the approval of Employer for each item of work. Ambiguity: The document requires QA/QC plan approval and specification of hold points but does not define turnaround time for Employer approval. If approval is delayed, does the Contractor have schedule relief? No detail on what constitutes a valid 'hold point' (witness point, hold point, source inspection, etc.) and who decides. 含糊点: 文件要求 QA/QC 计划批准和保留点规范，但未定义雇主批准的周转时间。如果批准延迟，承包商是否有进度缓解？未详细说明什么构成有效的‘保留点’（见证点、保留点、源检查等）以及谁决定。 Self-verification: Spec partially addresses this: "Within thirty (30) days of the date of the Letter of Acceptance, the Contractor shall produce and submit to the Employer an outline of the Plan. Within a further 30 days of the abo..."	澄清 / Query (中文): 雇主对质量计划的目标周期是什么？如果雇主批准延迟，承包商是否获得计划延期？ Clarification / Query (English): What is the Employer's target turnaround for approving QA/QC plans? If Employer approval is delayed, does the Contractor get schedule extension?
SP-17 NARROWED 已缩窄	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026	Non-Conformance Report (NCR) resolution and closeout	Spec: No NCR shall remain open at the time of Taking-Over unless expressly approved by the Employer...NC-1: Minor defects which will be repaired immediately, then recorded...NC-4: Major defects on critical items affecting safety, performance, or reliability.	澄清 / Query (中文): 如果雇主不批准 NCR 关闭，争议解决流程是什么？谁承担延期返工的成本？

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	§1.7 Quality Assurance; §1.11.13.2 NCR definition 1-15, 1-29	不符合报告 (NCR) 解决和结案	Ambiguity: The document categorizes NCRs (NC-1 to NC-4) but does not specify the Employer's approval timeline for NCR closeout, nor consequences if Employer delays approval. It is unclear whether Contractor can proceed with Taking-Over if an NCR is 'expressly approved' to remain open, and whether this is treated as a Defect during DNP. 含糊点: 文件对 NCR (NC-1 到 NC-4) 进行分类, 但未规定雇主批准 NCR 结案的时间表, 也未规定雇主延迟批准的后果。不清楚如果 NCR '明确批准'保持打开状态, 承包商是否可以继续进行交接, 以及在 DNP 期间这是否被视为缺陷。 Self-verification: Spec partially addresses this: "Procedure for the issuance, tracking and closeout of Non-Conforming Reports (NCR's) and Deviation Reports (DR's) shall be defined. This procedure shall prioritize the NCR's and ens..."	Clarification / Query (English): If Employer does not approve NCR closeout, what is the dispute resolution process? Who bears cost of extended rework?
SP-18 NARROWED 已缩窄	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.14.4 WAPDA/NGC Approvals 1-37	WAPDA/NGC approval timeline for switchyard equipment WAPDA/NGC 开关设备审批时间表	Spec: During design review and prior to start of manufacturing, WAPDA/NGC review/approval shall be required...The Contractor is bound to facilitate the Employer during review/approval process by NGC and will provide all the required information...Any delay arising from non-compliance or incomplete submissions shall be at the Contractor's risk and cost. Ambiguity: WAPDA/NGC approval is a critical path item but no timeline is specified. Typical approvals take 4-8 weeks. If NGC approval is delayed due to incomplete information from Contractor, the Contractor bears cost/schedule impact. But if NGC administratively delays, is this force majeure or Employer's problem? 含糊点: WAPDA/NGC 批准是关键路径项, 但未指定时间表。典型批准需要 4-8 周。如果由于承包商信息不完整而导致 NGC 批准延迟, 承包商承担成本/进度影响。但如果 NGC 行政延迟, 这是不可抗力还是雇主的问题? Self-verification: Spec partially addresses this: "The Contractor is bound to facilitate the Employer during review/approval process by NGC and will provide all the required information, technical data/test reports as per WAPDA/NGC..."	澄清 / Query (中文): NGC 批准的预期周期是什么?如果 NGC 批准延迟超出承包商控制, 这是否构成不可抗力? Clarification / Query (English): What is the expected timeline for NGC approval? If NGC approval is delayed beyond Contractor's control, is this force majeure?
SP-19 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III	Testing and commissioning	Spec: The Contractor shall at its own expense carry out all such tests...No additional payment shall be made for testing and commissioning activities.	澄清 / Query (中文):

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	Specific Provisions, March 2026 §1.13.23.3 FAT; §1.15.3 Testing and Verification of Performance <i>1-34, 1-39</i>	cost allocation between Factory and Site 工厂和现场之间的测试和试运行成本分配	Ambiguity: Document states 'No additional payment' for testing but the 800 man-day FAT cost estimate and site commissioning costs (personnel, equipment, energy) are 'included in the price' with no itemization. If actual FAT cost exceeds estimate due to retest loops, is this Contractor's loss? No cost cap is stated. 含糊点: 文件规定测试'无额外付款', 但 800 人天 FAT 成本估计和现场试运行成本 (人员、设备、能源) '包含在价格中', 无明细。如果实际 FAT 成本因重新测试而超过估计, 这是承包商的损失吗? 未规定成本上限。	如果在 FAT 期间发现缺陷需要返工和重新测试 (增加 >10 天) , 谁承担额外费用? FAT 访问是否有单一限额 (固定为 40 × 10 天) , 或每额外一天是否可计费? Clarification / Query (English): If during FAT a defect is discovered requiring rework and re-test (adding >10 days), who bears the additional cost? Is there a single allowance for FAT visits (fixed at 40 × 10 days), or is each additional day billable?
SP-21 NARROWED 已缩窄	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.10 Joint Operation and Defect Notification Period; §1.13.23.1 O&M Training <i>1-17, 1-33</i>	Post-commissioning O&M support and staff duration 试运行后的 O&M 支持和人员持续时间	Spec: Upon successful testing and commissioning, the Contractor shall assist in the joint operation of facilities for training the Employer's staff...The Contractor shall deploy qualified and experienced personnel for the operation, maintenance, and rectification of any defects...during this period. Ambiguity: The 2-year DNP requires Contractor 'presence' for operation and defect fixing but does not specify staffing levels, required qualifications, or how long per day/month. Are Contractor staff on-site 24/7, or only during defined shift hours? What is the cost of operating the plant 24/7 for 2 years? 含糊点: 2 年 DNP 要求承包商在运营和缺陷修复期间'在场', 但未规定人员配备水平、所需资格或每天/月多长时间。承包商员工是否 24/7 在现场, 还是仅在规定的班次时间? 在 2 年内全天候运营电站的成本是多少? Self-verification: Spec partially addresses this: "The Contractor shall deploy qualified and experienced personnel for the operation, maintenance, and rectification of any defects related to Electro-Mechanical works during this per..."	澄清 / Query (中文): 2 年 DNP 期间承包商的最低人员配置要求是什么?操作员、工程师、技术员的最低人数? Clarification / Query (English): What is the minimum Contractor staffing required during 2-year DNP? Minimum numbers for operators, engineers, technicians?
SP-22 NARROWED 已缩窄	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.10 JOINT OPERATION AND DEFECT NOTIFICATION PERIOD; §1.8	Defect correction during DNP and scope limits DNP 期间的缺陷纠正和范围限制	Spec: The Contractor shall remain fully responsible for rectifying defects within its scope during the Defect Notification Period at no additional cost to the Employer...Any defect requiring joint coordination between Civil and E&M Contractors shall be addressed through Employer, ensuring timely resolution.	澄清 / Query (中文): 如果虽管(Package-I)的结构缺陷在 DNP 期间导致电机损害,谁负责?清晰的包裹范围划分? Clarification / Query (English):

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	Environmental Compliance 1-17, 1-16		Ambiguity: What constitutes a 'defect' within E&M Contractor's scope vs. a civil works defect (e.g., powerhouse structural cracks, penstock liner damage)? If civil defects affect E&M equipment (e.g., penstock leak damages generator cooling), who is liable, and what is the mechanism for cost recovery or schedule adjustment? 含糊点: 什么构成 E&M 承包商范围内的'缺陷'与土建缺陷（例如，电厂结构裂纹、压力管道衬管损坏）？如果土建缺陷影响 E&M 设备（例如，压力管道泄漏损害发电机冷却），谁负责，成本回收或进度调整的机制是什么？ Self-verification: Spec partially addresses this: "The Contractor shall remain fully responsible for rectifying defects within its scope during the Defect Notification Period at no additional cost to the Employer."	If structural defect in penstock (Package-I) causes E&M damage during DNP, who is responsible? Clear scope delineation between packages?
SP-23 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.2.1.5 132kV AIS Switchyard (item j: SCADA); General Design Criteria 1-4, 1-36	Intellectual property and source code escrow for SCADA/protection systems SCADA/保护系统的知识产权和源代码托管	Spec: SCADA and Telecommunication System...Equipment to be of standard design...The design of the Project will be submitted by the Contractor to the Employer for review and approval by the Employer without relieving the Contractor of full responsibility for the design. Ambiguity: The document requires SCADA and Protection system design submission but does not address IP ownership, source code escrow, or access rights post-contract. If the OEM refuses to provide source code, can the Contractor be held liable for unavailability, or is this the Employer's problem? 含糊点: 文件要求 SCADA 和保护系统设计提交，但未涉及 IP 所有权、源代码托管或合同后的访问权。如果 OEM 拒绝提供源代码，承包商是否可被追究责任不可用，或这是雇主的问题？	澄清 / Query (中文): 承包商是否需要在托管中提供 SCADA/保护系统软件的源代码和文档？如果 OEM 限制源代码访问，承包商对于 DNP 后 O&M 连续性对雇主的义务是什么？ Clarification / Query (English): Will the Contractor be required to provide source code and documentation for SCADA/Protection system software in escrow? If the OEM restricts source code access, what is the Contractor's obligation to the Employer for O&M continuity post-DNP?
SP-24 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.3 Detailed Design and Planning; Conditions of Contract (not provided) 1-5	Change orders and variation approval process 变更单和变更批准流程	Spec: Any deviations from the requirements stated in Volume-II, Part-I, Part-II and Part-III shall be brought to the attention of the Employer in writing and shall be subjected to Employer's approval. Ambiguity: The document requires Employer approval of design deviations but does not detail the change order process, unit rates for extra work, or timelines for approval. If Employer requests a change (e.g., additional transformer bay), is there a predetermined unit rate schedule, or is cost negotiated ad hoc?	澄清 / Query (中文): 承包商是否需要提交额外工作项目的'费率时间表'（例如，额外的变压器湾、额外的电缆槽）？如果雇主要求的变更在施工期间发生，批准和计费机制是什么？ Clarification / Query (English): Will the Contractor be required to submit a 'Schedule of Rates' for extra work items (e.g., additional transformer bay, extra cable

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			含糊点: 文件要求雇主批准设计偏差，但未详细说明变更单流程、额外工作的单价或批准时间表。如果雇主请求变更（例如，额外的变压器湾），是否有预定的单价时间表，或是否即时协商成本？	tray)? If Employer-requested changes occur during construction, what is the approval and billing mechanism?
SP-25 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 Conditions of Contract (not provided in Specific Provisions) N/A	Dispute resolution mechanism and governing law 争议解决机制和管辖法律	Spec: N/A - Conditions of Contract document not included in Specific Provisions Ambiguity: The Specific Provisions document does not include Conditions of Contract with dispute resolution clauses. Standard EPC contracts specify arbitration (ICC, LCIA, or local Pakistan rules). For a Pakistani project, arbitration venue (Islamabad, Lahore) and governing law (Pakistani vs. international) are critical but unspecified. 含糊点: Specific Provisions 文件不包括具有争议解决条款的 Conditions of Contract。标准 EPC 合同规定仲裁 (ICC、LCIA 或当地巴基斯坦规则)。对于巴基斯坦项目，仲裁地点（伊斯兰堡、拉合尔）和管辖法律（巴基斯坦 vs 国际）至关重要，但未指定。	澄清 / Query (中文): 争议是否将通过国际仲裁 (ICC、LCIA) 或当地巴基斯坦仲裁解决？如果是国际仲裁，语言、地点（瑞士、巴基斯坦）和仲裁地是什么？ Clarification / Query (English): Will disputes be resolved through international arbitration (ICC, LCIA) or local Pakistan arbitration? If international arbitration, what is the language, venue (Switzerland, Pakistan), and seat of arbitration?
SP-26 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 Conditions of Contract (not provided); General Provisions N/A	Force majeure definition and delay compensation 不可抗力的定义和延迟补偿	Spec: N/A - Force majeure not detailed in Specific Provisions Ambiguity: The Specific Provisions do not define force majeure. Standard clauses might include war, pandemic, sanctions, geological events. For Gilgit-Baltistan, relevant FM events are: winter closure of roads (Oct-May), avalanches, seismic events, political instability, import sanctions. Unclear if these are FM or normal site conditions the Contractor should account for. 含糊点: Specific Provisions 未定义不可抗力。标准条款可能包括战争、大流行、制裁、地质事件。对于吉尔吉特-巴尔蒂斯坦，相关 FM 事件是：冬季道路关闭（10 月-5 月）、雪崩、地震、政治不稳定、进口制裁。不清楚这些是否为 FM 或承包商应考虑的正常现场条件。	澄清 / Query (中文): 冬季道路关闭（10 月-5 月）是否将被视为不可抗力，使承包商有权获得进度延长而无 LD，或这是承包商必须规划的已知现场条件？ Clarification / Query (English): Will winter road closure (Oct-May) be treated as force majeure entitling the Contractor to schedule extension with no LD, or is this a known site condition the Contractor must plan around?
SP-27 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III	Mobilization cost and advance payment linkage	Spec: Cost of mobilization and demobilization shall be deemed to cover in overall Contract Price, and no separate payment	澄清 / Query (中文):

ID / Status 编号 / 状态	Reference 参考文件	Topic 主题	Spec / Ambiguity 规范内容 / 含糊点	Clarification Query 澄清问题
	Specific Provisions, March 2026 §1.11 Mobilization and Demobilization; §1.13 Contractor Submittals <i>1-18, 1-20</i>	动员成本和预付款联系	shall be made...Price and Payment schedule (to be submitted with proposal) Ambiguity: Mobilization costs are 'deemed to cover' the lump sum but the Contractor must submit a detailed Payment Schedule with proposal. If mobilization cost is 10% of contract value but only 5% advance is provided, the Contractor must self-finance the gap. No clarity on advance payment percentage or drawdown schedule. 含糊点: 动员成本'应覆盖'固定价格, 但承包商必须随提案提交详细的支付时间表。如果动员成本是合同价值的 10%, 但仅提供 5% 的预付款, 承包商必须自我融资差距。未清楚说明预付款百分比或提取时间表。	如果动员成本估计为合同价值的 12%, 在现场动员开始前将提供多少预付款 (%) ? 是否有基于里程碑的提取时间表 (例如, NTP 时 10%, 营地完成时 5%) ? Clarification / Query (English): If mobilization cost is estimated at 12% of contract value, what advance payment (%) will be available before site mobilization begins? Is there a milestone-based draw schedule (e.g., 10% on NTP, 5% on camp completion)?
SP-28 NARROWED 已缩窄	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.2.1.2 Power Intake; §1.2.1.4 Draft Tube <i>1-3 to 1-4</i>	Interface with Package-II Hydro-Mechanical works with Package-II 水力机械工程的接口	Spec: Two (2) sets of Trash rack...One (1) set of Stoplogs...Two (02) Fixed Wheel Gates...Three (03) Bulkhead Gates (Fixed Wheel Type) Ambiguity: The Specific Provisions list trash racks, stoplogs, gates, and gantry cranes as E&M Contractor scope, but it is unclear if Package-II (Hydromechanical Works) is a separate contract or part of E&M. The interface between civil penstock structure and E&M gate/valve installation is not clearly delineated. 含糊点: Specific Provisions 将垃圾架、挡板、闸门和门式起重机械列为 E&M 承包商范围, 但不清楚 Package-II (水力机械工程) 是否为独立合同或 E&M 的一部分。土建压力管道结构与 E&M 闸门/阀门安装之间的接口未清楚界定。 Self-verification: Spec partially addresses this: "The Contractor shall coordinate with the Civil Works Contractor to ensure seamless integration and operation of systems requiring both civil and E&M inputs. Any defect requiring jo..."	澄清 / Query (中文): E&M (Package-III)和水力机械(Package-II)工作之间的具体接口点是什么?接口缺陷的明确责任矩阵? Clarification / Query (English): What are the specific interface points between E&M (Package-III) and hydro-mechanical (Package-II) works? Clear responsibility matrix for interface defects?
SP-30 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.14.4 WAPDA/NGC Approvals; §2.3 General Electrical Requirements <i>1-37, 2-48</i>	Metering and tariff metering point definition 计量和关税计量点的定义	Spec: Tariff Metering Equipment...shall be in accordance with prevailing WAPDA/NGC standards...Cost of such tests shall be included in the cost of relevant equipment. Ambiguity: The document requires tariff metering equipment compliance with WAPDA/NGC standards but does not specify the metering point location (primary of generator step-up transformer, HV side of generator step-up transformer, or 132	澄清 / Query (中文): 官方发电计量点将位于何处 (升压变压器一次/二次侧, 或 132 kV 线路) ? 谁将在试运行后拥有和维护计量设备? Clarification / Query (English):

ID / Status 编号 / 状态	Reference 参考文件	Topic 主题	Spec / Ambiguity 规范内容 / 含糊点	Clarification Query 澄清问题
			kV switchyard HV side). Metering point affects revenue calculation and must be jointly agreed. 含糊点: 文件要求关税计量设备符合 WAPDA/NGC 标准, 但未规定计量点位置 (发电机升压变压器一次侧、发电机升压变压器 HV 侧或 132 kV 开关设备 HV 侧)。计量点影响收入计算, 必须共同协议。	Where will the official generation metering point be located (primary/secondary of step-up transformer, or 132 kV line)? Who will own and maintain the metering equipment post-commissioning?
SP-31 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.6.2 Workforce; §4.2.4 ESHS Reporting 1-8 to 1-9, 4-5	Subsistence allowance rates and work hour regulations 生活津贴费率和工时规定	Spec: @ 200 US\$/day for one person for foreign inspections and @ 15,000 PKR/day for one person for local inspections...Number of workers, work hours, metric of Personal Protection Equipment (PPE) use Ambiguity: Daily allowance rates are specified for FAT inspections but the document does not detail normal worker subsistence allowances, overtime rates, or whether Contractor-provided accommodation affects DA. Pakistani labor law restricts work hours to 8 hours/day, but no reference to local labor laws is made. 含糊点: FAT 检查的每日津贴费率已规定, 但文件未详细说明正常工人生活津贴、加班费率, 或承包商提供的住宿是否影响 DA。巴基斯坦劳动法将工作小时限制为每天 8 小时, 但未参考当地劳动法。	澄清 / Query (中文): 承包商员工 (外国和本地) 的每日生活津贴费率是多少? 承包商必须遵守巴基斯坦劳动法工作小时限制 (每天 8 小时, 每周 40 小时) 吗? Clarification / Query (English): What are the daily subsistence allowance rates for contractor employees (foreign and local)? Must the Contractor comply with Pakistani labor law work-hour restrictions (8 hrs/day, 40 hrs/week)?
SP-32 NARROWED 已缩窄	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.13 Contractor Submittals; §1.13.23.5 O&M Manuals 1-20, 1-35	Document submission language and reproduction 文件提交语言和复制	Spec: Operation and Maintenance Manuals...which must be in English language...The official language for all type of trainings must be English...All manuals shall also be provided in electronic version (Microsoft Word and pdf formats). Ambiguity: Documents must be in English and provided in both hard copy and soft copy, but the number of hard copies is not consistently stated. For example, O&M manuals require 'Ten (10) hard copies' but other submittals just say 'sufficient copies.' Also unclear: are drawings required in Urdu for local O&M staff benefit? 含糊点: 文件必须用英文提供, 并以硬拷贝和软拷贝形式提供, 但未一致说明硬拷贝的数量。例如, O&M 手册需要'10 份硬拷贝', 但其他提交仅说'充分的副本'。也不清楚: 为了当地 O&M 员工的利益, 是否需要用乌尔都文提供图纸? Self-verification: Spec partially addresses this: "Table 1-1 specifies copy numbers: 4 for review, 6 for final issue, 10 for O&M Manuals;	澄清 / Query (中文): 关键的运维和安全程序文件是否应翻译为乌尔都语以供不懂英文的现场人员使用? Clarification / Query (English): Should critical O&M and safety procedure documents be translated to Urdu for non-English speaking site staff to ensure safety compliance?

ID / Status 编号 / 状态	Reference 参考文件	Topic 主题	Spec / Ambiguity 规范内容 / 含糊点	Clarification Query 澄清问题
			All Project documentation and submittals shall be in English Language."	
SP-34 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §4.2.3 Organization and Responsibility (Note on C&D waste) 4-4	Environmental waste management responsibility and cost 环境废物管理责任和成本	Spec: For disposal of Construction and Demolition (C&D) waste, it is the responsibility of Contractor to engage licensed district level waste Contractor for disposal of C&D waste after consultation with Local Authority. Ambiguity: Contractor must hire a licensed waste contractor to dispose of C&D waste but cost is not explicitly stated as reimbursable or already included in the lump-sum price. In Pakistan, C&D waste disposal can be costly (especially for hazardous materials). No detail on whether chemical waste (used oils, solvents) falls under 'C&D' or is a separate environmental cost. 含糊点: 承包商必须聘请许可的废物承包商处置 C&D 废物, 但未明确说明成本是可报销还是已包含在固定价格中。在巴基斯坦, C&D 废物处置成本可能很高 (尤其是有害物质)。未详细说明化学废物 (废油、溶剂) 是否属于 'C&D' 或是单独的环境成本。	澄清 / Query (中文): C&D 废物处置成本是否包含在固定合同价格中, 或是否由雇主单独报销? 这是否包括有害废物 (油、溶剂、电池) ? Clarification / Query (English): Are C&D waste disposal costs included in the lump-sum contract price, or are they to be reimbursed separately by the Employer? Does this include hazardous waste (oils, solvents, batteries)?
SP-35 NARROWED 已缩窄	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.15.6 Tests on Completion; Conditions of Contract 1-41	Taking-Over Certificate issuance criteria and partial TO 交接证书签发标准和部分交接	Spec: Tests on Completion are tests to progressively prove the correct operation...Tests on Completion shall be carried out for each Section of the Project prior to issuance of the relevant Taking-Over Certificate. Ambiguity: The document mentions taking over 'for each Section' suggesting partial Taking-Over is allowed (e.g., Unit 1 taken over while Units 2 & 3 are still being commissioned). But criteria for 'acceptable performance' to issue a TO cert are not defined. Can the Employer partially accept a unit with minor defects recorded as 'expressly approved'? 含糊点: 文件提到'各部分'的交接, 暗示允许部分交接 (例如, Unit 1 交接而 Units 2 & 3 仍在试运行)。但签发 TO 证书的'可接受性能'标准未定义。雇主是否可以部分接受有以'明确批准'记录的轻微缺陷的机组? Self-verification: Spec partially addresses this: "Tests on Completion shall be carried out for each Section of the Project prior to issuance of the relevant Taking-Over Certificate."	澄清 / Query (中文): 什么构成"轻微缺陷"不能阻止发放接收证书? 当每个发电机组完成 720 小时测试时是否会发放部分接收证书, 还是仅在所有机组同步后发放? Clarification / Query (English): What constitutes a "minor defect" that does not prevent issuance of Taking-Over Certificate? Will partial TO certs be issued when each unit completes 720-hour tests, or only when all units are synchronized?

ID / Status 编号 / 状态	Reference 参考文件	Topic 主题	Spec / Ambiguity 规范内容 / 含糊点	Clarification Query 澄清问题
SP-36 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.10 Joint Operation and Defect Notification Period 1-17	Commercial Operation Date definition and payment trigger 商业运营日期定义和付款触发	Spec: Joint operation of Electro-Mechanical works for a period of Two (02) years, which shall run concurrently with the Defect Notification Period (DNP)...(from Commercial Operation Date). Ambiguity: CoD is mentioned but not defined. Is CoD: (a) first unit synchronized and delivering power to grid, (b) all three units synchronized, or (c) formal Taking-Over Certificate signature? The definition is critical because it triggers retention release schedule and DNP commencement. Without clear definition, billing disputes are likely. 含糊点: 提及但未定义 CoD。CoD 是: (a) 首台机组同步并向电网输电, (b) 三台机组同步, 还是 (c) 正式交接证书签署? 定义至关重要, 因为它触发保留释放时间表和 DNP 开始。没有清楚的定义, 计费纠纷可能会发生。	澄清 / Query (中文): 商业运营日期 (CoD) 的确切定义是什么? 是首台机组与电网同步, 还是三台机组的试运行? 最终保留付款取决于 CoD 还是正式交接证书? Clarification / Query (English): What is the exact definition of Commercial Operation Date (CoD)? Is it the first unit's synchronization with the grid, or the commissioning of all three units? Does final retention payment depend on CoD or on formal Taking-Over Certificate?
SP-37 KEPT 保留	Attabad Lake Hydropower Project (54 MW) - EPC Package-III Specific Provisions, March 2026 §1.14 General Design Criteria; §3.1 General (Section 3 Basic Design Criteria) 1-36, 1-37	Design standards selection and approval process 设计标准选择和审批流程	Spec: The plant and equipment shall be designed according to the latest version of international standards relevant...If other standards shall be chosen, the Contractor shall supply copies of those standards in English language only...The approval for adoption of such standards must be necessary from the Employer. Ambiguity: The document recommends international standards (ASME, IEEE, IEC, ISO) but allows alternative standards if approved by Employer. Process and timeline for Employer approval of non-standard alternatives are not specified. If Contractor proposes GB/T (Chinese) standards, how long will approval take, and what if Employer objects? 含糊点: 文件推荐国际标准 (ASME、IEEE、IEC、ISO) 但允许非标准替代品如获雇主批准。未规定雇主批准非标准替代品的流程和时间表。如果承包商提议 GB/T (中文) 标准, 批准需要多长时间, 如果雇主反对怎么办?	澄清 / Query (中文): 如果承包商提议对钢材或阀门使用中文 (GB/T) 标准而不是 ASME/ISO, 批准周转是什么, WAPDA 是否会接受等效标准, 或仅接受国际公认的标准? Clarification / Query (English): If the Contractor proposes using Chinese (GB/T) standards for steel or valves instead of ASME/ISO, what is the approval turnaround, and will WAPDA accept equivalent standards, or only internationally-recognized ones?
FRR 可行性复核报告 — 未解决事项与设计冲突				
FRR-1 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §5.5.1, §5.5.2 (Pages 5-21 to 5-24) 5-21 to 5-24	Geotechnical - Weir foundation treatment unclear and risky	Spec: Weir foundation proposed on slided mass after treatment; 14m deep slided mass replacement with stabilized clay; cutoff walls by cement slurry or plastic piles (option not finalized)	澄清 / Query (中文):

ID / Status 编号 / 状态	Reference 参考文件	Topic 主题	Spec / Ambiguity 规范内容 / 含糊点	Clarification Query 澄清问题
		岩土工程 - 堰基础处理不清楚且风险大	Ambiguity: FRR identifies multiple unresolved geotechnical issues at weir: (1) slided mass (ABGM) with large boulders and cavities to 90m depth is loose and highly pervious; (2) excavation in boulders is impractical and may trigger further sliding; (3) proposed clay blanket on pervious material is hazardous with risk of erosion/piping; (4) cutoff wall option (cement slurry vs plastic piles) not finalized; (5) structural stability not evaluated for bearing, sliding, overturning scenarios. FRR notes excavation volume could increase 'out-of-proportion' and equipment handling is 'not feasible'. 含糊点: 可行性审查报告在堰的岩土工程方面确认了多个未解决的问题。建议采取凝聚法灌注或其他方法，但未最终确定。承包商需要澄清最终基础处理方案，以及地滑体的实际稳定性评估。	可行性审查报告第 5.5.2 节确认堰基础存在未解决的问题。请问业主在 EPC 招标前是否会确认首选的基础处理方法？如果施工期间地质条件恶化，承包商是否需要承担设计修改的成本和风险？ Clarification / Query (English): FRR §5.5.2 identifies unresolved weir foundation issues including risks of excavation-triggered landslides, impracticality of clay blanket placement, and finalization of cutoff wall method. Will the Employer confirm the preferred foundation treatment approach before EPC bidding, or will contractor bear the cost/risk of modifying the design if geotechnical conditions worsen during construction?
FRR-2 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §5.3.2, §5.4 (Pages 5-16 to 5-20) 5-17 to 5-20	Geotechnical - Insufficient subsurface investigations recommended before detail design 岩土工程 - 建议在详细设计前进行充分的地下调查	Spec: Only 6 boreholes drilled; rock samples from only 1 borehole (BH-04) not truly representing subsurface for whole project area. Additional boreholes recommended at weir right bank, intake, surge tank, penstock, and powerhouse locations Ambiguity: FRR critically notes that geotechnical data is inadequate for detail design: (1) limited number of lab tests; (2) rock samples from only one borehole; (3) unexpected test result variations; (4) direct shear test from one sample insufficient; (5) Young's Modulus tests inadequate; (6) additional boreholes (BH-7 to BH-12) recommended at six key locations before finalizing layout. FRR states 'More sampling and testing is required for the better assessment' and identifies missing Lugeon tests, UCS with elastic moduli, and Menard pressuremeter tests. 含糊点: 可行性审查报告指出岩土勘察数据不足以支撑详细设计。建议增加 6 个钻孔，进行更多的 Lugeon 试验、UCS 试验和 Menard 压力计试验。	澄清 / Query (中文): 可行性审查报告建议在合同签署前完成额外的钻孔和实验室试验。这些调查是由业主资助和完成，还是由承包商在详细设计期间自费进行？ Clarification / Query (English): FRR §5.4 recommends additional boreholes (BH-7 to BH-12) and extensive laboratory testing before detail design. Will the Employer fund and complete these investigations before EPC contract signature, or must the EPC Contractor conduct them at its own cost during detail design? What is the timeline?
FRR-3 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §6.2, §6.3 (Page 6-1) 6-1	Seismic design parameters unfinalized and require detailed site-specific assessment	Spec: SEE = 0.44g for Dam/Weir & 0.38g for Spillway; OBE = 0.24g. No GMPE for Hindukush deep seismic source used. Parameters need update/finalization before or during detail design Ambiguity: FRR identifies critical gaps in seismic analysis: (1) selected SEE and OBE values not compared with PSHA hazard curves and response spectra; (2) no Ground Motion	澄清 / Query (中文): 可行性审查报告表明地震参数需要通过详细的场地特定评估来最终确定。请问业主是否会在承包商设计前提供最新的地震参数，还是由承包商自费进行这些研究？

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		地震设计参数未最终确定，需要详细的场地特定评估	Prediction Equation (GMPE) used for Hindukush deep seismic source zone; (3) detailed site-specific seismic hazard assessment recommended; (4) geologic mapping of faults needed to confirm local faults; (5) geophysical surveys required. Project is Zone-4 seismic with pronounced seismic activity. Uncertainty in design parameters affects all structures. 含糊点: 可行性审查报告指出地震参数的显著不确定性。未对比 PSHA 和反应谱，未应用 Hindukush 深震源的 GMPE。该地区处于 4 级地震区，需要详细的场地特定地震危险评估。	Clarification / Query (English): FRR §6.2-6.3 notes that seismic design parameters (SEE, OBE) are preliminary and require finalization via detailed site-specific seismic hazard assessment, geologic fault mapping, and geophysical surveys. Will the Employer provide updated seismic parameters before EPC design, or must EPC Contractor conduct these studies and bear cost/schedule risk?
FRR-4 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §7.5.1 (Pages 7-10 to 7-12) 7-10 to 7-12	Fault zones in tunnel alignment require clarification before excavation 隧道路线上的断层带在开挖前需要澄清	Spec: Fault zone assumed present at middle section of low pressure tunnel; KKH tunnel drawings show moderately weathered gneiss in parallel section with no fault mentioned. Measures to be taken at fault zone shall be clarified and incorporated in tender design. Ambiguity: FRR notes contradiction regarding fault zone presence in headrace tunnel: (1) fault zone 'assumed' present at middle tunnel section during feasibility review; (2) KKH tunnel parallel section drawings state 'no fault zone mentioned' but shows moderately weathered gneiss; (3) measures at fault zone location unspecified; (4) this discrepancy creates design uncertainty for tunnel support, excavation method, and grouting requirements. 含糊点: 关于低压隧道中点的断层带，可行性审查报告与开挖现实的 KKH 隧道记录存在矛盾。需要澄清是否真的存在断层及其具体位置和特性。	澄清 / Query (中文): 可行性审查报告假设隧道中点存在断层带，但 KKH 隧道记录未见断层记录。请确认实际地质状况。如果在招标前不能确认，承包商是否需要为未知条件承担设计风险？ Clarification / Query (English): FRR §7.5.1 indicates a fault zone 'assumed' in the headrace tunnel at middle section, but KKH tunnel drawings from parallel section show no fault and only moderately weathered gneiss. Which is correct? Will Employer provide geologic mapping and core data to confirm fault presence/absence before tender, or does EPC Contractor assume design risk for unknown conditions?
FRR-5 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §5.5.2, §7.5.1 (Pages 5-22 to 5-24, 7-10 to 7-15) 5-23; 7-10 to 7-15	Slope stability at surge tank, penstock intake portal, and powerhouse not fully analyzed 调压池、进水口门户和厂房的边坡稳定性分析不完整	Spec: Surge Tank: no borehole drilled at location, subsurface unknown. Power Tunnel end portal: sheared and jointed rock, terrain susceptible to external slope stability failure in seismic zone-4. Intake slopes stability analysis not conducted. Ambiguity: FRR identifies unresolved slope stability concerns: (1) surge tank location has no subsurface investigation, stability unknown; (2) power tunnel outlet portal is in sheared/jointed rock with terrain susceptible to failure, particularly concerning in Zone-4 seismic area; (3) intake area slopes never analyzed for stability; (4) penstock upper reach has 'some slope stability issues'; (5) FRR recommends comprehensive cut slope stability analysis by EPC but does not specify design parameters or acceptable safety factors.	澄清 / Query (中文): 可行性审查报告指出调压池、进水口和隧道出口处的边坡稳定性分析不完整。请问业主是否会在招标前进行补充研究？ Clarification / Query (English): FRR §5.5.2 and §7.5.1 identify multiple slopes with incomplete stability analysis: surge tank (no borehole data), intake area, power tunnel portal (sheared rock in seismic zone), and penstock upper reach. Will Employer fund slope stability studies before tender, or does EPC Contractor design at risk with incomplete geotechnical data?

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			含糊点: 可行性审查报告指出多处边坡稳定性分析不完整, 尤其是调压池、进水口和隧道出口处。这些地点都位于地震活跃区。	
FRR-6 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §4.6, §9.5 (Pages 4-16 to 4-30, 9-3 to 9-5) 4-30; 9-5	Design flood determination: 20-year vs 10,000-year; GLOF not finalized 设计洪水确定: 20 年与 10000 年回归期; GLOF 未最终确定	Spec: Design flood return period selected as 20 years in Feasibility; FRR recommends 10,000-year or GLOF whichever is greater; spillway discharge capacity calculations show ~3210 m³/sec vs design flood 3250 m³/sec (marginal capacity) Ambiguity: FRR notes critical inconsistency: (1) feasibility study selected Q20 flood (1750 m³/s for diversion, 3250 m³/s for spillway); (2) FRR recommends check flood minimum of 10,000-year return period or GLOF value; (3) GLOF study deferred to detail design stage; (4) spillway uncontrolled discharge ~2400 m³/s + gated undersluice 810 m³/s = 3210 m³/s total capacity vs 3250 m³/s design (120 m³/s shortfall); (5) FRR notes 2022 flood event should be considered; (6) weir/spillway discharge elevation inconsistencies noted between report sections and drawings. 含糊点: 可行性研究采用 20 年设计洪水, 但可行性审查报告建议采用 10000 年或 GLOF 值。溢流堰的实际泄流能力与设计洪水有差异。GLOF 研究推迟到详细设计阶段。	澄清 / Query (中文): 可行性审查报告建议采用 10000 年回归期或 GLOF, 但可行性研究采用 20 年。请问业主确认采用哪个设计洪水标准? 是否会在招标前提供 GLOF 估算? Clarification / Query (English): FRR §4.11 recommends design flood minimum of 10,000-year return period or GLOF (whichever is greater), but Feasibility Study selected Q20. Also, spillway capacity calculations (~3210 m³/s) are marginal vs design flood (3250 m³/s). Will Employer confirm which design flood standard applies and provide GLOF estimate before tender, or does EPC assume risk of design modification?
FRR-7 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §4.11, §7.5.2 (Pages 4-30, 7-13 to 7-15) 4-30; 7-13 to 7-15	Sediment load and flushing strategy unresolved; tunnel vs undersluice choice pending 沉积物负荷和冲淤策略未解决; 隧道与下泄槽选择待定	Spec: Annual sediment load 27.08 MTons; FRR proposes new flushing tunnel (5.5m dia, 1100m long, 250 m³/s) instead of original undersluices due to geotechnical issues. Flushing tunnel design, effectiveness, intake level, discharge capacity all 'must be determined with hydraulic model study' Ambiguity: FRR proposes fundamental layout change (replacing undersluices with new flushing tunnel) citing geotechnical problems at weir, but states: (1) flushing tunnel diameter, discharge capacity, effectiveness 'must be determined with hydraulic model'; (2) intake level selection pending; (3) sediment studies to be undertaken during detail design; (4) flushing tunnel outlet in overburden area with risk of damage; (5) tunnel location 7m away from intake raises hydraulic/sediment control concerns; (6) no testing of proposed concept. 含糊点: 可行性审查报告建议用新的冲淤隧道替代原始下泄槽, 但这个新方案的关键参数 (直径、泄流量、有效性) 都需要通过模型试验确定。沉积物处理策略变为承包商的详细设计工作。	澄清 / Query (中文): 可行性审查报告建议采用新的冲淤隧道设计, 但其关键参数需要通过模型试验确定。请问业主是否会在招标前进行这些试验, 还是由承包商自费进行? Clarification / Query (English): FRR §7.5.2 proposes replacing original undersluices with a new flushing tunnel design, but explicitly states tunnel diameter, discharge capacity, and effectiveness 'must be determined with hydraulic model study'. Will Employer fund this model study before tender and confirm flushing strategy, or must EPC Contractor design and test the flushing tunnel concept at its cost, bearing risk of inadequate sediment removal?

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FRR-8 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §8.5, §11.1.5 (Pages 8-37, 4-376 to 4-379) <i>8-37; 4-376 to 4-379</i>	Turbine efficiency: 91.5% vs 93% - cost and capacity impact 涡轮效率: 91.5% vs 93% - 成本和容量影响	Spec: Feasibility Study assumes 91.5% turbine efficiency (power output 54 MW). FRR mechanical expert endorses 93% turbine efficiency, 'which may result in little higher installed capacity of about 57 MW' Ambiguity: FRR notes divergence in turbine efficiency assumption: (1) feasibility study design uses 91.5% efficiency yielding 54 MW; (2) FRR mechanical expert recommends 93% efficiency achievable for Francis turbines this size; (3) 93% efficiency implies ~57 MW capacity (not 54 MW); (4) impact on turbine cost, generator size, transformer capacity, switchyard equipment, and transmission line design unclear; (5) FRR does not specify which efficiency to use in tender documents. 含糊点: 可行性研究采用 91.5%效率, 设计容量 54MW。但可行性审查报告推荐采用 93%效率, 可能导致容量提升到 57MW。这将影响涡轮机、发电机、变压器和开关站的设计和成本。	澄清 / Query (中文): 可行性审查报告建议采用 93%效率, 可能增加容量到 57MW, 而可行性研究采用 91.5%, 容量为 54MW。请确认招标中采用哪个规范。这将影响发电机、变压器和开关站的规格和成本。 Clarification / Query (English): FRR §8.5 recommends 93% turbine efficiency vs Feasibility Study's 91.5%, potentially increasing capacity to 57 MW. Will Employer confirm which efficiency and turbine capacity specification applies to the tender: 54 MW at 91.5%, or ~57 MW at 93%? How does this affect generator, transformer, and switchyard equipment sizing?
FRR-9 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §11.1.3 (Pages 4-899 to 4-905) <i>4-902 to 4-903</i>	Turbine shaft design standard conflict: Indian Standard vs ASTM 涡轮轴设计标准冲突: 印度标准 vs ASTM	Spec: Feasibility Study specifies turbine shaft per Indian Standard IS 12837-1989 and IS 12800. FRR recommends replacing with ASTM A668 Class D standard; clarifies three (3) Francis units each with separate turbine and generator shaft Ambiguity: FRR identifies standard conflict: (1) feasibility study requires Indian Standard (IS 12837, IS 12800) for turbine shaft; (2) FRR mechanical expert recommends replacing with ASTM A668 Class D; (3) feasibility study also states 'directly coupled to generator rotor' but later clarifies three separate shafts; (4) potential incompatibility between Indian and ASTM standards for fatigue, stress analysis, material certification; (5) no clarity on which standard tender documents require. 含糊点: 可行性研究采用印度标准规范涡轮轴, 但可行性审查报告建议改用 ASTM A668 Class D 标准。同时, 关于涡轮轴与发电机的耦合方式也有不一致。	澄清 / Query (中文): 可行性审查报告建议采用 ASTM A668 Class D 替代印度标准。招标规范将采用哪个标准? 涡轮轴与发电机的连接方式如何? Clarification / Query (English): FRR §11.1.3 recommends ASTM A668 Class D for turbine shaft instead of Indian Standard (IS 12837, IS 12800). Which standard will the Tender Specifications require? Also clarify coupling arrangement: are turbine and generator shafts separate or coupled? What are implications for turbine procurement and cost?
FRR-10 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §8.4.1, §8.4.2, §8.4.3, §8.5 (Pages 8-7 to 8-37) <i>8-7 to 8-37</i>	Number of generating units uncertain: 2, 3, or 4 units 发电机组数量不确定: 2、3 或 4 台	Spec: FRR provides power/energy calculations for 2-unit, 3-unit, and 4-unit options. Feasibility Study selected 3 Francis units (20 MW each) for 54 MW total. FRR validates 3-unit as 'most optimized' but provides alternative scenarios without recommending which to bid Ambiguity: FRR performs energy calculations for multiple unit configurations: (1) 2-unit option (27 MW per unit); (2) 3-unit	澄清 / Query (中文): 可行性审查报告推荐采用 3 台机组, 但也计算了 2 台和 4 台的方案。招标规范是否固定为 3 台, 还是允许承包商提议其他方案? Clarification / Query (English):

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			option (18 MW per unit, 54 MW total); (3) 4-unit option (13.5 MW per unit, 54 MW total). FRR endorses 3-unit as 'most optimized' with 79% plant factor, but does not explicitly forbid contractors from proposing 2- or 4-unit alternatives. Unit selection affects turbine cost, generator efficiency, powerhouse size, control complexity, and O&M requirements. 含糊点: 可行性审查报告提供了 2 台、3 台和 4 台机组的能量计算, 但未明确禁止承包商提出替代方案。单机选择将影响涡轮成本、发电机效率和厂房设计。	FRR §8.4 presents energy calculations for 2-, 3-, and 4-unit options, endorsing 3-unit (54 MW total) as 'most optimized' but providing alternative scenarios. Will Tender Specifications fix the number of generating units at 3, or may EPC Contractors propose 2- or 4-unit alternatives with equivalent capacity?
FRR-11 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §9.4.1, §9.4.2 (Pages 9-2 to 9-5) 9-3 to 9-4	Weir/spillway discharge capacity margin inadequate vs design flood 堰/溢流堰泄流能力相对于设计洪水的裕度不足	Spec: Uncontrolled ogee spillway capacity ~2400 m³/s; 3 gated undersluice gates ~810 m³/s total (270 m³/s each); total ~3210 m³/s vs design flood 3250 m³/s. FRR notes 'marginal capacity' and 'very close to design flood discharge' Ambiguity: FRR hydraulic review identifies capacity margin risk: (1) uncontrolled spillway discharge capacity calculated as ~2400 m³/s (not the stated 3250 m³/s); (2) three undersluice gates total ~810 m³/s; (3) combined total ~3210 m³/s vs design flood 3250 m³/s shortfall of ~40 m³/s; (4) FRR notes 'marginal capacity' and 'very close'; (5) no safety margin for hydrological uncertainty or potential design flood revision; (6) gate operation reliability critical but unspecified. 含糊点: 可行性审查报告指出溢流堰的实际泄流能力 (约 3210 立方米/秒) 与设计洪水 (3250 立方米/秒) 之间的差异不足 40 立方米/秒。这是一个很小的安全裕度。	澄清 / Query (中文): 可行性审查报告指出溢流堰的泄流能力与设计洪水之间的差异仅 40 立方米/秒。这个裕度是否足够, 还是需要重新设计溢流堰? Clarification / Query (English): FRR §9.4.1 calculates total spillway/undersluice discharge capacity as ~3210 m³/s vs design flood of 3250 m³/s, a shortfall of ~40 m³/s. FRR notes 'marginal capacity'. Will Employer confirm whether this capacity is adequate, or must spillway be redesigned to accommodate higher flood discharge with safety margin?
FRR-12 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §7.5.2 (Pages 7-15 to 7-16) 7-15 to 7-16	Powerhouse location and orientation: original vs proposed (surface vs underground) 厂房位置和方向: 原始位置 vs 建议位置 (地表 vs 地下)	Spec: Original: powerhouse on flat terrace near left bank. Proposed: move to higher ground to reduce penstock length and flood risk. Alternative: underground powerhouse 'better during seismic activity in Zone-4' if economics allow Ambiguity: FRR proposes significant layout change for powerhouse: (1) original feasibility location on alluvium terrace adjacent to river; (2) FRR proposes moving to higher elevation to reduce penstock length and flood protection costs; (3) alternative underground powerhouse option noted as seismically superior in Zone-4 but cost/benefit unquantified; (4) subsurface conditions at new locations require investigation; (5) foundational strata different between options; (6) no explicit instruction which option to follow in tender.	澄清 / Query (中文): 可行性审查报告建议将厂房从河边地形移至较高地面, 或采用地下厂房。招标规范中厂房位置和类型是固定的还是由承包商选择? Clarification / Query (English): FRR §7.5.2 proposes moving powerhouse to higher ground vs original riverside location, and mentions underground powerhouse as seismically superior alternative. Which powerhouse location/type will Tender Specifications require: original riverside surface location, elevated surface location, or underground? What are cost/schedule implications of each option?

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			含糊点: 可行性审查报告建议将厂房从河边地形台地移至较高地面, 以减少压力管道长度和防洪成本。还提到地下厂房在 4 级地震区更安全, 但如果经济可行。	
FRR-13 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §5.5.2, §11.9 (Pages 5-22 to 5-24, 4-641 to 4-643) 5-23; 4-642	Penstock design contradictions: piers vs trench; material specification missing 压力管道设计矛盾: 墩支撑 vs 沟埋; 材料规范缺失	Spec: §5 Geology states penstock supported by piers; §15 Construction Planning states laid in excavated trench; drawing AFS-ST-430 shows anchor blocks not piers. Material for penstock missing; recommend ASTM A516 Gr-70 or equivalent Ambiguity: FRR identifies multiple penstock design contradictions: (1) section 5 (Geology) specifies pier support; (2) section 15 (Construction) specifies trench burial; (3) drawing AFS-ST-430 shows anchor blocks instead; (4) penstock material specification completely missing from feasibility report; (5) FRR recommends ASTM A516 Gr-70 pressure vessel steel; (6) sleeve-type expansion joints after anchor blocks missing; (7) hold-down straps for exposed penstock missing; (8) no subsurface investigations along penstock length. 含糊点: 可行性研究中关于压力管道的支撑方式存在矛盾: 地质部分说采用墩, 施工规划部分说埋于沟中, 图纸显示锚定块。管道材料规范也缺失。	澄清 / Query (中文): 可行性审查报告指出关于压力管道支撑方式的矛盾, 并指出管道材料规范缺失。招标规范是否会明确规定支撑方式和材料标准? Clarification / Query (English): FRR §5.5.2 notes contradictions in penstock design between sections (pier vs trench vs anchor blocks) and §11.9 identifies missing penstock material specification. Recommend ASTM A516 Gr-70. Will Tender Specifications clarify penstock support method (piers, trench, or anchored) and confirm material standard before bidding?
FRR-14 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §14 (Cost Estimates), §6.5 (Equipment Costs) (Pages 6-510 to 6-545) 6-525 to 6-540	Hydroelectric equipment cost estimates contain major gaps and unquantified risks 水电设备成本估算存在重大缺口和量化不足的风险	Spec: Cost estimates based on March 2021 rates; missing cost items: power intake stoplogs, weir gates/stoplogs, spare parts, erection/testing equipment. Workshop equipment cost 'considerably low'. Switchyard equipment cost to be confirmed. Material cost to be adjusted per bidding date Ambiguity: FRR notes multiple cost estimation deficiencies: (1) feasibility cost basis is March 2021 (outdated); (2) missing cost items: intake stoplogs, weir gates, spare parts, workshop equipment; (3) workshop equipment cost 'considerably low and needs to be increased'; (4) switchyard equipment cost needs confirmation; (5) 'detailed cost estimates made on thumb rules' (not engineering-based); (6) material costs to be adjusted at bidding time (unknown escalation); (7) no contingency for design changes cited in FRR (alternative layout, flushing tunnel, powerhouse relocation).	澄清 / Query (中文): 成本估算基于 2021 年 3 月价格且缺少关键项目。可行性审查报告建议采用详细的工程成本估算。业主是否会提供基于 FRR 建议变更的最新成本基准? Clarification / Query (English): FRR notes cost estimates based on March 2021 rates and contain missing items (intake stoplogs, weir gates, spare parts, workshop equipment). FRR recommends 'detailed cost estimates' vs thumb-rule approach. Will Employer issue updated cost baseline reflecting FRR-proposed changes (alternative layout, flushing tunnel, powerhouse relocation) and 2026 prices before tender?

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			含糊点: 成本估算基于 2021 年 3 月的价格, 并缺少多项成本: 进水口挡板、堰门、备件、车间设备等。可行性审查报告建议详细的工程成本估算, 而非经验法则。	
FRR-15 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §12 (Electrical), §14 (Switchyard) (Pages 5-862 to 6-340) <i>5-887 to 5-968; 6-118 to 6-180</i>	Electrical specifications incomplete: transformer ratings, cable parameters, standards missing 电气规范不完整: 变压器规格、电缆参数、标准缺失	Spec: Missing: electrical equipment layout/arrangement drawings, reference standards for equipment, cable technical parameters, motor control centers (MCCs), CT/PT specifications, tariff metering equipment details, SCADA communication details, fiber optic data requirements Ambiguity: FRR identifies extensive electrical specification gaps: (1) electrical equipment general layout/arrangement drawings missing; (2) reference standards (IEC/IEEE/BS/ASTM) not specified for each equipment; (3) cable technical parameters missing; (4) motor control centers (MCCs) not addressed; (5) current/potential transformer (CT/PT) specifications missing; (6) tariff metering system clarity needed (whether 132/11kV transformer requires metering); (7) SCADA communication details incomplete; (8) fiber optic requirements not detailed; (9) DC supply system recommendations diverge from feasibility (24/48V DC requirements unclear); (10) transformer ratings (22 MVA) not standard. 含糊点: 电气设备规范存在大量缺陷: 缺少设备布置图、参考标准、电缆参数、控制中心、互感器规范等。这些都需要在详细设计中补充, 可能影响成本和进度。	澄清 / Query (中文): 可行性审查报告指出电气规范存在大量缺陷, 需要补充详细设计。业主是否会在招标前发布更新的电气设计基础和技术规范? Clarification / Query (English): FRR §12 and §14 identify extensive missing electrical specifications: layout drawings, equipment standards (IEC/IEEE/BS/ASTM), cable parameters, MCCs, CT/PT details, tariff metering, SCADA/fiber optic requirements. Will Employer issue updated electrical design basis/technical specifications before tender, or must EPC Contractor define these details at risk?
FRR-16 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §12.10 (Pages 5-951 to 5-977) <i>5-951 to 5-967</i>	Transformer technical details and ratings unresolved 变压器技术细节和额定值未解决	Spec: Generator transformer rated 22 MVA specified (not standard rating). FRR recommends ON-Load Tap Changer instead of OFF-Load. Unit auxiliary transformer Dry Type recommended. Vector group missing for auxiliary transformers. Impedance of 4% needs review Ambiguity: FRR identifies transformer specification issues: (1) main generator transformer 22 MVA rating 'not standard' (should align with generator capacity change from 54 to ~57 MW per FRR turbine recommendation); (2) feasibility specifies OFF-Load Tap Changer; FRR recommends ON-Load Tap Changer (cost/complexity impact); (3) no explosion prevention system specified for power transformer; (4) auxiliary transformer: Dry Type recommended vs Oil Type in feasibility; (5) vector group missing; (6) impedance of 4% 'needs to be	澄清 / Query (中文): 可行性审查报告指出变压器规范的多个问题: 额定值非标准、自动调压器选择、干式与油浸选择等。招标规范是否会更新这些建议? Clarification / Query (English): FRR §12.10 identifies transformer specification issues: (1) 22 MVA rating is 'not standard' and may not align with turbine capacity change (54 vs ~57 MW); (2) recommends ON-Load Tap Changer vs feasibility's OFF-Load (cost impact); (3) Dry Type auxiliary transformers recommended; (4) vector group missing; (5) impedance review needed. Will Tender Specifications be updated to reflect these recommendations?

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			reviewed"; (7) 11/0.4 kV auxiliary transformer voltage specified but may not match system. 含糊点: 变压器规范存在多个问题: 22MVA 额定值非标准, 应与发电机容量相匹配。自动调压器与有载调压器的选择、干式与油浸变压器的选择、以及阻抗等参数需要澄清。	
FRR-17 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §12.18, §13 (Transmission Line) (Pages 6-118 to 6-425) 6-118 to 6-425	132 kV Switchyard and transmission line capacity/voltage coordination unresolved 132kV 开关站和传输线容量/电压协调未解决	Spec: Switchyard location not finalized during detail design. 132/11kV transformer MVA rating to be coordinated with load. Three transmission circuits proposed (one double-circuit, two single-circuit) but T/L expert to decide. Switchyard equipment rating to be revised if transmission line capacity changes Ambiguity: FRR notes switchyard design uncertainties: (1) switchyard location to be finalized during detail design (not fixed); (2) 132/11kV power transformer MVA rating dependent on colony and future load requirements (load estimate not available); (3) three transmission circuits planned (one double-circuit to Aliabad 27km, two single-circuits to Sost 70km) but T/L expert must determine final configuration; (4) switchyard equipment rated assuming specific T/L configuration; (5) if T/L capacity changes, switchyard equipment rating 'have to be revised accordingly'; (6) cost of switchyard equipment not finalized; (7) conflicting recommendations on transformer tariff metering and CT/PT specification. 含糊点: 开关站位置和设备规格都未最终确定。变压器的 MVA 额定值取决于负荷情况, 传输线配置由传输线专家决定。这些相互关联的设计决策需要协调。	澄清 / Query (中文): 可行性审查报告指出开关站位置未确定, 变压器额定值取决于不确定的负荷, 传输线配置待定。这些相互关联的设计决策需要在招标前最终确定。 Clarification / Query (English): FRR §12.18-13 notes switchyard location unfinalized, transformer MVA rating dependent on colony load (data unavailable), and transmission line configuration to be decided by T/L expert. These are interdependent: if T/L capacity changes, switchyard equipment must be revised. Will Employer finalize switchyard location, load requirement, and T/L configuration before tender, or must EPC Contractor design at risk?
FRR-18 NARROWED 已缩窄	2026-03-11 PKG III VOL-III PART II (FRR) §12.16, §12.17 (Pages 6-329 to 6-363) 6-329 to 6-363	SCADA and communication system details missing; fiber optic requirements unspecified SCADA 和通信系统详情缺失; 光纤要求未指定	Spec: SCADA connection via fiber optic link to NPCC proposed but details missing in feasibility report. Fiber optic specifications, CCTV system, internet/TV services (Triple Services), PABX telephone exchange, LAN details all recommended but not specified in feasibility Ambiguity: FRR identifies SCADA and communication specification gaps: (1) SCADA connection from powerhouse/switchyard to NPCC via fiber optic recommended but 'missing in feasibility report'; (2) fiber optic specifications (type, bandwidth, redundancy, distance, cost) not provided; (3) CCTV system at switchyard/powerhouse/camp recommended but specifications missing; (4) Internet & TV services (Triple Services) recommended but not specified; (5) PABX/PAX telephone exchange for external communication	澄清 / Query (中文): 光纤 SCADA 链路、CCTV、互联网和局域网系统在招标前的最终规范和成本分配是什么? Clarification / Query (English): What is the final specification and cost allocation for fiber optic SCADA link, CCTV, internet, and LAN systems before tender?

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			recommended; (6) separate LAN within powerhouse, switchyard, residential camp recommended; (7) no clarification of cost responsibility or project integration. 含糊点: 光纤通信、SCADA 系统、电视/互联网服务、电话交换机、局域网等通信系统的详细规范都缺失。这些都是可行性审查报告新增的建议，需要在详细设计中补充。 Self-verification: Spec partially addresses this: "SCADA via fiber optic link to NPCC, CCTV system, internet/TV services, PABX telephone exchange, and LAN... not yet finalized"	
FRR-19 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §11 (Environmental & Social), §3.6 (Pages 7-273 to 7-401) 7-282 to 7-401	Environmental and resettlement impact assessment incomplete; land acquisition status unclear 环境和移民安置影响评估不完整; 土地征收状态不清	Spec: Land acquisition noted as 'critical issue' not covered in main environmental chapter. Environmental management plan for operational phase missing. Resettlement framework incomplete. Seasonal construction restrictions not detailed Ambiguity: FRR identifies environmental and social risk gaps: (1) land acquisition described as 'critical issue' but not adequately addressed in environmental chapter; (2) resettlement assessment incomplete; (3) environmental management plan for operational phase missing from main report; (4) cultural heritage protection framework incomplete; (5) seasonal environmental/construction restrictions not specified (e.g., wildlife protection windows); (6) status of land surveys and community consultations unclear; (7) cost and schedule impacts of land acquisition/resettlement on construction timeline unknown. 含糊点: 土地征收被认为是关键问题，但环境章节中未充分涉及。移民安置评估不完整，运营期环保管理计划缺失。季节性施工限制未详细说明。	澄清 / Query (中文): 可行性审查报告指出土地征收是关键问题，移民安置框架不完整。业主是否会在招标前确认土地征收状态、提供移民安置行动计划，并说明季节性施工限制？ Clarification / Query (English): FRR §11 identifies land acquisition as 'critical issue' not adequately covered, resettlement framework incomplete, and operational environmental management plan missing. Will Employer confirm land acquisition status, provide resettlement action plan, and specify seasonal construction restrictions before tender? What cost/schedule impact on EPC works?
FRR-20 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §5.6 (Pages 5-26 to 5-27, 3-413 to 3-481) 5-26; 3-413 to 3-481	Concrete aggregate and borrow material sources not confirmed; aggregate quality testing limited 混凝土骨料和借用材料来源未确认; 骨料质量试验有限	Spec: Rock aggregate quality testing limited to few samples. Fine aggregate testing incomplete; 'missing testing recommended'. Marble quarry noted (economic importance, not permitted for concrete). Rock quarries need location confirmation. ASR (Alkali-Silica Reaction) testing incomplete per ASTM C1260 Ambiguity: FRR notes material sourcing and quality test gaps: (1) rock aggregate testing limited to few samples; (2) fine aggregate testing 'missing' - recommendations to test with more samples; (3) aggregate sources require confirmation (location, distance, haul cost); (4) marble quarry identified but marked as 'not permitted for concrete use' (conflict with	澄清 / Query (中文): 可行性审查报告指出骨料和借用材料的质量试验不完整，来源也未确认。业主是否会在招标前确认所有借用区和采石场的位置和可运输成本？ Clarification / Query (English): FRR §5.6 notes aggregate quality testing is limited, fine aggregate testing incomplete, and sources require confirmation. Recommends ASR testing per ASTM C1260 and C295. Will

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			construction materials section); (5) ASR testing incomplete - recommends ASTM C1260 and C295 petrographic exam; (6) cement source selection dependent on availability at detail design; (7) reinforcing steel source not specified; (8) test pit locations may differ from actual borrow areas. 含糊点: 骨料质量试验样本有限, 细骨料试验不完整。需要确认各种骨料和借用材料的来源、距离和成本。ASR 试验也不完整。 •	Employer identify and confirm all borrow areas, quarries, and cement sources before tender, with distance/haul cost data? Or must EPC Contractor select sources during detail design at risk?
FRR-21 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §4.5, §4.11, §9.2 (Pages 4-6 to 4-30, 9-1 to 9-2) 4-8; 4-30; 9-2	Hydrological data outdated: flows study limited to 1966-2015; 2022 flood event not incorporated 水文数据过时: 流量研究仅限 1966-2015 年; 2022 年洪水事件未纳入	Spec: Flow study based on 1966-2015 data (missing 2016-2018 data). Flows study 'need to be updated in detail design stage'. FRR recommends 2022 flood event be considered for weir design. Latest hydrological information to be accessed and hydrology updated with global climate change impacts Ambiguity: FRR identifies hydrological data limitations: (1) feasibility flow study covers 1966-2015 (missing 2016-2018); (2) 2019-2020 data shows lower flows than long-term average; (3) FRR explicitly recommends flow study 'need to be revised/updated during detail design'; (4) 2022 flood event (recent) not incorporated in design flood assessment; (5) global climate change effects on flood patterns not addressed; (6) stream gauging station not yet installed at project site; (7) winter low-flow estimates unconfirmed. 含糊点: 流量研究基于 1966-2015 年数据 (缺少 2016-2018 年数据)。2022 年洪水事件未纳入设计。需要在详细设计阶段更新水文数据。	澄清 / Query (中文): 可行性审查报告指出流量研究数据不完整, 2022 年洪水应纳入设计。业主是否会在招标前更新水文数据? Clarification / Query (English): FRR §4.11 notes flow study covers 1966-2015 (missing 3 years of recent data) and recommends flows study 'need to be revised/updated during detail design'. Also notes 2022 flood event should be considered. Will Employer fund hydrological update including 2022 flood and recent climate trends before tender, or must EPC Contractor conduct study at its cost?
FRR-22 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §4.5.3, §8.2 (Pages 4-13 to 4-15, 8-3 to 8-5) 4-13 to 4-15	Winter flow minimums and minimum flow for turbine operation unconfirmed 冬季最小流量和涡轮最小运行流量未确认	Spec: Design discharge 60 m³/s available 'almost half year'. Winter flows (Dec-April) are low; exact minimum flow value and turbine minimum operational threshold not clearly specified. Impact on plant factor and winter generation capacity unclear Ambiguity: FRR notes water availability uncertainty: (1) design discharge 60 m³/s available ~6 months (June to mid-December) per feasibility; (2) winter period (Dec-April) shows significantly lower flows; (3) exact minimum flow value not clearly stated; (4) turbine minimum operational discharge threshold not confirmed (feasibility mentions 'certain limit of low flows' but no specific value); (5) impact on winter generation and plant factor (79%) not fully analyzed; (6) reservoir storage strategy for winter power supply not detailed; (7) minimum environmental flow requirements not specified.	澄清 / Query (中文): 设计流量 60 立方米/秒仅在约半年内可用。冬季流量明显较低, 涡轮的最小运行流量未指定。请确认这些数据, 以便承包商能准确预测冬季发电能力。 Clarification / Query (English): FRR §8.2 notes design discharge 60 m³/s available ~6 months; winter flows (Dec-April) are significantly lower. Feasibility mentions turbine operational 'certain limit of low flows' but specific value not stated. Will Employer confirm minimum winter flow data and

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			含糊点: 设计流量 60 立方米/秒约半年可用。冬季流量明显较低，但确切的最小流量值和涡轮最小运行流量未明确指定。这影响到冬季发电能力和装机容量系数。	turbine minimum operational discharge threshold before tender? How does this affect winter generation forecasts?
FRR-23 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §7.5.2 (Pages 7-13 to 7-17) 7-13 to 7-17	Alternative layout proposal creates design and cost uncertainty: not final 替代方案布置导致设计和成本不确定性: 非最终方案	Spec: FRR proposes 'Modified Alternate-1A layout' with gabion weir, flushing tunnel, relocated powerhouse. States 'layout modified by MC is...to be checked for technical and economic viability during Detail design stage by EPC Contractor' Ambiguity: FRR's 'Modified Alternate-1A' represents substantial departure from feasibility study layout but explicitly states modifications 'to be checked for technical and economic viability during Detail design stage by EPC Contractor'. This implies: (1) layout is not final/approved; (2) EPC contractor must validate feasibility; (3) no cost baseline for new layout; (4) schedule impact of validation work unknown; (5) risk that cost/schedule increases prompt reversion to original layout; (6) uncertainty over which layout governs tender bid estimates. 含糊点: 可行性审查报告提出的修改布局（替代方案 1A）是对可行性研究的重大改变，但明确指出需要在详细设计阶段由承包商检查技术和经济可行性。这意味着布局未最终确定，成本和进度风险大。	澄清 / Query (中文): 可行性审查报告建议的修改布局需要承包商在详细设计阶段检查其技术和经济可行性。请问招标中采用哪个布局：原始布局还是修改布局？ Clarification / Query (English): FRR §7.5.2 proposes 'Modified Alternate-1A layout' (gabion weir, flushing tunnel, relocated powerhouse) but explicitly states this must be 'checked for technical and economic viability during Detail design stage by EPC Contractor'. Is this proposed layout final or must contractors revalidate it? What is baseline cost and schedule for original vs modified layout?
FRR-24 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §5.5.1 (Pages 5-21 to 5-22) 5-21 to 5-22	Rock permeability test incomplete; one borehole shows 100% water loss 岩石渗透性试验不完整; 一个钻孔显示 100%水损失	Spec: Permeability of weir area very high; BH-01 drilling showing 100% water loss and water head not maintained/built during permeability test. Lugeon tests recommended at intake and surge tank during detail design Ambiguity: FRR notes critical permeability concern: (1) weir foundation area shows extremely high permeability (100% water loss in BH-01); (2) permeability test inconclusive (water head could not be established); (3) Lugeon test data at other key locations (intake, surge tank) missing; (4) grouting/seepage control strategy for high-permeability strata unspecified; (5) impact on dam safety, foundation treatment, and grouting cost/schedule unknown. 含糊点: 堰区域的渗透性非常高，钻孔试验显示 100%水损失。未进行完整的 Lugeon 试验。这对堰的渗漏控制和基础处理有重要影响。	澄清 / Query (中文): 堰区域的渗透性非常高，可行性审查报告建议进行 Lugeon 试验。这将影响基础处理和防渗措施的成本。业主是否会在招标前完成这些试验并确认防渗方案？ Clarification / Query (English): FRR §5.5.1 reports extremely high permeability at weir area (100% water loss in BH-01) and recommends Lugeon tests at intake/surge tank during detail design. This affects seepage control, grouting strategy, and foundation treatment cost. Will Employer fund Lugeon testing and confirm seepage control approach before tender?

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FRR-25 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §7.5.1 (Pages 7-9 to 7-10) 7-9 to 7-10	Construction access and roads - KKH tunnel proximity and load limits unspecified 施工通道和道路 - KKH 隧道接近度和承载限制未指定	Spec: Closest part of headrace scheme to KKH tunnel at surge tank: surge tank bottom 2385 m, KKH tunnel invert 2376 m, perpendicular distance 65 m. Four KKH tunnels exist in area. Construction via adit from existing road, leaving 3-5m rock plug Ambiguity: FRR identifies construction access considerations: (1) headrace tunnel proximity to KKH tunnel at surge tank (only 65 m perpendicular distance); (2) four KKH tunnels exist in project area; (3) proposed construction approach via adit from existing road with temporary rock plug; (4) access road conditions, load limits, seasonal constraints not specified; (5) coordination with KKH operations/traffic during construction unclear; (6) impact on Karakoram Highway traffic and public safety during blasting/excavation not addressed. 含糊点: 调压池与 KKH 隧道之间垂直距离仅 65 米。建议通过既有道路的平硐进行施工。但施工通道的条件、承载限制和与 KKH 的协调未明确。	澄清 / Query (中文): 调压池与 KKH 隧道之间距离很近 (65 米)。建议通过平硐施工。但施工通道条件、承载限制和与 KKH 的协调未明确。业主是否会确认这些条件? Clarification / Query (English): FRR §7.5.1 notes headrace tunnel is 65 m perpendicular distance from KKH tunnel at surge tank, and proposes construction via adit with temporary rock plug. Construction access details (road conditions, load limits, KKH coordination, traffic impact) not specified. Will Employer confirm access route, load-carrying capacity, and KKH traffic management plan before tender?
FRR-26 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR) §4.3 (Pages 4-3 to 4-5) 4-3 to 4-5	Climate and meteorological data incomplete; snow/rainfall/temperature ranges not finalized 气候和气象数据不完整; 冰雪/降雨/温度范围未最终确定	Spec: Climatological data from Skardu and Gilgit stations used as proxy (actual project site data limited). No wind data specific to Attabad Lake (assumed 100 km/hr with speed correction factors). Snow/ice conditions for winter construction not specified Ambiguity: FRR notes meteorological data limitations: (1) climate data from Skardu and Gilgit used as proxy for Attabad Lake (elevations and microclimates differ); (2) no site-specific wind data for Attabad Lake (assumed 100 km/hr); (3) no site-specific temperature extremes (design for concrete curing, equipment operation); (4) snow/ice conditions for winter construction not specified; (5) rainfall intensity for construction dewatering not addressed; (6) seasonal constraints for concrete placement, excavation, and equipment installation not defined. 含糊点: 气象数据来自 Skardu 和 Gilgit 站, 而非项目现场。风速假设为 100 公里/小时。没有项目现场的温度、降雪和降雨数据。	澄清 / Query (中文): 气象数据来自代理站点, 而非项目现场。没有项目现场的温度、风速、降雪和降雨数据。这些信息对施工计划很重要。业主是否会提供? Clarification / Query (English): FRR §4.3 notes climate data from Skardu/Gilgit stations (not site-specific) and wind speed assumed at 100 km/hr. No site-specific temperature extremes, snow conditions, or rainfall intensity for construction planning. Will Employer provide one year of site-specific meteorological data (temperature, wind, snow, rainfall) before tender to support construction planning?
FRR-27 KEPT 保留	2026-03-11 PKG III VOL-III PART II (FRR)	Environmental flow requirement and post-construction	Spec: Environmental management plan for operational phase missing from feasibility report. Minimum flow requirement for aquatic life not specified. Post-construction monitoring protocol and responsibility not clarified	澄清 / Query (中文):

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	§11 (Environmental & Social) (Pages 7-273 to 7-282) 7-273 to 7-282	environmental monitoring not detailed 环境流量要求和竣工后环保监测未详细说明	Ambiguity: FRR notes environmental operation gaps: (1) environmental management plan for operational phase 'missing from feasibility report'; (2) minimum environmental flow (instream flow) requirement for aquatic life not quantified; (3) post-construction environmental monitoring protocol (fish surveys, water quality, sediment impact) not detailed; (4) responsibility for monitoring (owner, contractor, government) unclear; (5) cost of environmental compliance and mitigation measures unestimated. 含糊点: 运营阶段的环保管理计划缺失。没有明确的最小生态流量要求。竣工后的环保监测协议和责任也未明确。	运营阶段的环保管理计划缺失，最小生态流量要求未指定。业主是否会在招标前明确这些要求和监测职责？ Clarification / Query (English): FRR §11 notes environmental management plan for operational phase 'missing' and minimum environmental flow requirement not specified. Will Employer define minimum instream flow requirement and post-construction environmental monitoring protocol (responsibility, cost, duration) before tender?
EIA 环境影响评估 — 环保义务与许可责任				
EIA-1 KEPT 保留	EIA Report, Chapter 2.3, Section 9.6.1 Compliance Procedure for Obtaining NOC from GB EPA Page 2-9, 9-6	NOC and Environmental Approval Responsibility 环境许可证和环保批准责任	Spec: WAPDA will submit EIA to GB EPA to obtain NOC / Environmental Approval. Approval from GB EPA is mandatory before commencement of project activities. Ambiguity: The EIA states WAPDA obtains the NOC, but does not explicitly state whether the Contractor must obtain subsidiary NOCs (from Forest, Wildlife, Archaeology departments) before or after contract award, or who bears those costs. 含糊点: 环评报告说明 WAPDA 获得环保许可证,但未明确说明承包商是否必须在合同签订前或签订后获得林业部门、野生动物部门和考古部门的分别批准,以及谁承担这些费用。	澄清 / Query (中文): 问 1:雇主(WAPDA)是否会在招标前获得所有环保许可证(来自环保局、林业部门、野生动物部门、考古部门),还是承包商需要在详细设计/动员期间获得附属许可证?这些附属许可证申请由谁支付? Clarification / Query (English): Q1: Will the Employer (WAPDA) obtain all environmental NOCs (from EPA, Forest, Wildlife, Archaeology departments) before invitation to bid, or will the Contractor be required to obtain subsidiary NOCs during detailed design/mobilization? Who pays for these subsidiary NOC applications?
EIA-2 KEPT 保留	EIA Report, Chapter 9.1-9.4 Environmental Management Plan - General and Institutional Setup Page 9-1 to 9-5	Environmental Management Plan (EMP) Amendment and Ownership 环境管理计划修订和所有权	Spec: EMP is a 'live document' and needs to be reviewed and updated at each stage of the Project. The whole EMP will be included as a clause of the contract documents. Site-Specific EMPs (SSEMPs) will be developed by Contractor before construction. Ambiguity: It is unclear who has authority to approve amendments to the EMP during construction, what the amendment process timeline is, and whether Contractor must absorb costs of EMP changes initiated by Employer or GB EPA compliance audits.	澄清 / Query (中文): 问 2:施工期间,谁对环保计划修订拥有最终批准权(管理顾问、WAPDA、GB 环保局或承包商)?批准时间表是什么?如果 GB 环保局或 WAPDA 在施工期间发起环保计划变更,承包商是否负责实施成本,或者将其视为合同变更? Clarification / Query (English):

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			含糊点: 目前不清楚在施工期间谁有权批准环保计划修订,修订程序的时间表是什么,以及承包商是否必须吸收由雇主或 GB 环保局合规审计发起的环保计划变更成本。	Q2: Who has final approval authority for amendments to the EMP during construction (MC, WAPDA, GB EPA, or Contractor)? What is the approval timeline? If GB EPA or WAPDA initiates EMP changes during construction, is the Contractor responsible for implementation costs, or are they treated as variations?
EIA-3 KEPT 保留	EIA Report, Section 9.8-9.12, Table 9-4 Environmental Monitoring Plan and Cost Breakdown <i>Page 9-57 to 9-75</i>	Environmental Monitoring Costs and Responsibility 环境监测费用和责任	Spec: Cost for environmental management and monitoring will be the part of the contract document with the Contractor. Annual estimated cost: Pre-construction PKR 11.79M, Construction (36 months) PKR 98.49M, O&M (annual) PKR 2.13M. Ambiguity: The cost breakdown in Table 9-4 totals PKR 126.5M, but it is ambiguous whether: (1) Contractor must bear 100% of monitoring costs or share with WAPDA, (2) MC staff costs (PKR 6M/year for environment personnel) are Contractor or MC responsibility, (3) Third-party monitoring costs (PKR 1.5M biannual) are paid by Contractor, and (4) costs increase with market inflation during 3-year construction. 含糊点: 表 9-4 中的成本分解总计 1.265 亿巴基斯坦卢比,但模糊之处在于:(1)承包商是否必须承担 100%的监测成本或与 WAPDA 分担,(2)管理顾问人员成本(每年 600 万巴基斯坦卢比用于环境人员)是承包商还是管理顾问的责任,(3)第三方监测成本(每两年 150 万巴基斯坦卢比)由承包商支付,(4)成本是否随着 3 年施工期间的市场通胀而增加。	澄清 / Query (中文): 问 3:承包商是否需要全额支付表 9-4 中列出的所有环境监测成本(3 年施工阶段 1.949 亿巴基斯坦卢比)?管理顾问的职业健康安全和环境人员(每年 600 万巴基斯坦卢比)成本是承包商还是雇主的责任?第三方监测成本是否为承包商的直接开支,费率是否会每年根据通胀调整? Clarification / Query (English): Q3: Will the Contractor be required to fully fund all environmental monitoring costs (PKR 98.49M for 3-year construction phase) listed in Table 9-4? Are MC's HSE and environment personnel (PKR 6M/year) costs the responsibility of the Contractor or the Employer? Will third-party monitoring costs be Contractor's direct expense, and will rates be adjusted for inflation annually?
EIA-4 KEPT 保留	EIA Report, Section 9.4.2(d), Section 9.6.1 GB EPA Responsibilities and NOC Conditions <i>Page 9-5, 9-6</i>	Environmental Permit Conditions and GB EPA Audit Authority 环境许可证条件和 GB 环保局审计权限	Spec: GB EPA will undertake audit of project activities (both construction and operation) with respect to protocols as defined in EMP and NOC. GB EPA will conduct random site visits and meetings to ensure compliance. Ambiguity: The EIA does not specify: (1) what specific conditions will be attached to the NOC when issued by GB EPA, (2) whether GB EPA has authority to impose additional conditions after NOC issuance, (3) frequency and scope of GB EPA audits, (4) what remedial actions and costs Contractor must bear if non-compliant findings are issued, and (5) whether enforcement includes project suspension powers. 含糊点: 环评报告未指定:(1)当 GB 环保局发放许可证时会附加哪些具体条件,(2)GB 环保局在发放许可证后是否有权施加额外条件,(3)GB 环保局审计的频率和范围,(4)如果发现不合规,承包商	澄清 / Query (中文): 问 4:GB 环保局发放的许可证将附加哪些具体条件、限制和合规阈值?GB 环保局能否在施工开始后施加新条件或修改许可证条款?承包商补救 GB 环保局审计发现的不合规事项的程序和时间表是什么,补救行动费用由谁承担? Clarification / Query (English): Q4: What specific conditions, limits, and compliance thresholds will be attached to the NOC issued by GB EPA? Can GB EPA impose new conditions or modify NOC terms after construction has commenced? What is the procedure and timeline for

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			必须承担哪些补救行动和费用,以及(5)执法是否包括项目暂停权力。	Contractor to remedy non-compliance findings from GB EPA audits, and who bears the cost of remedial actions?
EIA-5 KEPT 保留	EIA Report, Section 5.2.12, 8.5.1(iv), 9.7 (Table 9-1, Item 11) Air Quality Monitoring and Mitigation Page 5-17, 8-50 to 8-52, 9-60	Dust and Air Quality Standards and Monitoring Frequency 粉尘和空气质量标准及监测频率	Spec: Ambient air quality monitoring for CO, SO₂, NO_x, HC and PM_{2.5}/PM₁₀. NEQS compliance required. During construction, dust control measures including water bowsers, dust masks, and regular monitoring per environmental plan. Ambiguity: The EIA specifies NEQS compliance but does not explicitly state: (1) the quantified dust limits (mg/m³) for PM₁₀ and PM_{2.5}, (2) monitoring frequency during construction (quarterly per Table 9-4, but some sections reference 'regular monitoring' without specificity), (3) exceedance remedial procedures and contractor penalties, (4) who determines exceedance and triggers mitigation, and (5) whether contractor is liable for natural dust events (e.g., wind storms) outside construction activities. 含糊点: 环评报告规定了国家环保质量标准合规,但未明确说明:(1)PM₁₀ 和 PM_{2.5} 的定量粉尘限制(毫克/立方米),(2)施工期间的监测频率(表 9-4 中为季度,但某些章节提及'定期监测'但未具体说明),(3)超标的补救程序和承包商处罚,(4)谁确定超标并触发缓解措施,以及(5)承包商是否对自然粉尘事件(如风暴)导致的超标负责。	澄清 / Query (中文): 问 5:承包商必须遵守的具体定量粉尘限制(NEQS 下的 PM₁₀ 和 PM_{2.5},单位为毫克/立方米)是什么?监测频率是什么(按表 9-4 为季度还是更频繁)?如果空气质量监测显示不合规,谁有权宣布超标,承包商必须在多长时间内实施哪些纠正措施,不合规的经济处罚是什么? Clarification / Query (English): Q5: What are the specific quantified dust limits (PM₁₀ and PM_{2.5} in mg/m³) that the Contractor must comply with under NEQS? What is the monitoring frequency (quarterly as per Table 9-4 or more frequent)? If air quality monitoring shows non-compliance, who has authority to declare exceedance, what corrective actions must Contractor implement within what timeframe, and what are the financial penalties for non-compliance?
EIA-6 KEPT 保留	EIA Report, Section 5.2.12, 8.5.1(xi), 9.7 (Item 11), Annex-VI(KPI) Noise and Vibration Mitigation and Monitoring Page 5-17, 8-57 to 8-62	Noise Limits and Vibration Standards Near Sensitive Receivers 敏感受体附近的噪声限制和振动标准	Spec: Noise levels range 50-65 dB without traffic. During construction, high noise equipment restricted to 9 AM-5 PM. NEQS compliance required. Noise reduction equipment to be fitted. Quarterly monitoring per NEQS standard dBA Leq. Ambiguity: The EIA specifies NEQS compliance and daytime work restrictions but does not clearly state: (1) the quantified noise limits (dB(A)) for residential vs. commercial areas, (2) whether vibration limits are specified separately (no numerical limits found), (3) sensitive receptors identified (e.g., schools, mosques, hospitals near site—none listed in detail), (4) monitoring locations and whether Contractor must conduct baseline before construction, (5) exceedance remedial procedures, and (6) whether contractor is liable for noise from third-party traffic or suppliers. 含糊点: 环评报告规定了国家标准合规和白天工作限制,但未清楚说明:(1)住宅区和商业区的定量噪声限制(dB(A)),(2)振动限制	澄清 / Query (中文): 问 6:承包商必须在敏感受体(学校、清真寺、住宅)附近遵守的具体噪声限制(dB(A))是什么(按 NEQS)?是否规定了单独的振动限制(毫米/秒或峰值粒子速度)?承包商是否需要在动员前进行基线噪声和振动测量?如果监测显示超标,程序是什么——谁声明超标,补救时间表是什么,处罚是什么? Clarification / Query (English): Q6: What are the specific noise limits (in dB(A)) that the Contractor must meet near sensitive receivers (schools, mosques, residences) per NEQS? Are separate vibration limits specified (in mm/s or peak particle velocity)? Will the Contractor be required to conduct baseline noise and vibration measurements before

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			是否单独规定(未找到数值限制),(3)敏感受体已确定(例如,站点附近的学校、清真寺、医院-未详细列出),(4)监测位置以及承包商是否必须在施工前进行基线测量,(5)超标的补救程序,以及(6)承包商是否对第三方交通或供应商产生的噪声负责。	mobilization? What is the procedure if monitoring shows exceedance—who declares it, what is the remedial timeline, and what are the penalties?
EIA-7 NARROWED 已缩窄	EIA Report, Section 3.10.6, 8.5.1(vii), 9.7 (Item 7) Wastewater Generation and Treatment Page 3-17, 8-37 to 8-47, 9-22	Wastewater Treatment and Discharge Standards 污水处理和排放标准	Spec: Estimated wastewater generation: 28,000 liters/day from 350 workers. Treatment via septic tanks and biological treatment technology. Discharge per NEQS. Proper monitoring to check compliance. Septic tank locations: site elevation to avoid floods, minimum 500m from sensitive receptors. Ambiguity: The EIA specifies NEQS compliance but does not provide: (1) specific discharge standards (e.g., BOD, TSS, fecal coliforms limits in mg/L), (2) design criteria for septic tanks (capacity, retention time, approval authority), (3) monitoring frequency for wastewater quality (sampling locations, parameters, testing method), (4) final discharge route (to Hunza River or on-site absorption), (5) responsibility if septic tank fails or overflows during rainy season, and (6) decommissioning procedure and responsibility for final closure. 含糊点: 环评报告规定了国家标准合规,但未提供:(1)具体排放标准(例如生化需氧量、悬浮颗粒物、粪便大肠杆菌限制值(毫克/升)),(2)化粪池的设计标准(容量、停留时间、批准权限),(3)污水质量监测频率(采样位置、参数、测试方法),(4)最终排放路线(到罕萨河还是现场吸收),(5)化粪池故障或在雨季溢出时的责任,以及(6)停用程序和最终关闭的责任。 Self-verification: Spec partially addresses this: "Domestic sewage will be treated with biological treatment technology and will be discharged as per NEQS...Septic tank will be located adjacent to the construction camp...at least 5..."	澄清 / Query (中文): 污水排放的具体 NEQS 标准 (BOD、TSS、粪便大肠菌群、pH 值以 mg/L 表示) 是多少? 监测频率是多少 (日/周/月)? 如果化粪池系统在暴雨期间出现故障或溢出, 谁负责? Clarification / Query (English): What are the specific quantified NEQS standards (BOD, TSS, fecal coliforms, pH in mg/L) and monitoring frequency (daily/weekly/monthly) for wastewater discharge? Who is responsible if septic systems fail or overflow during heavy rains?
EIA-8 NARROWED 已缩窄	EIA Report, Section 3.10.6, 8.5.1(viii), 9.7 (Item 8), 9.33 Solid Waste Management and Waste Disposal Sites Page 3-17, 8-48 to 8-63, 9-67	Construction Waste Disposal Sites and Tipping Fees 建筑垃圾处置地点和倾倒费用	Spec: Solid waste estimated 157.5 kg/day. Waste will be safely disposed in demarcated waste disposal sites. Waste segregation at source: organic, recyclable, reusable, and disposal waste. Disposal sites must be designated demarcated areas 'following general guideline principle for the contractor.' Ambiguity: The EIA does not specify: (1) which party (Employer, District Authority, Contractor) will designate and provide waste disposal sites, (2) what distance/buffer from settlements is required, (3) whether land is acquired by	澄清 / Query (中文): 谁指定并提供建筑废物处置地点——业主还是承包商? 处理/处置费用是多少 (如有), 谁承担费用? Clarification / Query (English):

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			Employer or leased by Contractor, (4) tipping fees or costs per ton/kg, (5) who manages the disposal site operations, (6) final closure/restoration obligations and timeline, (7) responsibility if site is damaged or causes environmental pollution, and (8) for tunnel excavation muck (~1,000,000 m³), is a separate spoil disposal site allocated by Employer? 含糊点: 环评报告未指定:(1)哪一方(雇主、地区当局、承包商)将指定和提供垃圾处置地点,(2)与定居点所需的距离/缓冲区是多少,(3)土地是否由雇主获得或由承包商租赁,(4)倾倒费用或每吨/千克成本,(5)谁管理处置地点操作,(6)最终关闭/恢复义务和时间表,(7)如果地点受损或造成环境污染的责任,以及(8)对于隧道挖掘泥土(~100 万立方米),雇主是否分配了单独的弃方处置地点? Self-verification: Spec partially addresses this: "Construction waste will be routinely collected and safely disposed of in clearly demarcated waste disposal sites located near each subproject site following international best prac..."	Who designates and provides the construction waste disposal site(s)—Employer or Contractor? What are the tipping/disposal fees (if any) and who bears the cost?
EIA-9 NARROWED 已缩窄	EIA Report, Section 3.10.2, 8.5.1(ii), 9.31, 9.32 Borrow Area Management and Restoration Plan <i>Page 3-15, 8-38 to 8-43, 9-66</i>	Borrow Pits and Quarry Restoration Obligations 采料坑和采石场恢复义务	Spec: Most excavated material will be used for backfilling or disposal at designated sites. EPC Contractor must prepare development and operation plan for borrow areas before extraction. Top soil must be stored, and areas restored with indigenous vegetation after construction. Ambiguity: The EIA specifies Contractor responsibility but does not detail: (1) who identifies and allocates borrow pit/quarry sites (Employer or Contractor), (2) whether Contractor must acquire land or whether Employer provides sites, (3) specific restoration criteria (slope angle, vegetation cover % and survival rate, timeframe), (4) whether restoration is contractor's final obligation or Employer takes over post-construction, (5) restoration cost estimates or responsibility if borrow area becomes unproductive, and (6) environmental liability if borrow operations exceed approved boundaries or damage groundwater. 含糊点: 环评报告规定了承包商责任,但未详细说明:(1)谁确定和分配采料坑/采石场地点(雇主或承包商),(2)承包商是否必须获得土地或雇主是否提供地点,(3)具体的恢复标准(斜坡角度、植被覆盖率和存活率、时间框架),(4)恢复是否是承包商的最终义务或雇主在施工后接管,(5)恢复成本估计或如果采料地点变得无法生产的责任,以及(6)如果采料操作超过批准边界或破坏地下水的环境责任。	澄清 / Query (中文): 业主是否指定借土坑和采石场地点, 还是由承包商识别和获取? 谁拥有/控制土地——业主、承包商还是私人业主? Clarification / Query (English): Will the Employer designate borrow pit and quarry sites, or will the Contractor identify and acquire them? Who owns/controls the land—Employer, Contractor, or private owners?

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			Self-verification: Spec partially addresses this: "it is required to restore the disturbed area to its original conditions wherever it is possible that is the sole responsibility of the Contractor...top soil should be stored...quar..."	
EIA-10 NARROWED 已缩窄	EIA Report, Section 8.5.1(v), 8.5.1(viii), 9.39, Annex-IV (HSE Plan) Hazardous Waste and Good Engineering Practices Page 8-48 to 8-63, 9-70	Hazardous Waste Management (Used Oil, Batteries, Chemicals) 危险废物管理(废油、电池、化学物质)	Spec: Hazardous waste including used oil from machinery must be managed. Standard Operating Procedures (SOPs) for handling, storage, and transportation required. Chemicals stored per Material Safety Data Sheets (MSDS). All toxic and hazardous materials must be completely removed from site at completion. Ambiguity: The EIA does not specify: (1) a designated facility or contractor for hazardous waste disposal (whether Employer provides or Contractor arranges), (2) compliance certificates or permits required for hazardous waste handlers, (3) transportation standards and liability for spills, (4) cost responsibility for hazardous waste treatment/disposal, (5) recycling options (e.g., used oil recovery value), (6) whether storage must be in bunded areas with secondary containment, and (7) responsibility if hazardous waste contaminates soil or groundwater during handling. 含糊点: 环评报告未指定:(1)危险废物处置的指定设施或承包商(雇主是否提供或承包商安排),(2)危险废物处理者所需的合规证书或许可证,(3)运输标准和泄漏责任,(4)危险废物处理/处置的成本责任,(5)回收选项(例如,废油回收价值),(6)存储是否必须在配有次级遏制的堤坝区域,(7)如果危险废物在处理期间污染土壤或地下水的责任。 Self-verification: Spec partially addresses this: "Precautions should be taken to prevent spills and all workers should be trained in proper handling, storage and disposal of hazardous or toxic materials...Standard Operating Proced..."	澄清 / Query (中文): 谁安排和批准危险废物（废油、电池、溶剂）的处置——承包商独立决定还是必须获得环保/监管当局的批准？规定的处置方法和最终处置地点是什么？ Clarification / Query (English): Who arranges and approves disposal of hazardous waste (used oil, batteries, solvents)—the Contractor independently or must approval be obtained from environmental/regulatory authority? What is the prescribed disposal method and final disposal location?
EIA-12 KEPT 保留	EIA Report, Section 3.7.12, 8.5.1(i), 9.32 Restoration and Rehabilitation Plan Page 3-7, 8-36 to 8-37, 9-67	Camp Decommissioning and Restoration 营地关闭和恢复	Spec: After completion of construction work, it is required to restore the disturbed area to its original conditions wherever it is possible. This is the sole responsibility of the Contractor. Contractor must obtain clearance certificate from consultant. Ambiguity: The EIA assigns restoration to the Contractor but does not specify: (1) restoration standards (e.g., ground level, topography, test results required), (2) environmental compliance criteria (soil testing, groundwater testing), (3) timeline for completion (e.g., within 6 months of project	澄清 / Query (中文): 问 11:建筑营地和主体工地必须满足哪些具体恢复标准(例如地形恢复、土壤清理标准、表面测试要求)?施工结束后完成地点恢复的时间表是什么?承包商是否需要进行土壤和地下水测试以证明没有污染残留?如果恢复被认为不足,雇主是否可以扣留缺陷责任期(DLP)资金或要求承包商承担额外补救费用?

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			completion), (4) third-party inspection/certification process, (5) cost estimates for camp decommissioning and site restoration, (6) what happens if restoration is inadequate, and (7) whether Employer retains remediation obligation post-handover. 含糊点: 环评报告将恢复分配给承包商,但未指定:(1)恢复标准(例如地面水平、地形、所需的测试结果),(2)环境合规标准(土壤测试、地下水测试),(3)完成时间表(例如项目完成后 6 个月内),(4)第三方检查/认证程序,(5)营地停用和地点恢复的成本估计,(6)如果恢复不足会发生什么,以及(7)雇主是否在移交后保留补救义务。	Clarification / Query (English): Q11: What specific restoration standards must be met for construction camps and compound sites (e.g., topography restoration, soil clean-up criteria, surface testing requirements)? What is the timeline for completion of site restoration after construction ends? Will the Contractor be required to conduct soil and groundwater testing to certify no contamination remains? If restoration is deemed inadequate, can the Employer withhold Defects Liability Period (DLP) funds or require additional remediation at Contractor's cost?
EIA-14 NARROWED 已缩窄	EIA Report, Section 3.7.12, 8.5.1(i), 9.7 (Item 9) Temporary Land Acquisition and Camp Site Selection Page 3-7 to 3-8, 8-31 to 8-32, 9-14 to 9-15	Worker Camp Location Criteria and Environmental Siting 工人营地位置标准和环境选址	Spec: Contractor camp location will be finalized by the EPC Contractor at detailed design stage. Camp site must not be subject to periodic flooding. Camp must have no resettlement issue. General site selection criteria provided (avoid forests, wildlife sanctuaries, game reserves, minimum 500m from sensitive receptors). Ambiguity: The EIA specifies selection criteria but does not state: (1) who must approve Contractor's proposed camp site (MC, WAPDA, GB EPA, local authority), (2) environmental impact assessment for camp site (EIA required for site selection), (3) approval timeline and authority hierarchy, (4) whether Contractor can change camp location during construction and under what conditions, (5) remediation requirements if camp site is found to be on protected land or violates criteria, and (6) responsibility if flood or landslide damages camp during construction. 含糊点: 环评报告规定了选址标准,但未说明:(1)谁必须批准承包商提议的营地地点(MC、WAPDA、GB 环保局、地方当局),(2)营地地点的环境影响评估(地点选择是否需要环评),(3)批准时间表和权限等级,(4)承包商在施工期间是否可以更改营地位置以及在什么条件下,(5)如果营地位置被发现在保护地或违反标准时的补救要求,以及(6)如果洪水或滑坡在施工期间破坏营地的责任。 Self-verification: Spec partially addresses this: "Site for construction camp will be selected at least 500 m away from the settlements...EPC Contractor will ensure that all these facilities fulfill the requirements for residential..."	澄清 / Query (中文): 谁对承包商营地选址具有最终批准权——管理顾问、WAPDA、GB EPA 还是地区行政当局? Clarification / Query (English): Who has final approval authority over the Contractor's camp site selection—Management Consultant, WAPDA, GB EPA, or District Administration?

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EIA-15 NARROWED 已缩窄	EIA Report, Section 5.3.5, 8.5.2, 8.6.2 Fauna Protection and Construction Impacts Page 5-29 to 5-31, 8-23 to 8-27, 8-40 to 8-43	Protected Species and Hunting Restrictions 受保护物种和狩猎限制	Spec: Fauna in area: snow leopard, ibex, markhor (endangered). Trophy hunting permitted under government license. Code of Conduct prohibits illegal hunting and procurement of local fauna. Project located outside wildlife sanctuaries and game reserves. Ambiguity: The EIA prohibits illegal hunting but does not specify: (1) seasonal restrictions during breeding periods (e.g., March-June for birds), (2) monitoring mechanisms to enforce hunting prohibitions on workforce, (3) penalties for violations (Contractor liability), (4) liability if protected species (e.g., snow leopard) are harmed during construction, (5) whether Contractor must employ wildlife monitors, and (6) notification protocol if protected species are sighted during construction. 含糊点: 环评报告禁止非法狩猎,但未指定:(1)在繁殖期间的季节限制(例如 3 月至 6 月为鸟类),(2)对劳动力执行狩猎禁令的监测机制,(3)违反的处罚(承包商责任),(4)如果受保护物种(例如雪豹)在施工期间受伤的责任,(5)承包商是否必须雇用野生动物监测员,以及(6)如果在施工期间发现受保护物种的通知协议。 Self-verification: Spec partially addresses this: "Special measures shall be adopted to minimize impacts on the wild birds, such as avoiding noise generating activities during the critical periods of breeding...Hunting, poaching an..."	澄清 / Query (中文): 具体的季节性施工限制是什么（鸟类筑巢季节、其他关键时期的日期）？谁批准与野生动物保护时期相关的施工计划？ Clarification / Query (English): What are the specific seasonal construction restrictions (dates for bird nesting season, other critical periods)? Who approves construction schedules relative to wildlife protection periods?
EIA-16 KEPT 保留	EIA Report, Section 8.5.1(iii), 9.7 (Item 3) Landslide Mitigation and Blasting Management Page 8-33 to 8-37, 9-18 to 9-21	Blasting Management and Community Notification 爆破管理和社区通知	Spec: EPC Contractor will prepare Management Plan for blasting activities. Blasting should be avoided or minimized where possible. If inevitable, low intensity explosive materials should be used instead of high intensity. Notifications and monitoring of locals required. Ambiguity: The EIA requires a blasting plan but does not specify: (1) noise and vibration limits for blasting (dB(A) and mm/s or peak particle velocity), (2) community notification protocol (advance notice timeframe), (3) allowable blasting hours (e.g., 9 AM-5 PM on weekdays only), (4) distance from sensitive structures requiring monitoring, (5) responsibility if vibration damages nearby structures (e.g., houses, heritage sites), and (6) requirement for pre-blasting baseline structural surveys. 含糊点: 环评报告要求制定爆破计划,但未指定:(1)爆破的噪声和振动限制(dB(A)和毫米/秒或峰值粒子速度),(2)社区通知协议(提前通知时间框架),(3)允许爆破时间(例如仅工作日上午 9 点至下	澄清 / Query (中文): 问 15:根据国家标准和工程标准,爆破作业的定量噪声和振动限制是什么?承包商必须为爆破活动获得提前的政府批准吗?社区通知协议是什么——提前多少天必须发送通知,通知将如何分发给受影响的居民?如果爆破的振动对附近建筑物或遗产地点造成结构损坏,谁对维修负责? Clarification / Query (English): Q15: What are the quantified noise and vibration limits for blasting operations per NEQS and engineering standards? Must the Contractor obtain advance government approvals for blasting activities? What is the community notification protocol—how many days in advance must notice be given, and how will notices be distributed to affected residents? If vibrations from blasting cause

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			午 5 点),(4)需要监测的敏感结构距离,(5)如果振动破坏附近建筑物(例如房屋、遗产地点)的责任,以及(6)爆破前基线结构调查的要求。	structural damage to nearby buildings or heritage sites, who is liable for repairs?
EIA-17 KEPT 保留	EIA Report, Section 5.2.3-5.2.4, 8.4.1(i), 8.5.1(iii) Seismicity, Land Erosion, and Geotechnical Issues Page 5-5 to 5-8, 8-6 to 8-9, 8-33 to 8-37	Geology and Geotechnical Investigations 地质学和岩土工程调查	Spec: Project in Seismic Zone 2B (PGA 0.16-0.24g). Geotechnical investigations required along headrace tunnel. Risk of landslides exists. Confirmatory geotechnical investigations recommended for design. Ambiguity: The EIA recommends geotechnical investigations but does not specify: (1) who is responsible for conducting additional geotechnical investigations (Contractor as part of detailed design or Employer), (2) funding responsibility for investigations, (3) approval timeline for investigation results, (4) whether unforeseen geological conditions (e.g., higher water table, weak rock, fault zones) discovered during construction will be treated as variations, and (5) liability if geotechnical conditions exceed design assumptions and cause construction delays or cost overruns. 含糊点: 环评报告建议进行岩土工程调查,但未指定:(1)谁负责进行额外的岩土工程调查(承包商作为详细设计的一部分或雇主),(2)调查的资金责任,(3)调查结果的批准时间表,(4)在施工期间发现的意外地质条件(例如更高的地下水位、薄弱岩石、断层带)是否将视为合同变更,(5)如果地质条件超过设计假设并导致施工延迟或成本超支的责任。	澄清 / Query (中文): 问 16:承包商是否需要进行额外的详细岩土工程调查沿着隧道进水和其他关键部件,还是这些将是由雇主资助的投标前调查?如果在施工期间发现意外地质条件(薄弱岩石、高水流入、断层带),这些是否将视为合同变更,使承包商有权获得时间延长和成本恢复? Clarification / Query (English): Q16: Will the Contractor be required to conduct additional detailed geotechnical investigations along the headrace tunnel and other critical components, or will these be Employer-funded pre-bid investigations? If unforeseen geological conditions (weak rock, high water inflow, fault zones) are discovered during construction, will these be treated as variations entitling the Contractor to extension of time and cost recovery?
EIA-18 KEPT 保留	EIA Report, Section 8.5.1(ix), 9.7 (Item 8), 9.6.2 Land Acquisition and Resettlement Process Page 8-34 to 8-37, 9-13 to 9-16, 9-47 to 9-50	Resettlement and Land Acquisition Completion 搬迁和土地获取完成	Spec: Government owned land to be acquired per GB government policy. Private land acquired per Land Acquisition Act 1894. Total estimated land: 777.5 acres (permanent for reservoir impounding, 183 acres for project structures). Resettlement process will start before construction phase. Compensation given to displaced persons. Ambiguity: The EIA describes the resettlement process but does not specify: (1) timeline for completion of land acquisition and resettlement before Contractor mobilization, (2) whether Contractor is responsible for any resettlement activities or if this is wholly Employer's responsibility, (3) status of compensation disbursements (pending or completed), (4) responsibility if resettlement disputes arise during construction, (5) whether Contractor has access to all project land on day 1	澄清 / Query (中文): 问 17:所有土地收购和搬迁是否将在承包商动员前完成,还是承包商需要根据分阶段土地可用性工作?搬迁和赔偿是否是雇主和地区行政部门的唯一责任,还是承包商将有任何搬迁义务?如果受影响人员在施工期间对赔偿提出异议或抵制搬迁,谁负责解决问题和任何由此造成的施工延迟? Clarification / Query (English): Q17: Will all land acquisition and resettlement be completed before the Contractor mobilizes, or will the Contractor need to work on phased land availability? Is resettlement and

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			of mobilization or phased access, and (6) what happens if affected persons challenge compensation or resist relocation. 含糊点: 环评报告描述了搬迁过程,但未指定:(1)承包商动员前完成土地收购和搬迁的时间表,(2)承包商是否对任何搬迁活动负责或这是否完全是雇主的责任,(3)赔偿支付的状态(待定或已完成),(4)如果搬迁纠纷在施工期间出现责任,(5)承包商在动员第 1 天是否可以访问所有项目土地或分阶段访问,以及(6)如果受影响人员对赔偿提出异议或抵制搬迁会发生什么。	compensation the sole responsibility of the Employer and District Administration, or will the Contractor have any resettlement obligations? If affected persons challenge compensation or resist relocation during construction, who is responsible for resolution and any resulting construction delays?
EIA-19 NARROWED 已缩窄	EIA Report, Chapter 7, Section 9.7 Grievance Redress Mechanism and Committee Page 7-1 to 7-2, 9-30	Community Grievance Redress Mechanism and GRC Funding 社区申诉解决机制和 GRC 资金	Spec: WAPDA will establish a Grievance Redress Committee (GRC) to facilitate resolution of complaints. GRC composition: WAPDA, Project Director, WAPDA Environment Cell, GB EPA, and representatives of affected communities. GRC is empowered to take binding decisions. Ambiguity: The EIA specifies GRC establishment but does not detail: (1) operational cost and who funds GRC (Employer or Contractor), (2) whether Contractor must contribute funds for community outreach/compensation for grievances, (3) timeline for GRC to resolve grievances (target resolution timeframe), (4) appeal mechanism if GRC decision is contested, (5) remedial action if GRC finds Contractor non-compliant, and (6) whether any community development fund contribution is required from Contractor. 含糊点: 环评报告规定了 GRC 的建立,但未详细说明:(1)GRC 的运营成本和谁资助 GRC(雇主或承包商),(2)承包商是否必须为社区宣传/申诉赔偿提供资金,(3)GRC 解决申诉的时间表(目标解决时间框架),(4)如果 GRC 决定受到质疑的上诉机制,(5)如果 GRC 发现承包商不合规的补救措施,以及(6)承包商是否需要任何社区发展基金贡献。 Self-verification: Spec partially addresses this: "WAPDA will establish a Grievance Redress Committee (GRC) to facilitate the resolution of complaints by Project Affected People (PAPs). The GRC will be coordinated by the Chief Resi..."	澄清 / Query (中文): 申诉处理委员会 (GRC) 是否完全由业主资助, 还是承包商也需要出资? GRC 解决申诉的目标时间表是什么? Clarification / Query (English): Will the Grievance Redress Committee (GRC) be fully funded by the Employer, or must the Contractor contribute? What is the target timeline for GRC resolution of complaints?
EIA-20 KEPT 保留	EIA Report, Section 8.5.3(xix), 9.7 (Item 19) Labour Influx and Local Employment	Local Employment and Skilled Labor Requirements	Spec: Preference will be given to local people to work with EPC Contractor. Mostly unskilled labor force will be required from project area. Skilled workers from outside may also be employed. No fixed employment targets or percentages specified.	澄清 / Query (中文): 问 19:本地就业的最低目标或要求(应从罕萨地区或本地社区采购的劳动力百分比)是什么?承包商必须达到女性在劳动力中的性别参与

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	Page 8-68 to 8-71, 9-36 to 9-39	本地就业和技术劳动力要求	Ambiguity: The EIA specifies preference for local labor but does not define: (1) minimum percentage of skilled vs. unskilled labor to be sourced locally, (2) whether Contractor must meet a specific local employment target (e.g., 70% of workforce), (3) how 'local' is defined (district, valley, province level), (4) women participation targets in employment, (5) wage equity requirements between local and non-local workers, (6) training obligations for local workers to develop skills, and (7) preference for local employment transition to O&M phase. 含糊点: 环评报告规定了对本地劳动力的偏好,但未定义:(1)最少比例的技术性与非技术性劳动力必须在本地采购,(2)承包商是否必须达到特定的本地就业目标(例如 70%的劳动力),(3)'本地'的定义(地区、山谷、省份级别),(4)就业中的女性参与目标,(5)本地和非本地工人之间的工资公平要求,(6)为本地工人开发技能的培训义务,以及(7)本地就业向 O&M 阶段的过渡偏好。	目标吗?承包商是否需要为本地工人提供职业培训以使其获得更高技能的职位?本地和非本地工人之间适用哪些工资公平要求? Clarification / Query (English): Q19: What are the minimum targets or requirements for local employment (% of workforce to be sourced from Hunza district or local communities)? Must the Contractor meet gender participation targets for women in the workforce? Will the Contractor be required to provide vocational training to local workers to qualify them for higher-skilled positions? What wage equity requirements apply between local and non-local workers?
EIA-21 NARROWED 已缩窄	EIA Report, Annex-VII (Key Performance Indicators), Table 9-4 Environmental Monitoring Frequency and Standards 9-71 to 9-75	Specific Environmental Performance Standards and KPIs 特定环境性能标准和关键绩效指标	Spec: Pre-construction: baseline monitoring once for water, air, noise. Construction: quarterly monitoring. O&M: biannual monitoring. Cost for environmental monitoring and management: tentative for 3-year construction: PKR 98.49 million. Ambiguity: The EIA specifies monitoring frequencies but does not provide: (1) quantified performance thresholds or KPI targets for air, water, noise (e.g., max PM10 = 150 mg/m³), (2) consequences if thresholds are exceeded (daily fines, work suspension, contract termination), (3) financial penalties for non-compliance (lumpsum or per-day rates), (4) monthly reporting format and submission timelines, and (5) who validates compliance reports (MC, WAPDA, GB EPA, third party). 含糊点: 环评报告规定了监测频率,但未提供:(1)空气、水、噪声的定量性能阈值或关键绩效指标目标(例如最大 PM10 = 150 毫克/立方米),(2)如果超过阈值的后果(每日罚款、工作暂停、合同终止),(3)不合规的经济处罚(总额或每日费率),(4)月度报告格式和提交时间表,以及(5)谁验证合规报告(MC、WAPDA、GB 环保局、第三方)。 Self-verification: Spec partially addresses this: "Annex-VII: Key Performance Indicators (KPI)"	澄清 / Query (中文): 承包商必须达到的具体定量环境性能目标/KPI 是什么 (例如, PM10≤150 mg/m³、噪声≤65 dB(A)、TSS、BOD 极限等) ? 这些是否在附件七中定义? Clarification / Query (English): What are the specific quantified environmental performance targets/KPIs that the Contractor must meet (e.g., PM10 ≤ 150 mg/m³, Noise ≤ 65 dB(A), TSS, BOD limits, etc.)? Are these defined in Annex-VII?

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EIA-22 KEPT 保留	EIA Report, Section 5.2.6, 5.2.7, 8.4.2(i), Executive Summary Flooding and Natural Disaster Management Page 5-8, 5-22, 8-8 to 8-10	Glacial Lake Outburst Flood (GLOF) Risk and Climate Adaptation 冰川湖溃决洪水 (GLOF)风险和气候适应	Spec: GLOF events are becoming common in Hunza. Recent GLOF in Hassanabad village mentioned. Design flood = 1000-year return period. Project not expected to create major adverse impacts due to GLOF. Continuous monitoring of glaciers in Hunza region recommended. Ambiguity: The EIA acknowledges GLOF risk but does not specify: (1) Contractor's responsibility for protecting camp/structures from GLOF during construction, (2) evacuation procedures if GLOF is imminent, (3) warning system and early notification protocol, (4) liability if GLOF damages camp or project assets during construction, (5) whether project design includes GLOF mitigation measures (e.g., barriers), and (6) who monitors glaciers and issues GLOF warnings. 含糊点: 环评报告承认 GLOF 风险,但未指定:(1)承包商在施工期间保护营地/结构免受 GLOF 影响的责任,(2)如果 GLOF 迫在眉睫的疏散程序,(3)警告系统和早期通知协议,(4)如果 GLOF 在施工期间破坏营地或项目资产的责任,(5)项目设计是否包括 GLOF 缓解措施(例如屏障),以及(6)谁监测冰川并发出 GLOF 警告。	澄清 / Query (中文): 问 21:承包商在保护建筑营地和项目资产免受潜在 GLOF 事件方面有什么责任?是否会有冰川监测和早期预警系统,谁操作它?如果 GLOF 事件破坏承包商的营地或建筑资产,谁承担损失?承包商是否必须实施特定的设计措施或协议来缓解 GLOF 影响(例如高架结构、疏散路线)? Clarification / Query (English): Q21: What responsibility does the Contractor have for protecting the construction camp and project assets from potential GLOF events? Will there be a glacier monitoring and early warning system in place, and who operates it? If a GLOF event damages the Contractor's camp or construction assets, who bears the loss? Must the Contractor implement specific design measures or protocols to mitigate GLOF impact (e.g., elevated structures, evacuation routes)?
EIA-23 NARROWED 已缩窄	EIA Report, Section 10.2 (Recommendations), Table 9-4, Executive Summary Environmental Cost Estimates and Project Budget Page 10-3, 9-71 to 9-75, Page 1	Environmental Cost Recovery and Contract Payment Linkage 环保成本恢复和合同支付关联	Spec: Tentative cost to implement EMP: PKR 126.5 Million. Cost estimates for monitoring and management: PKR 11.79M (pre-construction), PKR 98.49M (construction), PKR 2.13M (O&M annually). 'This tentative cost will be included in the overall project cost. Cost will be reviewed and firmed before bidding.' Ambiguity: The EIA states environmental costs will be included in project cost but does not specify: (1) whether environmental costs are lumpsum or cost-reimbursable, (2) payment mechanism (monthly, quarterly, or upon completion), (3) whether final monthly payments are conditional on EMP compliance certification, (4) percentage of contract value that may be withheld as security for environmental non-compliance, (5) whether cost variations due to inflation or expanded scope trigger variation procedures, and (6) whether contractor retains cost risk if environmental scope expands due to regulatory changes. 含糊点: 环评报告说明了环保成本将包含在项目成本中,但未指定:(1)环保成本是总额还是成本补偿,(2)支付机制(月度、季度或完成后),(3)最终月度支付是否以环保计划合规认证为条件,(4)由	澄清 / Query (中文): PKR 1.265 亿环保成本如何纳入合同——作为单独的总价项、按比例分配还是与环保里程碑挂钩? Clarification / Query (English): How will the PKR 126.5 Million environmental cost be incorporated into the Contract—as a separate lumpsum item, proportionally allocated, or linked to environmental performance milestones?

ID / Status 编号 / 状态	Reference 参考文件	Topic 主题	Spec / Ambiguity 规范内容 / 含糊点	Clarification Query 澄清问题
			于环保不合规可能扣留的合同价值百分比,(5)由于通胀或范围扩大引起的成本差异是否触发合同变更程序,以及(6)如果由于法规变化导致环保范围扩大,承包商是否保留成本风险。 Self-verification: Spec partially addresses this: "The tentative cost estimates to implement EMP is estimated as PKR. 126.5 Million. This tentative cost will be included in the overall project cost."	
EIA-24 KEPT 保留	EIA Report, Section 3.11, Table 9-4, Section 9.8 Project Implementation Schedule and Monitoring Timeline Page 3-18, 9-71 to 9-75, 9-57 to 9-60	Construction Schedule vs. Environmental Compliance Monitoring Periods 施工进度与环保合规监测期	Spec: Project implementation schedule: 36 months construction period (estimated). Monitoring costs estimated for '3-year construction period' in Table 9-4. Environmental monitoring will continue during O&M phase. Ambiguity: The EIA assumes a 36-month construction timeline, but does not specify: (1) whether the contract duration is fixed at 36 months or variable, (2) if construction extends beyond 36 months, do environmental monitoring and management costs continue or are they capped, (3) responsibility if delays prevent completion within 36 months (extensions of time impact on EMP duration), (4) whether O&M phase monitoring begins upon handover or after Defects Liability Period (DLP), and (5) cost allocation if construction is extended due to environmental remediation. 含糊点: 环评报告假设 36 个月的施工时间表,但未指定:(1)合同期限是固定的 36 个月还是可变的,(2)如果施工超过 36 个月,环保监测和管理成本是否继续或有上限,(3)如果延误阻止在 36 个月内完成的责任(时间延长对环保计划期限的影响),(4)O&M 阶段监测是否在移交后开始或在缺陷责任期(DLP)后,(5)如果由于环保补救而延长施工的成本分配。	澄清 / Query (中文): 问 23:如果施工期超过估计的 36 个月(由于延误、自然灾害或范围变更),延长期内的环保监测和管理成本是承包商还是雇主的责任?环保监测义务是否限制在 3 年,还是延伸到实际施工期加缺陷责任期?如果环保补救活动导致施工延迟,承包商是否有权获得时间延长和成本恢复? Clarification / Query (English): Q23: If the construction period extends beyond the estimated 36 months (due to delays, natural disasters, or scope changes), are environmental monitoring and management costs for the extended period the responsibility of the Contractor or the Employer? Are environmental monitoring obligations capped at 3 years, or do they extend for the actual construction period plus DLP? Will the Contractor be entitled to extensions of time and cost recovery if environmental remediation activities cause construction delays?

From Chinese — ALHPP EPC Package-III (E&M)

承包商澄清问题与回复 | Contractor Clarifications & Responses

S.N · 序号	References 参考文件	Page 页码	Spec Content 规范内容	Query 承包商问题		
1	2026-03-11 Volume-I, Package-III Final (With Remote Ends) (1)	Page I	Rejection of bids / Proposals, Performance Guarantee etc. are available on for registered Bidders / Proposers on EPADs at (www.vendors.epads.gov.pk) 4. The electronic Bids / Proposals, prepared in accordance with the instructions provided in the Proposal / Bidding Document, shall be submitted using EPADs on or before May 14, 2026 at 1100 hrs. Manual submission of bids/proposals is not allowed and shall not be accepted. 5. The Technical Part of Electronic Bids / Proposals on EAPDS shall be opened the same day at 1130 hrs in WAPDA Auditorium, WAPDA House, Sharah-e-Quaid-e-Azam	为把标书做得更详实，请求延长投标截止时间，是否同意？ To ensure the bid proposal is as comprehensive as possible, we are requesting an extension of the bid submission deadline. Would you agree to this?		
2	2026-03-11 PKG III Specific Provisions (with remote ends)	Page 1-1	SECTION 1 SCOPE OF WORK	招标文件未说明水电站主厂房消防供水、卫生间给排水、通风空调及采暖系统、厂房照明的设计相关要求，请澄清本次招标范围是否包含以上系统的设计、供货、安装工作。 The bidding documents do not specify the design requirements for the fire protection water supply, plumbing for restrooms, ventilation, air conditioning, and heating systems, or lighting in the main powerhouse of the hydroelectric power plant. Please clarify whether the scope of this bid includes the design, supply, and installation of the aforementioned systems.		
3	2026-03-11 PKG III Specific Provisions (with remote ends)	Page 1-5	1.2.1.6 “132KV Line End Bays at Remote End” : The Equipment includes but is not limited to the following. a. Two (02) complete 132kV AIS Line End Bays including extension and integration with the existing 132kV busbar, protection, control, grounding, and SCADA systems at 132/66 kV Aliabad Regional Grid Station, complete in all respects. 132kV remote end line bays shall be arranged in a Single Bus Bar Scheme. b. LV cables and integration with existing system.	是否需要在 132/66 kV Aliabad Regional Grid Station 内扩建 2 个 132kV AIS 接入间隔？包括 2 个扩建间隔所需的电气设备、母线、保护、控制、接地及数据采集与监视控制（SCADA）系统的扩展和集成？（若需要，请提供 132/66 kV Aliabad Regional Grid Station 132KV 侧接线图、场地布置图等相关资料）。		

S.N · 序号	References 参考文件	Page 页码	Spec Content 规范内容	Query 承包商问题		
			c. Extension of Lighting system (if required). d. Cable trays, conduits and accessories. e. Construction of fence, its lighting and grounding. f. Any other item which is not included here but is necessary for the safe, reliable and Integrated operation of the Line End Bays as advised by the Employer. g. Construction of all associated civil facilities (equipment foundations, cable trenches, backfilling, drainage system, gravel etc.	Is it necessary to expand two 132 kV AIS bay connections within the 132/66 kV Aliabad Regional Grid Station? This includes the expansion and integration of electrical equipment, busbars, protection, control, earthing, and SCADA (Supervisory Control and Data Acquisition) systems required for the two extended bays. (If required, please provide relevant documents such as the single-line diagram for the 132 kV side and the layout drawing of the 132/66 kV Aliabad Regional Grid Station.)		
4				请明确电量考核的接入点，是发电机出口还是开关站出口？ Please specify the point of measurement for electricity consumption: is it at the generator outlet or the switchyard outlet?		
5				请明确压力钢管与水轮机进水蝶阀上游连接短管的焊接工作范围。 Please specify the scope of welding work for the short pipe connecting the pressure steel pipe to the upstream side of the turbine inlet butterfly valve.		
6				请提供技术供水系统、渗漏排水系统、检修排水系统、透平油系统、压缩空气系统的概念图。		

S.N · 序号	References 参考文件	Page 页码	Spec Content 规范内容	Query 承包商问题																																
				Please provide principal diagrams of the cooling water system, drainage system, dewatering system, turbine oil operating system, and compressed air system.																																
7	2026-03-11 PKG III Specific Provisions (with remote ends)	Page 1-6	1.3.1 Detailed Design All Designs shall be performed in accordance with the requirements given in the following Section 2, Basic Design Criteria. The Design responsibilities of the Contractor shall be as follows but shall not be limited to: a. The Contractor shall carry out the Detailed Design and prepare Construction Drawings of the Permanent Works to be performed under this Contract, including all required site investigations, surveys and analysis deemed necessary for detailing the design. These analyses shall include, but shall not be limited to the analysis listed below. - Stability Analysis; - Head Loss Calculations of complete waterways and Turbine setting to minimum Tailwater Level; - Annual Energy Calculations (in tabulated form) considering Average Daily Flows and Actual Plant Efficiencies; - Using Computer Simulation Modelling, carry out Hydraulic Transient Analysis to determine speed & pressure rise values and flywheel effect (GD²) keeping in mind that the Power Plant will be required to stably operate in isolated mode; - The hydraulic complete design shall be vetted by the Turbine’s Manufacturer; - Structural Design Calculations and Drawings of Hydraulic Steel Structures (HSS) including Gates, Stoplogs, Trash rack along with their Service / Support Structures; - Detailed Piping and Instrumentation Diagrams (P&ID) for the Mechanical Auxiliary Systems along with System Description, Design Data, Calculations and Design Briefs.	调保计算的软件是否有规定? Are there any regulations regarding software used forHydraulic Transient Analysis?																																
8	2026-03-11 PKG III Technical Provisions (With Remote Ends)	Page 1-2	1.1.4 Key Technical Parameters of Turbines Table 1-2: Parameters <table><tr><th>Description</th><th>Unit</th><th>Quantity</th></tr><tr><td>No of Units</td><td>no.</td><td>3</td></tr><tr><td>Type of Turbine</td><td>type</td><td>Vertical Shaft Francis Turbines</td></tr><tr><td>Rated Turbine Output at Shaft</td><td>MW</td><td>18.94</td></tr><tr><td>Rated Net Head</td><td>m</td><td>104.0</td></tr><tr><td>Rated Turbine Speed (n)</td><td>rpm</td><td>375</td></tr><tr><td>Turbine Runaway Speed (n_r)</td><td>rpm</td><td>655</td></tr><tr><td>Unit Discharge (Q_{unit})</td><td>m³/sec</td><td>20.0</td></tr><tr><td>Runner Diameter</td><td>m</td><td>1.68</td></tr><tr><td>Min. Turbine Efficiency (η)</td><td>%</td><td>93</td></tr></table>	Description	Unit	Quantity	No of Units	no.	3	Type of Turbine	type	Vertical Shaft Francis Turbines	Rated Turbine Output at Shaft	MW	18.94	Rated Net Head	m	104.0	Rated Turbine Speed (n)	rpm	375	Turbine Runaway Speed (n _r)	rpm	655	Unit Discharge (Q _{unit})	m³/sec	20.0	Runner Diameter	m	1.68	Min. Turbine Efficiency (η)	%	93	水轮机无“最小效率”的说法, 请澄清是否指的是水轮机额定效率的最小要求值为93%。 There is no such thing as a “minimum efficiency” for water turbines. Please clarify if it refers to “the minimum value required for the turbine rated efficiency is 93%”		
Description	Unit	Quantity																																		
No of Units	no.	3																																		
Type of Turbine	type	Vertical Shaft Francis Turbines																																		
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9	2026-03-11 PKG III Technical Provisions (With Remote Ends)	Page 1-30	1.3TURBINE MAIN INLET VALVES (MIV) This specifies the requirements for design, engineering, manufacture, transport, storage, erection, shop and site testing and commissioning and spare parts of three (3) inlet valves of butterfly type and their auxiliaries to be furnished for the Francis turbines. The scope of supply for each inlet valve shall include the following: –Butterfly Valve (Internal Diameter 1.8m)	水轮机蜗壳进口直径约为 2.15m, 蝶阀选用直径将与其一致, 是否同意, 如果不同意, 将需要增加异径接头, 增加厂房宽度。 The inlet diameter of the turbine spiral case is approximately 2.15 m. Please confirm that the selected inlet butterfly valve will have the same diameter. If not, a reducer will be required, which will necessitate increasing the width of the plant building.		
10	2026-03-11 PKG III Technical Provisions (With Remote Ends)	Page 1-49	1.5.3.2 Description Two compressed air systems shall be provided in the powerhouse: a) A high-pressure system to charge the oil accumulators of the governors (the design pressure of the high-pressure system shall be at least 130% of the maximum operating oil pressure of the oil/air accumulators of the governors). b) A low pressure compressed air system (10 bar) shall be provided in the powerhouse for air supply to the following: - to operate the mechanical generator brakes; - to provide service air to required points in the Powerhouse and Transformer Deck	建议取消高压气系统, 调速器及进水阀采用 16MPa 高压氮气蓄能罐储能的方式。 It is recommended to eliminate the high-pressure compressed air system and instead use a 16 MPa high-pressure nitrogen accumulator to store energy for the governor and inlet valve.		
11	2026-03-11 PKG III Technical Provisions (With Remote Ends)	Page 3-6	3.1.14 Fire Protection System Generators shall be provided with a fire extinguishing system of inert gas and water spray type.	请明确发电机灭火方式。 Please specify the fire extinguishings method for the generator.		
12	2026-03-11 PKG III Technical Provisions (With Remote Ends)	Page 6-1	第 6 节 132 千伏开关站及 132 千伏线路终端端子柜 6.1 工作范围 规划一条 14.5 公里长的 132kV 双回路输电线路 Section 6 132kV Switching Station and 132kV Line Terminal Cubicle 6.1 Scope of Work A 14.5 km long 132kV double-circuit transmission line shall be planned.	本次项目是否包含 132kV 输电线路的新建工程; 若确认有, 线路设计长度是否为 14.5km? 线路输送容量是否按水电站 54MW 装机容量进行设计校核? 在单回路载流能力已满足 54MW 输送需求的前提下, 最终采用单回路还是双回路配置?		

S.N · 序号	References 参考文件	Page 页码	Spec Content 规范内容	Query 承包商问题		
				Whether the construction of a new 132kV transmission line is included in this project? If confirmed, is the design length of the line 14.5 km? Shall the line transmission capacity be designed and checked against the 54MW installed capacity of the hydropower station? Given that the current-carrying capacity of a single circuit already meets the 54MW transmission requirement, shall a single-circuit or double-circuit configuration be finally adopted?		
—	2026-03-11 PKG III Technical Provisions (With Remote Ends)	Page 6-1	SECTION 6, SCOPE OF WORK: "The 132 kV Line End Bays to be constructed at 132/66 kV Aliabad Regional Grid Station shall be fully compatible with the existing switchyard configuration, busbar arrangement, protection and control schemes, SCADA system..." 拟在 132/66kV 阿里阿巴德区域电网建设的 132kV 线路终端端子柜，需与现有开关站配置、母线排布局、保护控制方案及 SCADA 系统完全兼容.....	请提供远端变电站现有的保护厂家、通讯网关型号及版本。需要确认新提供的保护设备是否能与老站实现差动保护的对调，以及通讯协议是否能无缝接入老站原有的监控系统？ Please provide the current protection manufacturer, communication gateway model, and version for the remote substation. It is necessary to confirm whether the newly supplied protection equipment can achieve differential protection cross-switching with the existing station, and whether the communication protocol can seamlessly integrate with the original monitoring system of the old station.		
—	2026-03-11 PKG III Technical	Page 3-48	SECTION 3, DC AND UPS SYSTEM 直流与不间断电源系统章节	直流系统是否强制要求采用双电双充（双组蓄电池+双套充电机）配置？另外，针对		

S.N · 序号	References 参考文件	Page 页码	Spec Content 规范内容	Query 承包商问题		
	Provisions (With Remote Ends)			本项目的 UPS，其后备时间是否有特定要求（如 2 小时或 4 小时）？ Is a dual-battery dual-charger configuration (two battery banks + two charging units) mandatory for DC systems? Additionally, does the UPS system for this project have specific backup time requirements (e.g., 2 hours or 4 hours)?		
—	2026-03-11 PKG III Technical Provisions (With Remote Ends)	Page 5	SECTION 5, Fiber Optic Link: Cable Installation & Joint Box 电缆敷设与接线盒	请明确 OPGW 进入中控室后的终端接线盒是由本标段提供还是线路标段提供？ 双方光缆通信的设计和施工分界点具体在何处？ Please clarify whether the terminal junction box for OPGW entering the central control room is provided by this tender section or the line section. Where exactly is the boundary between the design and construction phases for optical cable communication between both parties?		
13	2026-03-11 PKG III Technical Provisions (With Remote Ends) HSS	Page 2-1~2-4	2.2 POWER TUNNEL INTAKE Two (02) hydraulic hoisting systems comprising of hydraulic servomotors with connecting rods, hydraulic power unit, gate dogging mechanism necessary for maintenance and service, interconnecting pipes, control panels etc.;	该闸门的启闭机设备采用液压启闭机操作控制，文件中未明确液压油缸升降速度，是否由投标人自行确定？如有要求请提供 The gate shall be operated and controlled by hydraulic hoist. The lifting/lowering speed of the hydraulic cylinder is not specified in the document. Shall it be determined by the Bidder at its own discretion? Please provide the requirement if any.		

S.N · 序号	References 参考文件	Page 页码	Spec Content 规范内容	Query 承包商问题		
15		Page 2-4	2.2.2 Stoplogs	叠梁闸门平压方式未明确，采用充水阀或旁通阀充水平压，是否由投标人自行确定 The pressure equalization method for the stoplog gate is not specified. Shall the pressure equalization by filling water through a filling valve or a bypass valve be determined by the Bidder at its own discretion?		
16		Page 2-7	2.2.4 Moving Gantry Cranes Main Data	请提供移动式门机的弧形轨道转弯点及其转弯半径的单线图 Please provide a single-line drawing showing the turning points and turning radii of the curved rails for the mobile gantry crane.		
17		Page 2-9	2.2.4.4.6 Drums " Double layer of rope winding shall not be allowed when the hook is at highest position."	该门机的扬程达到 52m，属于高扬程，钢丝绳在卷筒上如采用单层缠绕，势必造成卷筒直径大和卷筒长度长，因此我方建议采用不大于 3 层缠绕，采用折线卷筒设计而不会出现乱绳现象，当否？ The lifting height of the gantry crane is 52 m, which falls into the category of high lifting height.If the steel wire rope is arranged in single layer winding on the drum, it will inevitably result in an excessively large drum diameter and length. Therefore, we propose adopting no more than 3 layers of winding together with a polygonal rope groove drum design to		

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				avoid rope entanglement.Please confirm whether this proposal is acceptable.		
18		Page 2- 14_2- 17	Equipment to be furnished at the flushing intake: 1、 One flushing intake service gate (vertical lift fixed wheel type) 2、 One guard gate (fixed wheel type) “The intake of flushing tunnel shall be provided with one (01) guard gate at upstream of service gate for maintenance. The gate shall also be capable to close under unbalanced water condition under its own weight in case service gate stuck due to some problem” 3、 One set of stoplogs required for removal of rock plug (optional)	1、从提供的图纸 “ALHPP-HSS-0402” 中看，液压油缸的机架布置在最高水位 2421.00m 以下，机架与门槽顶部是否需要严密的封水？请明确。 2、由于该事故闸门的设计水头较大，需在动水闭门，静水启门，应该是利用水柱闭门，充水阀充水平压后启门。而利用水柱闭门，其持住力较大，导致移动式门机的起吊重量较大，因此，该门机的容量选择按此持住力确定。这样理解是否正确，请回复。 3、建议无需设置一套叠梁闸门 1、 According to the drawing “ALHPP-HSS-0402”, the frame of the hydraulic cylinder is arranged below the maximum water level of El. 2421.00 m. Is a tight water seal required between the frame and the top of the gate slot? Please clarify. 2、 Due to the high design head of the emergency gate, it shall be closed under flowing water and opened under still water. The gate is expected to be closed by means of water column, and opened after pressure equalization through the water filling valve.		

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				Closing by water column will result in a relatively large holding force, which leads to a higher lifting capacity requirement for the mobile gantry crane. Therefore, the capacity of the gantry crane shall be determined based on this holding force. Please confirm whether this understanding is correct. 3、 It is proposed that a set of stoplog gates may not be required.		
19	PROCEDURES AND CONDITIONS OF CONTRACT of book 1	Page 4-12	Note 3: the Proposer shall quote/ include the price of FAT (Factory Acceptance Tests) in the above Price Schedules 1 & 2.	在 Schedule 1&2 中，共罗列了 26 个分项，其中每个分项系统又包含了若干个细分设备，招标文件要求投标价格中包含 FAT 的费用，请澄清： 具体哪些设备、哪些部件需要进行 FAT 业主和监理代表参加 FAT 的人数、补贴金额、机票舱位等级、食宿标准等准确信息 In Schedule 1&2, a total of 26 items are listed, each of which includes several sub-equipment. The bidding document requires the bid price to include FAT costs. Please clarify: 1.Which specific equipment and components of the equipments require FAT? 2. The exact information regarding the number of representatives attending FAT, subsidy amounts, air ticket class, and accommodation standards?		
20	Procedure for Delay Damages for Interface	page 8-9, 8-10, 8-	Procedure for Delay Damages for Interface Milestones and its table -1 and table -2	仅规定了机电与土建交叉施工面延迟、总体工期延迟相关处罚约定和规则，无免责		

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	Milestones book 1	11, 8- 12		条款；水电站项目现场施工所受到的影响因素除了土建和机电的工作以外，显然还有很多其他因素，如恶劣天气、安全形势和安保要求、当地社会因素、业主违约在先等各种情况，但招标文件中并未找到相关的免责条款。请澄清。 The bidding document only specifies penalties and rules related to delays in the interface between E&M and civil works, as well as overall schedule delays, but includes no exemption clauses. It is clear that hydropower project site construction can be affected by many factors beyond civil and E&M work, such as adverse weather conditions, security situations and requirements by army or Pakistan govenment, local social factors, or prior breaches by the owner. However, no relevant exemption clauses are found in the bidding document. Please clarify.		
21	2026-03-11 PKG III Specific Provisions (with remote ends)	Page 1-2	1.1.1Civil Works for 132kV Line End Bays at Remote End	仅描述了需要进行土建施工，请提供土建施工工程量清单和相关图纸。 This description only covers the civil engineering work required; please provide a bill of quantities for the civil engineering work and the relevant drawings.		
22	2026-03-11 PKG III Technical Provisions (With Remote Ends)		Section 1.1.2、3.1.3、4.2 等全文档标准要求 All equipment conform to IEC / IEEE / ASME / DIN / FEM.	是否同意采用 GB/T 中国国家标准或 ISO 等效标准的设备视为等效满足。请澄清。		

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				Do you agree to adopt GB/T Chinese national standards or ISO equivalent standards? Please clarify.		
23	2026-03-11 PKG III Technical Provisions (With Remote Ends)	Page 1-2	1.1.5 Life of Plant, Maintenance Cycles and Reliability The Plant shall be designed for a service life of not less than fifty (50) years, considering daily start-ups and shutdowns during operations. Maintenance on each unit will be done annually on a rotational basis. Between annual maintenance periods, the units will be expected to operate with 100% availability. The design shall be such that dismantling shall not be necessary in the first ten (10) years of operation.	一般水轮机需要进行维护和保养，包括 A、B、C 级检修，一般周期为 3~5 年，具体要根据设备运行情况和条件决定。DL/T 2574、DL/T 817 等规范标准对设备检修均有相应的技术规程。前十年无需拆卸设备是指所有设备都不准拆卸？请澄清。 Generally, water turbines require maintenance and upkeep, including Level A, B, and C overhauls, with a typical cycle of 3 to 5 years, depending on the operational status and conditions of the equipment. Standards such as DL/T 2574 and DL/T 817 provide corresponding technical procedures for equipment maintenance. Does the statement "no disassembly of equipment in the first ten years" mean that no equipment is allowed to be disassembled? Please clarify.		
24	2026-03-11 PKG III Technical Provisions (With Remote Ends)	Page 1-5 ~ 1-6	Section 1.1.12.1 & 1.1.13 The prototype efficiency shall be taken equal to model efficiency and no scaling up shall be applied.	是否理解为不考虑真机效率修正，性能保证是按模型效率保证并满足招标文件的要求？请澄清。 Is it understood that without considering the correction of real machine efficiency, the performance guarantee is based on the model efficiency guarantee and meets the requirements of the bidding documents? Please clarify.		

S.N · 序号	References 参考文件	Page 页码	Spec Content 规范内容	Query 承包商问题		
25	2026-03-11 PKG III Technical Provisions (With Remote Ends)	Page 1-21	1.1.21.1 Assembly and Tests in The Workshop Shop assembly shall comprise the whole turbine including pit lining, manifold, runner, complete operating mechanism, etc.	是否必需要求整个水轮机组都在制造厂内预装配？一般是分部套在厂内进行预装配。请澄清。 Is it necessary to require the entire hydroelectric turbine unit to be pre-assembled in the manufacturing plant? Generally, it is pre-assembled in the plant in parts. Please clarify.		
26	2026-03-11 PKG III Technical Provisions (With Remote Ends)	Page 1-21	1.1.21.1 Assembly and Tests in The Workshop Hydrostatic pressure testing shall be performed on the spiral case. Welding seams of the manifold shall be tested 100% ultrasonically. In addition, 100% of these welds including all intersection points shall be tested radiographically.	这里是要求蜗壳所有焊缝做超探和射线探伤 能否改为：蜗壳焊缝探伤采用 100%超声波探伤，在多种探伤方式都存在疑点的地方采用射线探伤进行复核，请澄清。 Here is a requirement for all welds on the spiral case to undergo ultrasonic and radiographic inspection Can it be changed to: The weld seam of the spiral case undergoes 100% ultrasonic flaw detection, and radiographic flaw detection is used for verification in areas where multiple flaw detection methods yield suspicious results. Please clarify.		
27	2026-03-11 PKG III Technical Provisions (With Remote Ends)	Page 3- 10	Table 3-5: Spare Parts and Tools All necessary tools required for complete maintenance	招标文件没有对水轮发电机组专用工具提出具体的要求或者工具清单，请提供具体的专用工具清单或者能否按照 GB/T 标准提供相应的专用工具，请澄清。 The bidding documents do not specify specific requirements or provide a list of		

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				tools specifically for hydro-generator units. Please provide a detailed list of specialized tools or clarify whether corresponding specialized tools can be provided in accordance with GB/T standards.		