HAWC Site EVO Meeting - 10 Sept. 2010

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Agenda

- Subgroup 2.3 leader
- Access restrictions to LMT
- Site permit status
- Status of electricity
- Internet
- Site engineering
- Water plan

Subgroup 2.3 leader

- WsG 2.3 = Physical plant
- Relates to all infrastructure, specially support infrastructure on site
- includes electricity, communications, buildings, site maintenante
- Excludes water (WsG 2.4)
- Ibrahim Torres has accepted the task

Access restrictions to LMT

- As usual access to HAWC requires three day notice to jnava@inaoep.mx.
- Access to HAWC does not grant access to the LMT or mountain top area.
- Access to the mountain top area needs to be specified explicitely when asking for the permit
- Permit to HAWC personnel may apply only to the LAGO/RT5 area.
- Visitor access to HAWC (i.e. non HAWC personnel) needs to be applied for.

Site permit status

- The request for the extension of the site permit, expired in terms of construction on September 7, was sent last week.
- The semestral report to SEMARNAT is in advanced drafting and is expected to be submitted on Tuesday.
- The request for modifications, a more detailed document, is in early draft status. It requires defining a site layout.
- Today the head of PROFEPA is at the LMT site.
- A PROFEPA inspection of the HAWC site within two weeks is expected. Please keep everything tidy, help picking up garbage, bury soil study holes, no digging, etc...

Electricity (1)

- Alberto, Ibrahim and Alberto Portilla, the site electrician, meet in CFE on Friday 3 September (leading to last week's call cancellation).
- CFE acknowledged the existence of proper topographic data. Current soil mechanics data has the information needed; a similar study should be made at the position of the transformer.
- These two items, together with INAOE performing the job and not requiring a bid package, removed items EVA-01, EVA-02 and PCN-01 from page 13 of the GEIC proposal.

Electricity (2)

ANEXO "C"
PROPUESTA TÉCNICO-ECONÓMICA

1.- IMPORTE DE LOS TRABAJOS

CLAVE	DESCRIPCIÓN	UNIDAD	VOLUMEN	P.U.	TOTAL
	TRABAJO EN CAMPO				
EVA-01	Estudio topográfico para la determinación optima del derecho de vía.	serv	1	$165,884.50	~~$165,884.50~~
EVA-02	Estudio de mecánica de suelos. Incluye trabajos en campo y análisis en laboratorio.	serv	1	$58,115.00	~~$58,115.00~~
EVA-03	Levantamiento eléctrico y de datos técnicos en campo	serv	1	$75,250.67	$75,250.67
	BASES DE USUARIO Y BASES DE DISEÑO				
EVA-04	Bases de usuario y bases de diseño	serv	1	$133,739.89	$133,739.89
	INGENIERIA BASICA Y DE DETALLE				
EVA-05	Estudios de flujos de potencia, corto circuito y coordinación de protecciones.	serv	1	$50,289.58	$50,289.58
EVA-06	Elaboración de memorias de cálculo para respaldo del proyecto de acuerdo a la normatividad vigente.	serv	1	$82,774.15	$82,774.15
EVA-07	Elaboración de planos de propuesta	serv	1	$75,127.24	$75,127.24
	REVISIÓN DE PROYECTO				
DCT-01	Revisión del Proyecto por parte de una Unidad de Verificación de Instalaciones Eléctricas	verif	1	$138,786.83	$138,786.83
	PAQUETE CONCURSAL				
PCN-01	Paquete concursal. Incluye : Elaboración de la ingeniería básica y de detalle, bases de usuario y bases tecnicas de licitación, volumenes de obra y precios unitarios.	serv	1	$202,056.14	~~$202,056.14~~

Removed
Removed
Removed

TOTAL	**PROYECTO EJECUTIVO PARA EL DESARROLLO DE LA INGENIERÍA BÁSICA Y DE DETALLE PARA LA IMPLEMENTACIÓN DE ACOMETIDA ELÉCTRICA DEL OBSERVATORIO DE RAYOS GAMMA HAWC (HIGH ALTITUDE WATER CHERENKOV) EN SIERRA NEGRA, PUEBLA, INSTITUTO NACIONAL DE ASTROFÍSICA, ÓPTICA Y ELECTRÓNICA.**	~~$982,024.00~~

→ 557k pesos = 43k USD

NOTA: ESTA COTIZACION CUENTA CON UNA VIGENCIA DE 30 DIAS A PARTIR DE ESTA FECHA

Electricity (3)

- Proposal is for 16 weeks - Job may be done in one month
- Next step is for INAOE to send an official request to CFE and proceed to sign the contract. In parallel we will be contacting CFE distribution and checking costs and specs of materials.
- Goal is electrical line within 1M pesos (= original).
- Ibrahim is working on getting a 200W solar power system at the VAMOS site.
- The 80 kVA fuel generator of INAOE is been repaired.

Internet

- A bare optical fiber is now present at the guard gate (which has no power, yet).
- To purchase connecting equipment.
- To start trenching from the guard gate to where the electrical trench is to begin.

Site engineering

- A civil engineering firm (SEGOR) meet at INAOE on August 27 and visited the site on 2 September.
- We inspected the extreme positions of the array, visualized the level of the flattened rectangle and discussed the location of the low and high water storage areas.
- SEGOR will send a quote on the work shortly.
- Balcazar, the civil engineer who proposed a pond option, was contacted and expressed interest in the job. A meeting for next week is been set (16 Sep on the way...).

Water

- The water plan presented last year discussed a combination of trucking with on site water collection systems.
- On site systems considered include LMT, the tank array, its drainage, and the access road drainage.
- Water testing facilities: on site and INAOE lab.

Water trucking (1)

- Current setup limited to VAMOS
- Acquisition at $2 \times 12.5 m^3$ per day ($125 m^3$ / week)
- VAMOS (6) in 10 weeks; HAWC 30 in 48 weeks
- VAMOS more limited by filtering but that should ease

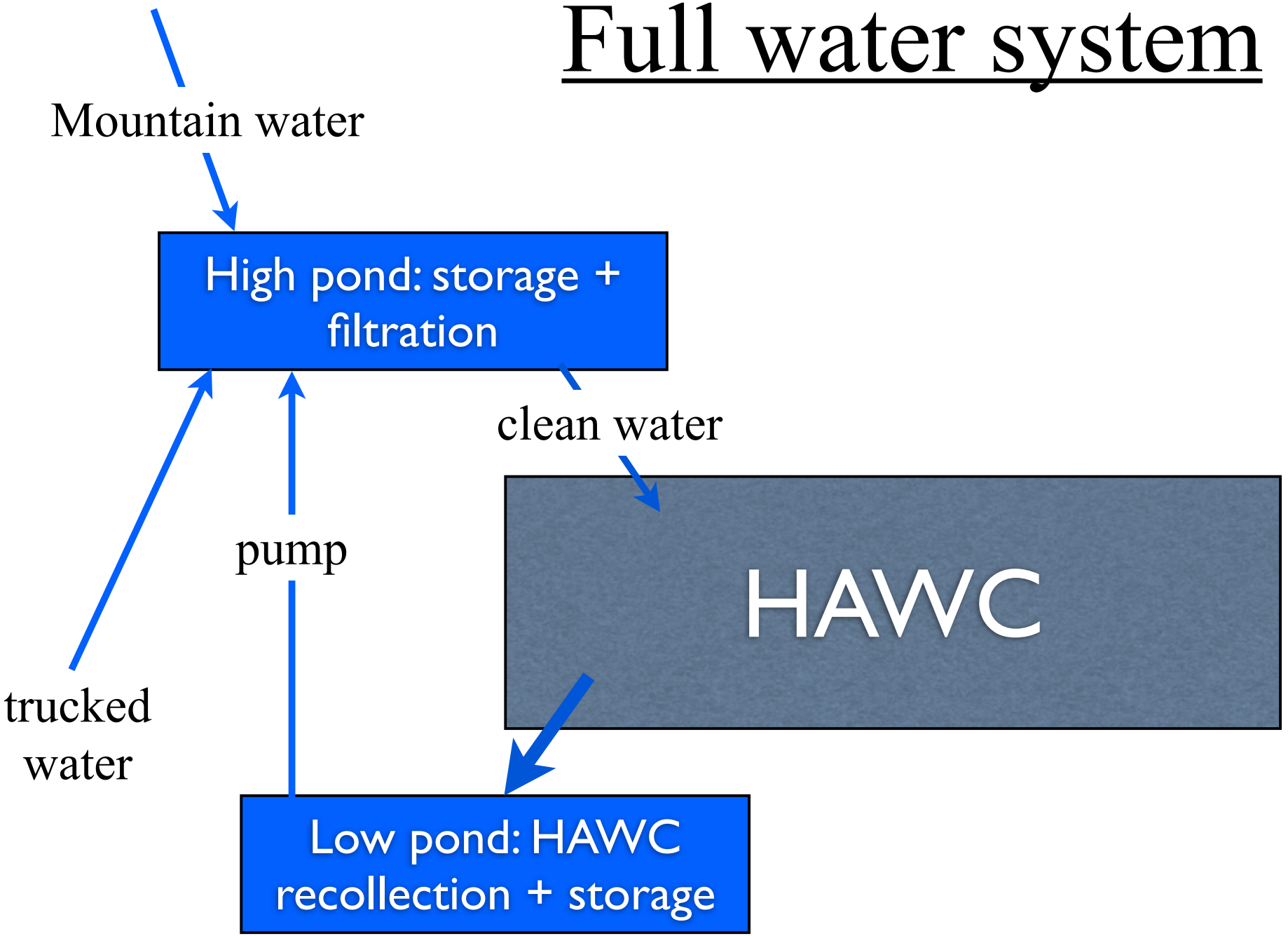
Water: trucking (2)

- VAMOS water delivery (7 tanks) already arranged.
- Filtering and softening for VAMOS-1 provisional.
- Need to install softening next Esperanza well; need enough capacity for softening and storage.
- Need to be able to store all water on site tools at one single place (sea container).
- Current plan = 8M pesos for 60,000m^3 (300 tanks)
- Optimized trucking estimate = 6M (> 4.5M pesos).
- On site collection is cheaper

Water: site infrastructure

- On site systems considered include LMT, the tank array, its drainage, and the access road drainage.
- VAMOS was not foreseen but can become an early water acquisition system.
- The site presentation at Colorado shows two water storage area: a low one for collection of precipitated water and a high one for water delivery, LMT recollection.

Full water system




LMT storage and collection tank at mountain top
Can be implemented quickly for unused VAMOS tanks

Water: full site system

- Array collected water should be directed to the low water catch basin.
- Water from catch basin pumped to high area
- Filtration and transfer of clean water to the detector would be made at the high water area.
- A PeaceCorp volunteer will review and work on the water systems starting November. Will review capabilities, costs, schedule planning...