**德钦县施坝河一级水电站水土保持设施验收鉴定书**

**项目名称：德钦县施坝河一级水电站建设项目**

**项目编号：迪水电发当地[2005]109号**

**建设地点：德钦县霞若乡施坝村**

**验收单位：云南恒益水电开发有限公司**

**2021年9月**

**一、生产建设水土保持设施验收基本情况表**

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| 项目名称 | 施坝河一级水电站建设项目 | 行业类别 | 水利行业 |
| 主管部门（或主要投资方） | 云南恒益水电开发有限公司 | 项目性质 | 新建 |
| 水土保持方案批复机关、文号及时间 | 无 | | |
| 水土保持方案变更批复机关、文号及时间 | 无 | | |
| 水土保持初步设计批复机关、文号及时间 | 2005年11月8日，云南省迪庆州水利水电局下发了《关于迪庆州德钦县施坝河梯级水电站工程水土保持方案初步设计报告的批复》（迪水电发﹝2005﹞109号）。 | | |
| 项目建设起止时间 |  | | |
| 水土保持方案编制单位 | 云南华禹水利水电勘察设计有限公司 | | |
| 水土保持初步设计编制单位 | 云南华禹水利水电勘察设计有限公司 | | |
| 水土保持监测单位 | 香格里拉市华辰水电咨询设计有限公司 | | |
| 水土保持施工单位 | 香格里拉县建筑建材有限责任公司 | | |
| 水土保持监理单位 | 大理禹光工程监理咨询有限公司 | | |
| 水土保持设施验收报告编制单位 | 香格里拉市华辰水电咨询设计有限公司 | | |

**二、验收意见**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 2021年9月18日由建设业主单位云南恒益水电开发有限公司主持，召开了施坝河一级水电站水土保持设施验收会议；主要参加单位有：水土保持监测单位香格里拉市华辰水电咨询设计有限公司，水土保持监理单位大理禹光工程监理咨询有限公司，水土保持施工单位香格里拉县建筑建材有限责任公司。  会议邀请水土保持专家5人，组成专家组（专家组名单附后），会议认真听取了监测单位、监理单位、施工单位的汇报，专家组认真审阅了验收文件，得出以下结论：  （一）项目概况  地理位置：施坝河位于德钦县霞若乡境内，界于东经99° 13′—99° 31′，北 纬27°40′—27° 42′之间，施坝河系珠巴龙河一级支流，金沙江中游右岸二级支流，发源于云岭山脉海拔3810m的高山草甸上，河流由西南 向东流经泥罗寨、李独光、阿姑咱、吉义独，阿独里最后在霞若注入珠 巴龙河。全流域面积215.5km2,河长24.3km,河道平均坡降74.0‰， 流域分水岭最高点高程4428.3m,坝址高程2500m,坝址以上流域面积 118. 5km2,坝址以上流域平均高程3464m。  施坝河从河源至河口两岸全是高山峡谷，河床坡降大，水流湍急， 河谷狭窄呈“V”字型。  该项目河流规划报告对施坝河梯级水电站的河段开发方式、建筑 物布置及装机规模进行分析论证，采用二级开发方案。本阶段一级站 拟总装机容量为2×8000KW。工程规模为小（I）型，工程等别V等, 工程由首部枢纽、引水系统、厂区枢纽组成。引水系统布置于施坝河 右岸，厂区枢纽布置于施坝河右岸，距珠巴龙河约3000米。  流域上游属北温山地季风气候，下游属中暖和低热气候。本流 域属迪庆州南部多雨区，年降水量800-1200之间。  本流域属深切割高山峡谷地形，河道深切，山高谷深，水流湍 急，两岸不连续分布有混杂堆积阶地，有的高出水面达20m左右，地势总体上是西高东低。  山岭海拔高程一般在2600m〜4200m,最高峰海拔4428.3m。流域均属金沙江水系，西北侧属澜沧江水系。测区在不同高程尚发育有冰蚀地形，如角峰、刃脊、冰斗、冰蚀洼地等。根据1:400万《中国地震动峰值加速度区划图》，工程区50年超越概率10%的地震动峰值加速度为0。  主要技术参数：该项目河流规划报告对施坝河梯级水电站的河段开发方式、建筑 物布置及装机规模进行分析论证，采用二级开发方案。本阶段一级站 拟总装机容量为2×8000KW。工程规模为小（I）型，工程等别V等, 工程由首部枢纽、引水系统、厂区枢纽组成。引水系统布置于施坝河 右岸，厂区枢纽布置于施坝河右岸，距珠巴龙河 约3000米。  **主要技术经济指标表**   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | **序号** | **名 称** | **单 位** | **数 量** | | | **备 注** | | | **一** | **工程区地震基本烈度** | **度** | **VII** | | |  | | | **二** | **水文** | | | | | | | | 1 | 坝址以上流域面积 | km2 | 203.5 | | |  | | | 2 | 多年平均年径流量 | 108m3 | 2.258 | | |  | | | 3 | 多年平均流量 | m3/s | 5. 07 | | |  | | | 4 | 多年平均悬移质年输沙量 | 104t | 9. 39 | | |  | | | 5 | 多年平均推移质输沙量 | 104t | 2.16 | | |  | | | **三** | **水库** | | | | | | | | 1 | 正常蓄水位 | m | 2499.65 | | |  | | | 2 | 调节库容 | 万 m3 | 无 | | |  | | | **四** | **工程发电效益** | | | | | | | | 1 | 装机容量 | 万 kW | 1.6 | | |  | | | 2 | 保证出力(P=90%) | 万 kW | 0.473 | | |  | | | 3 | 多年平均发电量 | 万kW·h | 8242.79 | | |  | | | 4 | 年利用小时 | h | 5151.74 | | |  | | | **五** | **淹没损失及工程占地** | | | | | | | | 1 | 水库淹没陆地面积 | hm2 | 无 | | |  | | | 2 | 工程永久占用地 | hm2 | 2.1 | | |  | | | 3 | 临时占地 | hm2 | 1.62 | | |  | | | **六** | **主要建筑物** | | | | | | | | 1 | 挡水建筑物 | 混凝土溢流坝 | | | | | | |  | 坝顶高程 | m | 2499.65 | | |  | | |  | 最大坝高 | m | 6.1 | | |  | | |  | 泄洪闸 | 孔 | 无 | | |  | | |  | 坝顶总长 | m | 20.8 | | |  | | |  | 消能方式 | 底流消能 |  | | |  | | | 2 | 引水建筑物 | | | | | | | |  | 设计引用流量 | m3/s | 6.46 | | |  | | | (1) | 取水闸 | 龙抬头式 | | | | | | |  | 进口底板高程 | m | 2497.85 | | |  | | |  | 孔口尺寸 | m | 1.8×1.8 | | | 1 孔 | | | (2) | 引水隧洞 | 平底马蹄形 | | | | | | |  | 断面尺寸 | m | 2.5×2.5 （矩形）2.3×3.19（隧洞） | | | 宽×高 | | |  | 长度 | m | 6232 | | | 总长 | | | (3) | 压力管道 | | | | | | | |  | 型 式 | | | 明管 | | | | |  | 主管长度 | | | m | 534.4 | |  | | 3 | 厂房 | | | | | | | | (1) | 主厂房型式 | | | 地面式 | | | | |  | 主厂房尺寸 | | | m | 30×13.5×10.5 | |  | | (2) | 副厂房型式 | | | 地面式 | | | | |  | 副厂房尺寸 | | | m | 13.5×13.5×7.5 | |  | | 5 | 升压站型式 | | | 地面式 | | | | |  | 面 积 | | | m2 | 28m× 21m | |  | | **七** | **主要工程量** | | | | | | | | 1 | 明挖土石方 | | | m3 | 94944 | |  | | 2 | 回填土石方 | | | m3 | 4062 | |  | | 3 | 後及钢筋後 | | | m3 | 26022 | |  | | 4 | 钢筋制安 | | | t | 820.08 | |  | | 5 | 金属结构安装 | | | t | 359.04 | |  | | **八** | **施工道路** | | | **km** | **0.1** | |  | | **九** | **施工总工期** | | | **月** | 18 | |  | | **十** | **投资** | | |  |  | |  | | 1 | 总投资 | | | 万元 | 7060 | |  | | 2 | 水土保持投资 | | | 万元 | 100.74 | |  |   项目投资：工程静态总投资6719万元，工程动态总投资7060万元，单位千瓦投资4412元/kw。  （二）水土保持方案批复情况：  2005年10月25日由云南华禹水利水电勘察设计有限公司完成了《德钦县施坝河一级水电站水土保持方案报告书》，并于2005年11月8日由迪庆藏族自治州水利水电局组织专家审查后下发《关于迪庆州德钦县施坝河梯级水电站工程水土保持方案初步设计报告的批复》（迪水电发[2005]109号）。  （三）水土保持监测情况：  根据水土保持工作情况分析，建设单位较为注重工程水土保持工作，在施工过程中根据批复的《水土保持方案》，结合实际情况主体工程、临时工程和植物措施，基本按照水土保持方案中的要求进行了施工，水土保持工程措施到位，效果较好。通过各项水土保持措施的实施，截至2015年12月，项目区内土地整治度为97.98%，水土流失总治理度为98.18，拦渣率为99%，土壤流失控制比为1.0，林草植被恢复率为99%，林草覆盖率为29.09%，均达到水土保持方案报告书中的防治目标，可以通过水土保持竣工验收。  （四）水土保持监理情况  施坝河一级水电站的设计及施工均充分注意并努力消除与减少了工程区对水土流失的影响，对水土保持生态环境的恢复与重建高度重视，严格按照水土保持方案上的规定建设水土保持设施，加大了水土保持措施的建设投资，使水土保持工程措施建设的进度、数量与质量符合国家标准和规范要求，目前均处于安全、正常、良好的运行状态中，较好地实现了经批复发水土保持方案水土保持目标。整个工程关于水土保持工程的设计、施工质量及工程进度都得到了充分保证，最大限度地保护项目区的生态环境。通过一系列水土保持措施的实施，项目水土保持防治效果明显：项目建设防治责任范围内扰动土地整治率达到97.78%，水土流失总治理度达到98.18%，土壤流失控制比达到1.0，拦渣率达到99%，林草植被恢复率达到99%，林草覆盖率达到29.09%，六项指标均能达到防治目标值。  （五）验收报告编制情况：  《施坝河一级水电站水土保持设施竣工验收报告书》于2021年8月由香格里拉市华辰水电咨询设计有限公司编制，验收报告主要结论为：核定的永久占地面积为2.09hm2，其中：耕地0.23hm2，林地0.53 hm2,荒山荒坡1.33hm2。临时占地为1.6hm2，其中耕地0.20hm2，林地0.34hm2,荒山荒坡1.06hm2。水库面积为0.26hm2，其中河道0.26hm2，水库淹没区无民房、耕地及专项设施等。工程现已建设完毕，落实水土保持措施工程量为：浆砌块石1673m3，土石方开挖2113m3，土地整治1.92hm2，覆土1975m3，抚育1.92hm2，植树2949株，播草0.57hm2。  施坝河一级水电站水土保持总投资为100.74万元，其中已实施水土保持措施投资为100.74万元。  （六）验收结论  根据《中华人民共和国水土保持法》、《水利部关于加强事中事后监管规范生产建设项目水土保持设施自主验收的通知》（水保〔2017〕365号）及《云南省水利厅转发水利部关于加强事中事后监管规范生产建设项目水土保持设施自主验收文件的通知》（云水保〔2017〕97号）要求，认真复核德钦县施坝河一级水电站水土保持设施落实情况，得出验收结论：工程已按《德钦县施坝河一级水电站水土保持方案》的设计要求完成水保措施，目前各防治区域防治效果良好，通过13年的运行，未发生较大的水土流失现象，运行过程中出现的部分缺陷已得到处理；总之该项目已完成水土流失预防和治理任务，各个水土保持防治指标均达到设计目标值，各措施均符合水土保持设施的验收条件，同意德钦县施坝河一级水电站水土保持设施通过验收。  （七）后续管护要求  1.加强对项目区各水土保持设施的日常维护、管理，及时发现问题及时处理；  2. 对地形、地貌较为复杂的易发生水土流失危害的塔基应设专人定期巡查；  3. 运行期与当地水行政主管部门共同配合，进一步加强水土保持监督执法、广泛传播水土保持知识，提高当地群众水土保持意识，以利于该项目水土保持的开展和维护。  **三、验收组成员签字表**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | 分工 | 姓名 | 单位 | 职务/职称 | 签字 | 备注 | | 组长 |  |  |  |  | 建设单位 | | 成员 |  |  |  |  | 验收报告编制单位 | |  |  |  |  | |  |  |  |  | 监测单位 | |  |  |  |  | |  |  |  |  | 监理单位 | |  |  |  |  | |  |  |  |  | 水土保持方案编制单位 | |  |  |  |  | |  |  |  |  | 施工单位 | |  |  |  |  | |  |  |  |  |  | |