

PUBLIC WORKS MEMORANDUM
#24-2023

DATE: Aug. 14, 2023

TO: Honorable Mayor Meredith Leighty and City Council Members

THROUGH: Heather Geyer, City Manager *hmg*
Jason Loveland, Interim Deputy City Manager *AL2*

FROM: Kent Kisselman PE, Director of Public Works *FKK*

SUBJECT: CR-106 – Aquifer Storage & Recovery Pilot Project GMP Addendum #1

PURPOSE

To consider CR-106, a resolution approving Addendum #1 to the contract with J.R. Filanc Construction Company, Inc. to accept the Guaranteed Maximum Price (GMP) for the completion of the Aquifer Storage and Recovery (ASR) Pilot Project to increase the City's water storage options.

BACKGROUND

Water supply planning for the City as presented in the Integrated Water Resources Plan (IWRP) has indicated that there is a current and future gap between Northglenn's available water supply and the City's demand. Currently, the largest limitation to increasing Northglenn's water supply is the lack of available storage. The IWRP suggested two potential water storage options: 1) Increasing storage in Standley Lake; and 2) ASR.

The implementation of an ASR program has the following project phases:

- ASR Feasibility Study Phase I – Complete
- ASR Feasibility Study Phase II – Complete
- ASR Pilot Study (construction and testing of a single set of wells)
- ASR System Construction and Implementation (construction of a complete series of ASR wells)

In 2020, the first phase of the ASR feasibility study was completed which investigated the viability of injecting and recovering treated water into the Denver Basin Aquifers that lie under Northglenn. Phase one of the feasibility study looked broadly at water quality, hydrogeology, cost and permitting. Phase I results indicated that ASR is feasible, but additional evaluation of water quality and well condition was necessary.

In 2021, Phase II of the feasibility study was undertaken. After further evaluation of existing wells and more in-depth modeling of water quality, it was determined that ASR is indeed a cost-effective way for Northglenn to increase water supply storage. With this confirmation, LRE Water completed and submitted permitting applications to the Environmental Protection Agency and the Colorado Department of Public Health and Environment and developed 90% drawings for an ASR pilot system to be located at the Water Treatment Facility.

In 2023, Filanc was hired to provide Construction Manager at Risk (CMAR) services. The GMP will allow Filanc to move forward with the completion of the L-F-5-R and A-5 well construction, provide geophysical investigations, and perform testing with temporary pumps so that final design of the permanent pumps and related appurtenances can be completed.

BUDGET/TIME IMPLICATIONS

Funds are allocated from the Water Fund.

	Amount
ASR Pilot Project Construction Budget	\$5,669,097
Filanc CMAR Contract	(\$33,321)
Filanc Change Order (Geotech) Contract	(\$14,141)
Filanc CMAR Contract Addendum #1	(\$4,176,820)
Contingency (10%)	(\$417,682)
Remaining	\$1,027,133

STAFF RECOMMENDATION

Attached is CR-106, a resolution that, if approved, would authorize the Mayor to execute Addendum #1 to the agreement between the City and J.R. Filanc Construction Company, Inc. for the Aquifer Storage and Recovery Pilot Project GMP in an amount not to exceed \$4,176,820 and authorizes the City Manager, on behalf of the City, to approve minor changes in scope of services and execute relevant change orders up to the approved expenditure limit of \$4,594,502. Staff recommends approval of CR-106.

STAFF REFERENCE

If Council Members have any questions, please contact Kent Kisselman, Director of Public Works, at kkisselman@northglenn.org or 303.450.4005.

SPONSORED BY: MAYOR LEIGHTY

COUNCIL MEMBER'S RESOLUTION

RESOLUTION NO.

No. CR-106
Series of 2023

Series of 2023

A RESOLUTION APPROVING ADDENDUM NO. 1 TO THE CONSTRUCTION MANAGER CONTRACT BETWEEN THE CITY OF NORTHGLENN AND J.R. FILANC CONSTRUCTION COMPANY, INC. FOR GUARANTEED MAXIMUM PRICE 1 FOR THE AQUIFER STORAGE AND RECOVERY SITE PILOT PROJECT

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF NORTHGLENN, COLORADO THAT:

Section 1. Addendum No. 1 to the Construction Manager Contract between the City of Northglenn and J.R. Filanc Construction Company, Inc. for Guaranteed Maximum Price 1, attached hereto, in the amount of \$4,176,820.00 with a ten percent (10%) contingency of \$417,682.00 for a total amount not to exceed \$4,594,502.00 for the Aquifer Storage and Recovery Site Pilot Project is hereby approved and the Mayor is authorized to execute same on behalf of the City of Northglenn.

DATED, at Northglenn, Colorado, this _____ day of _____, 2023.

MEREDITH LEIGHTY
Mayor

ATTEST:

JOHANNA SMALL, CMC
City Clerk

APPROVED AS TO FORM:

COREY Y. HOFFMANN
City Attorney

ADDENDUM #1 TO CONSTRUCTION MANAGER CONTRACT

THIS FIRST ADDENDUM TO CONSTRUCTION MANAGER CONTRACT is made and entered into this day of _____, 20____, by and between the CITY OF NORTHGLENN, State of Colorado (hereinafter referred to as the "Owner") and J.R. Filanc Construction Company, Inc. (hereinafter referred to as "Construction Manager").

RECITALS:

- A. On December 21, 2022 the Owner and Construction Manager entered into a Contract for the pre-construction services of the Pilot Aquifer Storage and Recovery Site (the "Contract") in an amount not to exceed thirty-three thousand three hundred twenty-one dollars (\$33,321).
- B. On June 6, 2023 the Owner and Construction Manager entered into a Change Order to increase the pre-construction services amount by fourteen thousand one hundred forty-one dollars (\$14,141) for a revised amount not to exceed forty-seven thousand four hundred sixty-two dollars (\$47,462).
- C. On July 10, 2023 the Construction Manager provided a proposal as required by Article 6.6 The Guaranteed Maximim Price ("GMP") of the Contract.

AGREEMENT

NOW, THEREFORE, it is hereby agreed that for the consideration hereinafter set forth, that the Construction Manager shall provide services as outlined in the GMP proposal.

- 1. The Scope of Services in the Contract is hereby supplemented to include the scope of services for Well Design Construction and Testing, and Drilling Pad Construction attached hereto as **Exhibit A** and incorporated herein by this reference (the "Additional Scope of Services"). Construction Manager shall commence work on the Additional Scope of Services within ten (10) days of the issuance of a Notice to Proceed.
- 2. The Guaranteed Maximum Price ("GMP") proposal of four million one hundred seventy-six thousand eight hundred twenty dollars (\$4,176,820) is hereby incorporated into the Contract through this Addendum #1, attached hereto as **Exhibit B**.
- 3. The original Contract is in full force and effect and is hereby ratified by the Owner and the Construction Manager. The original Contract, Change Order and this Addendum #1 constitute all the agreements between the Owner and the Construction Manager.

IN WITNESS WHEREOF, the parties hereto each herewith subscribe to the same in duplicate.

CITY OF NORTHGLENN, COLORADO

By: _____

Meredith Leighty

Print Name

Mayor

Title

Date

ATTEST:

Johanna Small, CMC, City Clerk

APPROVED AS TO FORM:

Corey Y. Hoffmann, City Attorney

CONTRACTOR

By:  _____

PRESIDENT 7/26/2023

Title

Date

ATTEST:

 _____

ASST. SECRETARY 7/26/2023

Title

Date

J.R. FILANC CONSTRUCTION COMPANY, INC.

FILANC

455 W. 115th Ave, Suite 3, Northglenn, CO 80234

July 10, 2023

Silas Adams
Water Resource Administrator
City of Northglenn
2350 W 112th Ave
Northglenn, CO 80234

Reference: Pilot Aquifer Storage and Recovery Site

Subject: GMP 1

Mr. Adams

We are pleased to present the following GMP 1 proposal for the Pilot Aquifer Storage and Recovery Project.

The purpose of GMP 1 is to complete the L-F-5-R and A-5 well construction, provide geophysical investigations, and perform testing with temporary pumps so that final design of the permanent pumps and related appurtenances can be completed. At that time, it is anticipated that Filanc will prepare and submit GMP 2 proposal for the balance of construction and services.

J.R. Filanc Proposal Includes the Following:

- I. Scope
- II. GMP 1 Cost Estimate
- III. Schedule

I. Scope

Well Design Construction and Testing

- Based on design and scoping documents prepared by LRE Water Dated June 1, 2023. Attached to and made part of this GMP 1 Proposal
- Proposal prepared by Hydro Resources dated June 5, 2023. Attached to and made part of this GMP 1 Proposal.

Drilling Pad Construction

- J.R. Filanc will construct drilling pad and access to drilling pad
- Removal of portions of drilling pad and access to drilling pad as needed
- J.R. Filanc and Hydro Resources will participate in design workshops and meetings as necessary to finalize the design of the drilling pad. It is assumed that drilling pad design will consider and incorporate final grading plan and facility layout.

II. GMP 1 Cost Estimate

Detailed Cost Estimate

- Attached is GMP 1 Cost Estimate attached to and made part of this GMP 1 Proposal
- Proposal Provided by Hydro Resources is attached to and made part of this GMP 1 Proposal

General

- Cost includes Construction Manager Fee of 9% in accordance with Section 6.4.1 of the Contract
- Cost includes Construction Manager Contingency of 10% in accordance with Section 6.6.1.1.4 of the Contract
- An additional \$30,000 Contingency specifically assigned to well construction and testing is included as requested in the Well Design Scope.
- An allowance of \$300,000 is included for construction and removal (if needed) of the drilling pad. Final design of the drilling pad and incorporation into the final grading plan and facility layout design will be completed prior to mobilization for construction. Actual costs for drilling pad construction including all labor, materials and equipment will be itemized on separate line items during preparation of monthly Pay Applications. Once the work is completed and all actual costs are tabulated, a change order request (additive or deductive) will be prepared for review and execution. Underruns or overruns will therefore be managed separately from the Construction Manager Contingency. The \$300,000 allowance includes temporary construction fencing and erosion control specifically required for the drilling pad construction.

Clarifications

- Construction water is available free of charge at the fire hydrant located near the WTP entrance. Filanc will pay a deposit for and install a water meter on hydrant in accordance with City of Northglenn requirements.



- Discharge of water during well testing will be to location(s) determined by the City, on City property in the vicinity of the construction site. Dewatering discharge permit will not be required for discharge of water for well testing.

Inclusions

- General conditions including Construction Management labor, onsite supervision, and temporary office trailer and site facilities.
- In addition to construction during regular work hours (M-F 6:00 A.M. – 5:00 P.M.), Filanc will provide 24 Hr / 7 days per week onsite supervision during well installation and testing activities.
- Dewatering Discharge Permit (for drilling pad construction)
- Stormwater Pollution Plan Permit
- Compaction testing services

Exclusions

- Building Permit
- Taxes on permanent material

III. Schedule

- See attached Critical Path Method (CPM) schedule attached to and made part of this GMP 1 Proposal.

If you have any questions or comments or require additional Information, please contact me at your convenience.

Sincerely,

Andrew Hunley

Andrew Hunley
General Manager
Rocky Mountain Region
Cell: 720-326-1426
Cc: David Campbell

July 10, 2023

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Exhibit B - Fee



City Of Northglenn
ASR Project - LF-5R & A-5 Construcion
 GMP-1

7/10/2023

DIRECT COSTS - WORK ITEMS			Cost of Work
1 Well LF-5R & A-5 Construction			\$ 3,381,069
Subtotal Direct Cost			\$ 3,381,069
	Insurance	1.43%	\$ 59,729
	Bond (2 year Warranty)	1.01%	\$ 42,789
Subtotal Cost of Work			\$ 3,483,587
Contractor Contingency		10.00%	\$ 348,359
Contractor Fee		9.00%	\$ 344,875
GMP 1 - Total			\$ 4,176,820

Project Name: Nortglenn ASR
 Prepared by: Filanc Construction
 July 7, 2023

Item Description	Quantity	Units	LG	LAF	Labor Hours Per Unit	Labor Total Cost	Total Hours	Labor Cost Per Hour	Taxable Unit Cost	Taxable Total Cost	Non Taxable Unit Cost	Non Taxable Total Cost	Other Unit Cost	Other Total Cost	Sub Unit Cost	Sub Total Cost	Total Cost	
						\$313,837	3,153			\$38,376		\$5,077		\$98,544		\$2,925,235	\$3,381,069	
DIVISION 01 - GENERAL CONDITIONS																		
PERSONNEL DIRECTS																		
Superintendent - General	1.00	MO			173.0	\$20,483	173	\$118.40										\$20,483
Superintendent - Civil	1.00	MO			173.0	\$18,208	173	\$105.25										\$18,208
Project Manager	5.00	MO			173.0	\$113,531	865	\$131.25										\$113,531
Surveyor Rodman	1.00	MO			44.0	\$2,103	44	\$47.79										\$2,103
Scheduler	20.00	HRS													\$150.	\$3,000		\$3,000
FIELD OFFICES & TRAILERS																		
Office Trailer/Set Up/Take Down	2.00	EA			10.0	\$956	20	\$47.79	\$250.00	\$500								\$1,456
Filanc Office Trailer Furnishing	1.00	LS							\$1,000.00	\$1,000								\$1,000
Filanc Office Trailer Monthly Rent	5.00	MO											\$850.	\$4,250				\$4,250
Storage Trailer	5.00	MO											\$500.	\$2,500				\$2,500
Job Set Up	1.00	LS			48.0	\$2,925	48	\$60.93	\$500.00	\$500								\$3,425
TEMP UTILITIES/SERVICES																		
Sanolets (1 at Trailer, 2 at Site for 5 months each)	15.00	MO											\$165.	\$2,475				\$2,475
Trash Containers	5.00	MO											\$1,000.	\$5,000				\$5,000
Trash Cleanup	5.00	MO			10.0	\$2,390	50	\$47.79										\$2,390
Final Cleaning	1.00	LS			24.0	\$1,462	24	\$60.93	\$500.00	\$500								\$1,962
Office Cleaning Services	5.00	MO											\$350.	\$1,750				\$1,750
Drinking Water	5.00	MO											\$100.	\$500				\$500
Temp Power Hookups	1.00	LS			16.0	\$1,395	16	\$87.20							\$5,000.	\$5,000		\$6,395
Monthly Electrical - Generator Rental 35 KW	5.00	MO											\$2,250.	\$11,250				\$11,250
Monthly Electrical - Generator Fuel - 2.4 gal/hr	4,684.80	Gal											\$3.56	\$16,678				\$16,678
Construction Water Setup/Maintain	5.00	MO			8.0	\$1,912	40	\$47.79	\$50.00	\$250								\$2,162
Water Supply - Backflow Preventer Connection Assembly	1.00	LS			5.0	\$239	5	\$47.79	\$500.00	\$500								\$739
PHONES & COMMUNICATION																		
Job ISP	5.00	MO											\$150.	\$750				\$750
Job Mobile Phones - PM	5.00	MO											\$100.	\$500				\$500
Job Mobile Phones - Job	5.00	MO											\$100.	\$500				\$500
Mobile Radios	1.00	LS							\$200.00	\$200								\$200
Computers & Software	1.00	LS											\$1,200.	\$1,200				\$1,200
PERMITS/LICENSES/FEES																		
Contractor's License	1.00	LS											\$350.	\$350				\$350
Dewatering Discharge Permit	1.00	LS											\$850.	\$850				\$850
Dewatering Lab Analysis	5.00	MO											\$500.	\$2,500				\$2,500
Storm Water Control Permit	1.00	EA											\$550.	\$550				\$550
SMALL TOOLS																		
Small Tool Allowance	1.00	LS							\$5,981.26	\$5,981								\$5,981
Surveying/Layout Materials	1.00	MO							\$250.00	\$250								\$250
Level & Rods	1.00	MO											\$275.	\$275				\$275
Total Station	1.00	MO											\$750.	\$750				\$750
OSHA/SAFETY																		
OSHA/Safety Allowance	1.00	LS							\$1,794.38	\$1,794								\$1,794
OSHA Training/Records	5.00	MO			4.0	\$1,949	20	\$97.45	\$50.00	\$250								\$2,199
Fire Extinguishers	2.00	EA			1.0	\$96	2	\$47.79	\$250.00	\$500								\$596
Safety Signs	1.00	LS			2.0	\$96	2	\$47.79	\$150.00	\$150								\$246

Project Name: Nortglenn ASR
 Prepared by: Filanc Construction
 July 7, 2023

Item Description	Quantity	Units	LG	LAF	Labor Hours Per Unit	Labor Total Cost	Total Hours	Labor Cost Per Hour	Taxable Unit Cost	Taxable Total Cost	Non Taxable Unit Cost	Non Taxable Total Cost	Other Unit Cost	Other Total Cost	Sub Unit Cost	Sub Total Cost	Total Cost	
						\$313,837	3,153			\$38,376		\$5,077		\$98,544		\$2,925,235	\$3,381,069	
First Aid Kits	1.00	EA			1.0	\$48	1	\$47.79	\$175.00	\$175							\$223	
SIGNS/BARRIERS/PROTECTION																		
Project Signs	1.00	EA			8.0	\$467	8	\$60.93	\$800.00	\$800							\$1,287	
Protect Mats/Work	5.00	MO			10.0	\$2,390	50	\$47.79	\$500.00	\$2,500							\$4,890	
Dust Control	5.00	MO			22.0	\$7,555	110	\$68.68									\$7,555	
Traffic Control Signs	1.00	LS			8.0	\$382	8	\$47.79	\$850.00	\$850							\$1,232	
Weather Protection	4.00	MO			10.0	\$2,437	40	\$60.93	\$1,000.00	\$4,000							\$6,437	
Snow Removal	4.00	MO			10.0	\$2,747	40	\$68.68									\$2,747	
Traffic Control		LS																
PROFESSIONAL SERVICES																		
Professional Surveying	1.00	LS													\$4,000.	\$4,000	\$4,000	
Boils Testing	1.00	LS													\$5,000.	\$5,000	\$5,000	
OFFICE/CLERICAL																		
Repro/Office/Shipping	5.00	MO							\$75.00	\$375							\$375	
Office Supplies	5.00	MO							\$75.00	\$375							\$375	
Postage & Delivery	5.00	MO							\$75.00	\$375							\$375	
Job Photos	5.00	MO							\$50.00	\$250							\$250	
Job Videos	5.00	MO							\$50.00	\$250							\$250	
MISCELLANEOUS																		
Unload & Dray	5.00	MO			6.0	\$2,330	40	\$58.24									\$2,330	
Pickup Parts/Materials	5.00	MO			8.0	\$2,747	40	\$68.68									\$2,747	
Transport Misc Tools/Mats	5.00	MO			10.0	\$3,434	50	\$68.68									\$3,434	
Misc Subcontractor Assistance	5.00	MO			8.0	\$1,912	40	\$47.79									\$1,912	
TAXES/INSURANCE/BONDS																		
Sales Tax	1.00	LS											\$11,016.6	\$11,017			\$11,017	
SUBTOTAL FOR DIVISION 01 - GENERAL CONDITIONS						\$194,212	1,909	101.7		\$22,326				\$63,644		\$17,000	\$297,182	
DIVISION 01 - CONSTRUCTION EQUIPMENT																		
PICKUP - PM	5.00	MO											\$800.	\$4,000			\$4,000	
PICKUP - JOB	5.00	MO											\$800.	\$4,000			\$4,000	
Trailer	5.00	MO											\$100.	\$500			\$500	
WATER TRUCK RENTAL - 2000 Gallon	5.00	MO											\$4,000.	\$20,000			\$20,000	
MISC EQUIP RENTAL	5.00	MO											\$500.	\$2,500			\$2,500	
EQUIPMENT FUEL	1,426.00	Gal									\$3.56	\$5,077					\$5,077	
OIL / FILTER	5.00	MO			4.0	\$1,374	20	\$68.68	\$125.00	\$625							\$1,999	
EQUIP REPAIR - SITE	5.00	MO			4.0	\$1,374	20	\$68.68	\$250.00	\$1,250							\$2,624	
EQUIP TRANSPORTATION	6.00	EA											\$650.	\$3,900			\$3,900	
PU FUEL	40.00	WK							\$175.00	\$7,000							\$7,000	
SUBTOTAL FOR DIVISION 01 - CONSTRUCTION EQUIPMENT						\$2,747	40	69.7		\$8,875		\$5,077		\$34,900			\$51,599	
DIVISION 02 - SITE WORK																		
Misc Sitework																		
Pad Plan - Engineered	1.00	LS			4.0	\$390	4	\$97.45							\$3,500.	\$3,500	\$3,890	
Vehicle Tracking Pad	2.00	EA			24.0	\$2,796	48	\$58.24	\$1,750.00	\$3,500							\$6,296	
Temp Fence at Trailer and Laydown	650.00	LF			0.015	\$466	10	\$47.79							\$15.	\$9,750	\$10,216	

Project Name: Nortglenn ASR
 Prepared by: Filanc Construction
 July 7, 2023

					\$313,837	3,153			\$38,376		\$5,077		\$98,544		\$2,925,235	\$3,381,089		
Item Description	Quantity	Units	LG	LAF	Labor Hours Per Unit	Labor Total Cost	Total Hours	Labor Cost Per Hour	Taxable Unit Cost	Taxable Total Cost	Non Taxable UnitCost	Non Taxable Total Cost	Other Unit Cost	Other Total Cost	Sub Unit Cost	Sub Total Cost	Total Cost	
Prep Trailer and Laydown Area	5,000.00	SF			0.002	\$582	10	\$58.24	\$23	\$1,125							\$1,707	
Safety Fence	1,000.00	LF			0.02	\$956	20	\$47.79	\$1.75	\$1,750							\$2,706	
Dust Control	5.00	mon			22.0	\$7,555	110	\$68.68	\$50.00	\$250							\$7,805	
Maintain Erosion Control at Temp Site Facilities	5.00	mon			2.0	\$478	10	\$47.79	\$50.00	\$250							\$728	
Remove Erosion Control and Haul Off at Above	1.00	ls			16.0	\$932	16	\$58.24	\$300.00	\$300					\$2,000.	\$2,000	\$3,232	
Northglenn Well LF-5-R Well Construction																		
Hydro Resources - Well Construction Subcontractor	1.00	LS													\$1,788,365.	\$1,788,365	\$1,788,365	
Northglenn Well A-5 Well Construction																		
Hydro Resources - Well Construction Subcontractor	1.00	LS													\$774,620.	\$774,620	\$774,620	
Well Construction Misc																		
Hydro Resources Contingency	1.00	LS													\$30,000.	\$30,000	\$30,000	
Filanc Construction Well Pad Construction Allowance	1.00	LS													\$300,000.	\$300,000	\$300,000	
52 day 24/7 Drilling Operations Supervision (8x5x16) Weekday	640.00	HRS			1.0	\$67,360	640	\$105.25									\$67,360	
52 day 24/7 Drilling Operations Supervision (7x2x24) Weekend	336.00	HRS			1.0	\$35,364	336	\$105.25									\$35,364	
SUBTOTAL FOR DIVISION 02 - SITE WORK						\$116,878	1,204	97.1		\$7,175							\$2,908,235	\$3,032,268



June 5, 2023

To: J.R. Filanc Construction Company Inc.
455 W. 115th Ave. Suite 3
Northglenn, CO 80234

ATTN: David Campbell – Project Manager

Project: Northglenn ASR Project – LF-5R & A-5 Construction

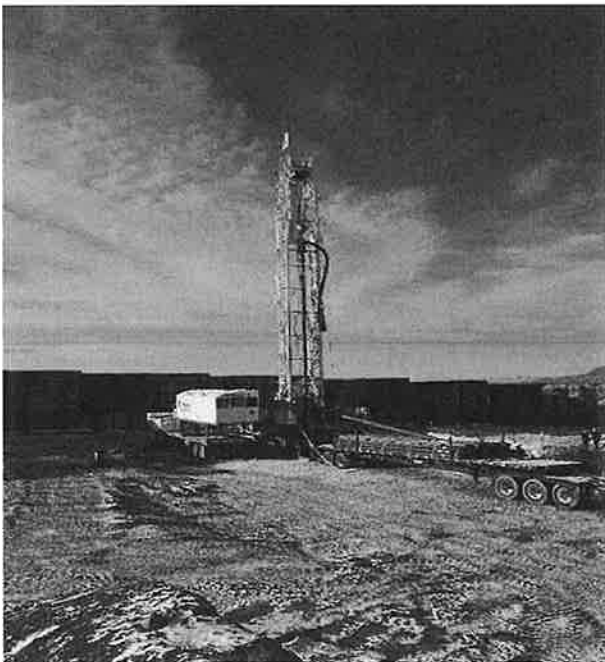
Mr. Campbell,

Hydro Resources (HR) is pleased to present the following proposal for well drilling services for the Northglenn ASR Project. HR has reviewed the well construction plans and associated bid sheets. HR wishes to outline our understanding of the scope of work. HR has broken down the proposal into the following units:

- I. Key Equipment to be supplied to the Project
- II. Technical Approach
- III. Unit Cost Breakdown

I. Key Equipment to be supplied to the Project

HR intends to mobilize the following equipment to the Northglenn site:



- The primary drilling rig will be a Challenger 320 drilling rig or equivalent. The Challenger 320 rig has a 72’ mast rated at 150,000 lbs. with an 18” Howard Turner rotary table.
- The rig will be equipped with 1600 ft of appropriate-sized drill pipe, a Sullair 900 CFM compressor and a Sullair 375 CFM compressor. HR has assumed a support truck for pipe and miscellaneous parts to complete the work.
- The drilling package includes a three-man drilling crew working 24 hours per day.
- HR will provide a pump rig for test pumping activities.
- HR has excluded drilling pad, road and site development necessary at the drilling sites.

The equipment listed above will be dedicated to this project on a full-time basis and all the equipment is up to date with annual inspections and certifications.

II. Technical Approach

HR is providing the following summary of our technical approach regarding expected geology and drilling plan.

Well Drilling

- Determine final well construction and provide material submittals prior to ordering.
- HR will work with Filanc to establish an access road and drilling pad to accommodate the drilling activities.
- The Challenger 320 rig (or equivalent) will be mobilized to the site and set up upon delivery of materials.

Northglenn LF-5-R Well Construction

- Northglenn and engineer will stake the well location to verify it is within proper radius.
- A 24" conductor casing will be installed to approximately 80'.
- The rig will drill a 13.5" pilot hole to 1470'. The hole will be reamed 17.5" from the surface to 1455'.
- Drilling mud, fluids, and cuttings will be hauled from site and disposed of.
- Perform geophysical log (including NRM) of pilot hole to determine screen interval. Design to be provided by LRE Water.
- Install 345' of .035 slot 304 stainless steel screen and 1,110' of 10" 304 stainless steel casing to the surface.
- Install filter pack (SiLi beads) with a 10' 8/12 silica transition sand.
- Pressure grout casing with neat cement and bentonite grout in the annular seal to surface from 1,080' depth. Provide 72 hours of cure time.
- Development of well to include circulation, airlift, and jetting. There is an estimated total of 88 development hours.
- Install temporary test pump, perform development pumping, 8-hour step test, and 72-hour continuous pump test. HR has assumed test pump discharge will be within 500' of drilling site. Actual discharge point will need to be clarified prior to testing.
- Remove test pump equipment and perform final disinfection.
- Perform downhole video survey of the well.
- Provide and Install Pitless Adapter Unit.
- Clean up and move to A-5 Site.

Northglenn A-5 Well Construction

- Northglenn and engineer will stake the well location to verify it is within proper radius.
- A 24" conductor casing will be installed to approximately 40'.
- The rig will drill a 17.5" hole from the surface to 560'.
- Drilling mud, fluids, and cuttings will be hauled from site and disposed of.
- Perform geophysical log to determine screen interval. Design to be provided by LRE Water.
- Install 200' .035 slot 304 stainless steel screen and 350' of 10" 304 stainless steel casing to the surface.
- Install filter pack (SiLi beads) with a 10' 8/12 silica transition sand.
- Pressure grout casing with neat cement and bentonite grout in the annular seal to surface. Provide 72 hours of cure time.
- Development of well to include circulation, airlift, and jetting.
- Install temporary test pump, perform development pumping, 8-hour step testing, and 72-hour continuous pump test. HR has assumed test pump discharge will be within 500' of drilling site. Actual discharge point will need to be clarified prior to testing.
- Remove test pump equipment and perform final disinfection.
- Perform downhole video survey of the well.
- Provide and Install Pitless Adapter Unit
- Clean up and demobilize drill rig from the site.

III. Unit Cost Breakdown

HR is providing the following bid schedules for your review.

BID SCHEDULE					
Northglenn LF-5-R Well					
ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	EXTENSION
1	Wellhead Completion (10" Pitless Adapter)	Lump Sum	1	\$ 23,000.00	\$ 23,000.00
2	Mobilization, Demobilization, and Cleanup	Lump Sum	1	\$ 120,000.00	\$ 120,000.00
3	Drilling Surface Borehole, Surface Casing Materials, and Installation				
	A. Drilling 36-inch Surface Borehole	Lump Sum	included	\$ -	\$ -
	B. 24.75-inch OD (0.375-inch Wall Thickness) LCS Surface Casing - ASTM A139 Grade B Steel or ASTM A53 Grade B Steel	Length (ft)	80	\$ 550.00	\$ 44,000.00
	C. Surface Casing Installation	Lump Sum	included	\$ -	\$ -
4A	Drilling 17.5-inch Diameter Borehole (80 to 1455 ft)	Length (ft)	1375	\$ 240.00	\$ 330,000.00
4B	Drill 13.5" Pilot Hole (80 to 1455 ft)	Length (ft)	1375	\$ 112.00	\$ 154,000.00
5	Geophysical Logging - Normal Well Log Suite (Required)	Lump Sum	1	\$ 15,000.00	\$ 15,000.00
6	Geophysical Logging- Advanced Logs				
	A. Porosity Log - Nuclear Magnetic Resonance (NMR)/Borehole Magnetic Resonance (BMR)	Lump Sum	1	\$ 25,100.00	\$ 25,100.00
	B. Sonic Log	Lump Sum	1	\$ 9,800.00	\$ 9,800.00
	C. Gyroscope or Alignment Log	Lump Sum	1	\$ 4,500.00	\$ 4,500.00
	D. Cement Bond Log	Lump Sum	1	\$ 4,200.00	\$ 4,200.00
7	10.75-inch OD (0.375-inch wall thickness) Blank Casing				
	304 Stainless Steel	Length (ft)	1100	\$ 400.00	\$ 440,000.00
8	10.75-inch OD 0.035-inch Slot Wire Wrapped Screen				
	304 Stainless Steel	Length (ft)	345	\$ 255.00	\$ 87,975.00
9	Grout Seal (+20% Overage)				
	Neat Cement Grout	Volume (ft ³)	1955	\$ 53.00	\$ 103,615.00
10	Transition Sand (+20% Overage)				
	Silica Sand 20-40 Mesh	Volume (ft ³)	10	\$ 60.00	\$ 600.00
11	Gravel Pack (+20% Overage)				
	Sigmund Linder Glass Beeds (2-2.4 mm)	Metric Tons	22.0	\$ 4,300.00	\$ 94,600.00
12	Well Development with Drilling Rig - Labor, Materials, Equipment, and Development Hours				
	A. Airlift	Hours	48	\$ 950.00	\$ 45,600.00
	B. Swabbing (Sodium Hypochlorite 10%)	Hours	17	\$ 775.00	\$ 13,175.00
	C. Jetting (NuWell-220)	Hours	23	\$ 1,400.00	\$ 32,200.00
13	Aquifer Testing and Water Sampling with Pumping Rig				
	A. Mobilization/Demobilization Pumping Rig	Lump Sum	1	\$ 7,500.00	\$ 7,500.00
	B. Testing Supply and Equipment Installation	Lump Sum	1	\$ 18,500.00	\$ 18,500.00
	C. 8-Hour Step Test	Lump Sum	8	\$ 465.00	\$ 3,720.00
	D. 72-Hour Pump Test	Lump Sum	72	\$ 465.00	\$ 33,480.00
14	Disinfection	Lump Sum	1	\$ 6,000.00	\$ 6,000.00
15	Video Survey - Capable of 360° Viewing and Recording	Lump Sum	1	\$ 1,800.00	\$ 1,800.00
16	Fluids Disposal	Gal/Load	40	\$ 1,750.00	\$ 70,000.00
17	Cuttings Disposal	Per Load	16	\$ 1,250.00	\$ 20,000.00
18	Provide and install sound walls	linear foot	400	\$ 200.00	\$ 80,000.00
	Total				\$ 1,788,365.00

BID SCHEDULE					
Northglenn A-5 Well					
ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	EXTENSION
1	Wellhead Completion	Lump Sum	1	\$ 23,000.00	\$ 23,000.00
2	Mobilization, Demobilization, and Cleanup	Lump Sum	1	\$ 110,000.00	\$ 110,000.00
3	Drilling Surface Borehole, Surface Casing Materials, and Installation				
	A. Drilling 36-inch Surface Borehole	Lump Sum	1	\$ -	\$ -
	B. 24.75-inch OD (0.375-inch Wall Thickness) LCS Surface Casing - ASTM A139 Grade B Steel or ASTM A53 Grade B Steel	Length (ft)	40	\$ 550.00	\$ 22,000.00
	C. Surface Casing Installation	Lump Sum	1	\$ -	\$ -
4	Drilling 17.5-inch Diameter Borehole (40 to 560 ft)	Length (ft)	520	\$ 270.00	\$ 140,400.00
5	Geophysical Logging - Normal Well Log Suite				
	A. Gamma Ray	Lump Sum	1	\$ 14,000.00	\$ 14,000.00
	B. Spontaneous Potential	Lump Sum	included	\$ -	\$ -
	C. Resistivity (Multiple depths of investigation)	Lump Sum	included	\$ -	\$ -
	D. Caliper	Lump Sum	included	\$ -	\$ -
6	Geophysical Logging- Advanced Logs				
	A. Porosity Log - Nuclear Magnetic Resonance (NMR)/Borehole Magnetic Resonance (BMR)	Lump Sum	0	\$ 15,000.00	\$ -
	B. Gyroscope or Alignment Log	Lump Sum	1	\$ 4,500.00	\$ 4,500.00
	C. Cement Bond Log	Lump Sum	1	\$ 4,000.00	\$ 4,000.00
7	10.75-inch OD (0.375-inch wall thickness) Blank Casing				
	304 Stainless Steel	Length (ft)	350	\$ 400.00	\$ 140,000.00
8	10.75-inch OD 0.035-inch Slot Wire Wrapped Screen				
	304 Stainless Steel	Length (ft)	200	\$ 255.00	\$ 51,000.00
9	Grout Seal (+20% Overage)				
	Neat Cement Grout	Volume (ft ³)	740	\$ 53.00	\$ 39,220.00
10	Transition Sand (+20% Overage)				
	Silica Sand 20-40 Mesh	Volume (ft ³)	10	\$ 60.00	\$ 600.00
11	Gravel Pack (+20% Overage)				
	Sigmund Linder Glass Beeds (2-2.4 mm)	Metric Tons	14.0	\$ 4,300.00	\$ 60,200.00
12	Well Development with Drilling Rig - Labor, Materials, Equipment, and Development Hours				
	A. Airlift	Hours	48	\$ 800.00	\$ 38,400.00
	B. Swabbing (Sodium Hypochlorite 10%)	Hours	10	\$ 775.00	\$ 7,750.00
	C. Jetting (NuWell-220)	Hours	13	\$ 1,400.00	\$ 18,200.00
13	Aquifer Testing and Water Sampling with Pumping Rig				
	A. Mobilization/Demobilization Pumping Rig	Lump Sum	1	\$ 7,500.00	\$ 7,500.00
	B. Testing Supply and Equipment Installation	Lump Sum	1	\$ 15,500.00	\$ 15,500.00
	C. 8-Hour Step Test	Lump Sum	8	\$ 445.00	\$ 3,560.00
	D. 72-Hour Pump Test	Lump Sum	72	\$ 445.00	\$ 32,040.00
14	Disinfection	Lump Sum	1	\$ 5,200.00	\$ 5,200.00
15	Video Survey - Capable of 360° Viewing and Recording	Lump Sum	1	\$ 1,300.00	\$ 1,300.00
16	Fluids Disposal	Per Load	15	\$ 1,750.00	\$ 26,250.00
17	Cuttings Disposal	Per Load	8	\$ 1,250.00	\$ 10,000.00
	Total				\$ 774,620.00

BID SCHEDULE A - Mandatory Alternatives					
	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	EXTENSION
1	Drilling Hourly Rate (Lost Circulation)	HR	1	\$ 875.00	\$ 875.00
2	Drilling Hourly Rate (Slow Penetration Rate)	HR	1	\$ 875.00	\$ 875.00
3	One hour coordination meetings	HR	16	\$ 100.00	\$ 1,600.00
4	Contingency budget for casing or screen design modifications based on geophysical data and/or well development	L.S.	1	\$30,000.00	\$ 30,000.00
TOTAL:					\$33,350.00

Clarifications:

- The well design parameters are based upon the design provided by LRE Water.
- HR has estimated 400' of soundwalls. A unit rate for footage has been provided if length adjustments are required.
- HR has included all fuel costs.
- HR has excluded costs for access and the drilling pad. HR will work with Filanc to determine the requirements for the drilling pad.
- HR has excluded costs for a tracking pad and road maintenance (cleaning). HR assumes this cost will be part of Filanc's services.
- HR has included removal and disposal of drilling mud and drill cuttings.
- HR has excluded taxes (assume Northglenn is tax exempt).
- The Drilling Derived Waste assumed to be non-hazardous waste and has been assumed to be hauled from the site and disposed of.
- HR has included an allowance for water hauling. The engineer/city will provide a source of water.
- The bid is a complete package and cannot be modified without prior written authorization from HR. Also, this is an estimate and the final invoice will reflect actual quantities utilized in the field which are properly documented multiplied by the unit rates quoted.
- A mutually agreeable written contract will be negotiated prior to mobilization.
- HR has assumed working 24 hours per day.

Please contact our office at your earliest convenience with any questions or concerns you may have.

Sincerely,

Hydro Resources

Chelsea Borneman

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 Rocky Mountain Region
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Northglenn - Pilot Aquifer Storage and Recovery GMP 1 - Well Construction Testing
 5028-BASE
 Start:07/24/23
 Data Date: 07/03/23
 Finish Date: 01/28/24

FILANC - PROJECT BAR CHART
 Pilot Aquifer Storage and Recovery
 GMP 1
 Well Construction & Testing

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Activity ID	Activity Name	Orig Dur	Start	Finish	Total Effort	2023						2024					
						Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	
Northglenn - Pilot Aquifer Storage and Recovery GMP 1 - Well Construction & Testin																	
GENERAL CONDITIONS																	
MILESTONES																	
CONTRACT MILESTONES																	
NOA	NOTICE OF CONTRACT AWARD	0	07/24/23*		0												
CONTEX	CONTRACT EXECUTION	0	08/07/23		0												
NTP	NOTICE TO PROCEED WITH CONSTRUCTION	0	08/18/23		0												
CCD	CONTRACT COMPLETION DATE	0		01/28/24	0												
OTHER GENERAL PHASED MILESTONES																	
HR-NTP	NOTICE PROCEED FOR SUBMITTALS - HYDRO RESOURCE	0	08/18/23	08/18/23	0												
SUMMARY SCHEDULE																	
NTP5	HR WORK SUMMARY	175	08/07/23	01/28/24	0												
INTERACTION APPROVALS FROM GOVERNING AGENCIES																	
PRE-CONSTRUCTION (SPECIAL OWNER REQUIREMENTS)																	
HR-1000	CONTRACT W/ HYDRO RESOURCES	8	08/07/23	08/16/23	1												
MATERIAL PROCUREMENT (SUBMITTALS/SHOP DRAWINGS - APPROVALS - FABRIC/																	
P2-1000	PREPARE / SUBMIT / REVIEW APPROVE MATERIALS (CASING / SCREEN / FILTER PACK)	5	08/18/23	08/24/23	0												
P8-1000	PROCUREMENT / FABRICATION / DELIVERY FOR WELL MATERIALS	40	08/25/23	10/23/23	0												
DESIGN																	
A1000	COMPLETE WELL PAD DESIGN	30	07/24/23	09/01/23	6												
CONSTRUCTION																	
PREPARE AND CONSTRUCT DILLING PAD																	
FC-1000	MOBILIZE FOR DRILLING PAD	5	09/05/23	09/11/23	6												
FC-1005	CLEAR & GRUB	3	09/12/23	09/14/23	6												
FC-1010	INSTALL EROSION CONTROL	2	09/15/23	09/18/23	6												
FC-1015	EXCAVATE / BACKFILL DRILLING PAD	15	09/19/23	10/10/23	6												
DRILLING																	
CONDUCTOR INSTALLATION																	
HR-2000	LFH - DRILLING / INSTALLING/ GROUTING 24" CONDUCTOR-CONSTRUCTION	1	10/11/23	10/11/23	6												
HR-2010	DENVER - DRILLING / INSTALLING/ GROUTING 24" CONDUCTOR-CONSTRUCTION	1	10/12/23	10/12/23	6												
NORTHGLENN LF-5-R WELL																	

Remaining Level of Effort
 Remaining Work
 Actual Level of Effort
 Critical Remaining Work
 Actual Work
 Milestone

TASK filter: All Activities
 //Athenaeum:D:DATAFILES

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Date	Revision	Checked	Approved

Northglenn - Pilot Aquifer Storage and Recovery GMP 1 - Well Construction Testing
 5028-BASE
 Start:07/24/23
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 Finish Date: 01/28/24

FILANC - PROJECT BAR CHART
 Pilot Aquifer Storage and Recovery
 GMP 1
 Well Construction & Testing

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Activity ID	Activity Name	Orig Dur	Start	Finish	Total	2023					2024				
						Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
HR-01-3000	RIG MOBILIZATION / RIG UP - NORTHGLENN LF-5-R WELL	3	10/23/23	10/25/23	0										
HR-01-3005	DRILL 13.5" PILOT HOLE (TD: 1470') - NORTHGLENN LF-5-R WELL	10	10/26/23	11/04/23	0										
HR-01-3010	GEOPHYSICAL LOGGING INCLUDING NMR - NORTHGLENN LF-5-R WELL	2	11/03/23	11/04/23	0										
HR-01-3015	DRILL 17.5" BORE HOLE (TD: 1455') - NORTHGLENN LF-5-R WELL	5	11/05/23	11/09/23	0										
HR-01-3020	INSTALL 10" CASING & SCREEN - NORTHGLENN LF-5-R WELL	1	11/10/23	11/10/23	0										
HR-01-3025	INSTALL SILI BEAD FILTER PACK - NORTHGLENN LF-5-R WELL	1	11/11/23	11/11/23	0										
HR-01-3030	INSTALL GROUT - NORTHGLENN LF-5-R WELL	1	11/12/23	11/12/23	0										
HR-01-3035	CEMENT CURE TIME - NORTHGLENN LF-5-R WELL	3	11/13/23	11/15/23	0										
HR-01-3040	WELL DEVELOPMENT W/ DRILL RIG - NORTHGLENN LF-5-R WELL	7	11/16/23	11/22/23	0										
HR-01-3045	RIG DOWN - NORTHGLENN LF-5-R WELL	2	11/23/23	11/24/23	0										
HR-01-3050	MOVE OVER TO ARAPAHOE WELL - NORTHGLENN LF-5-R WELL	1	11/25/23	11/25/23	0										
HR-01-3055	CREW DAYS OFF - NORTHGLENN LF-5-R WELL	13	11/26/23	12/08/23	0										
NORTHGLENN A-5 WELL (ARAPAHOE)		18	12/09/23	12/26/23	0										
HR-02-3000	RIG MOBILIZATION / RIG UP - NORTHGLENN A-5 WELL	1	12/09/23	12/09/23	0										
HR-02-3005	DRILL 17.5" BORE HOLE (TD: 560') - NORTHGLENN A-5 WELL	5	12/10/23	12/14/23	0										
HR-02-3010	GEOPHYSICAL LOGGING - NORTHGLENN A-5 WELL	1	12/14/23	12/14/23	0										
HR-02-3020	INSTALL 10" CASING & SCREEN - NORTHGLENN A-5 WELL	1	12/14/23	12/14/23	0										
HR-02-3025	INSTALL FILTER PACK - NORTHGLENN A-5 WELL	1	12/15/23	12/15/23	0										
HR-02-3030	INSTALL GROUT - NORTHGLENN A-5 WELL	1	12/16/23	12/16/23	0										
HR-02-3035	CEMENT CURE TIME - NORTHGLENN A-5 WELL	3	12/17/23	12/19/23	0										
HR-02-3040	WELL DEVELOPMENT W/ DRILL RIG - NORTHGLENN A-5 WELL	5	12/20/23	12/24/23	0										
HR-02-3045	RIG DOWN - NORTHGLENN A-5 WELL	1	12/25/23	12/25/23	0										
HR-02-3050	DE-MOBILIZE DRILL RIG	1	12/26/23	12/26/23	0										
TEST PUMPING OF LFH WELL		25	12/27/23	01/20/24	7										
HR-03-3100	PUMP RIG MOBILIZES & SETS UP - TEST PUMPING OF LFH WELL	1	12/27/23	12/27/23	0										
HR-03-3105	INSTALL TEST PUMP - TEST PUMPING OF LFH WELL	2	12/28/23	12/29/23	0										
HR-03-3110	PUMP DEVELOPMENT - TEST PUMPING OF LFH WELL	1	12/30/23	12/30/23	0										
HR-03-3115	STEP TEST - TEST PUMPING OF LFH WELL	1	12/31/23	12/31/23	0										

Remaining Level of Effort
 Remaining Work
 Actual Level of Effort
 Critical Remaining Work
 Actual Work
 Milestone

TASK filter: All Activities
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Northglenn - Pilot Aquifer Storage and Recovery GMP 1 - Well Construction Testing
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FILANC - PROJECT BAR CHART
 Pilot Aquifer Storage and Recovery
 GMP 1
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Activity ID	Activity Name	Orig Dur	Start	Finish	Total	2023												2024			
						Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr					
HR-03-3120	CONSTANT RATE TEST - TEST PUMPING OF LFH WELL	4	01/09/24	01/12/24	0												CONSTANT RATE TEST - TEST PUMPING OF LFH WELL				
HR-03-3125	PULL TEST PUMP - TEST PUMPING OF LFH WELL	2	01/13/24	01/14/24	0												PULL TEST PUMP - TEST PUMPING OF LFH WELL				
HR-03-3130	PUMP RIG MOVES OVER TO ARAPAHOE - TEST PUMPING OF LFH WELL	1	01/14/24	01/14/24	0												PUMP RIG MOVES OVER TO ARAPAHOE				
HR-03-3135	WAIT TIME FOR VIDEO CLARITY - TEST PUMPING OF LFH WELL	5	01/15/24	01/19/24	7												WAIT TIME FOR VIDEO CLARITY - TEST PUMPING OF LFH WELL				
HR-03-3140	VIDEO - TEST PUMPING OF LFH WELL	1	01/20/24	01/20/24	7												VIDEO - TEST PUMPING OF LFH WELL				
TEST PUMPING OF ARAPAHOE WELL		14	01/15/24	01/29/24	0																
HR-04-3100	PUMP RIG MOBILIZES & SETS UP - TEST PUMPING OF ARAPAHOE WELL	1	01/15/24	01/15/24	0												PUMP RIG MOBILIZES & SETS UP - TEST PUMPING OF ARAPAHOE WELL				
HR-04-3105	INSTALL TEST PUMP - TEST PUMPING OF ARAPAHOE WELL	2	01/15/24	01/16/24	0												INSTALL TEST PUMP - TEST PUMPING OF ARAPAHOE WELL				
HR-04-3110	PUMP DEVELOPMENT - TEST PUMPING OF ARAPAHOE WELL	1	01/17/24	01/17/24	0												PUMP DEVELOPMENT - TEST PUMPING OF ARAPAHOE WELL				
HR-04-3115	STEP TEST - TEST PUMPING OF ARAPAHOE WELL	1	01/18/24	01/18/24	0												STEP TEST - TEST PUMPING OF ARAPAHOE WELL				
HR-04-3120	CONSTANT RATE TEST - TEST PUMPING OF ARAPAHOE WELL	2	01/18/24	01/19/24	0												CONSTANT RATE TEST - TEST PUMPING OF ARAPAHOE WELL				
HR-04-3125	PULL TEST PUMP - TEST PUMPING OF ARAPAHOE WELL	3	01/20/24	01/22/24	0												PULL TEST PUMP - TEST PUMPING OF ARAPAHOE WELL				
HR-04-3130	PUMP RIG MOVES OVER TO DAWSON - TEST PUMPING OF ARAPAHOE WELL	1	01/23/24	01/23/24	0												PUMP RIG MOVES OVER TO DAWSON				
HR-04-3135	WAIT TIME FOR VIDEO CLARITY - TEST PUMPING OF ARAPAHOE WELL	5	01/23/24	01/27/24	0												WAIT TIME FOR VIDEO CLARITY - TEST PUMPING OF ARAPAHOE WELL				
HR-04-3140	VIDEO-TEST PUMPING OF ARAPAHOE WELL	1	01/28/24	01/28/24	0												VIDEO-TEST PUMPING OF ARAPAHOE WELL				
START-UP / COMMISSIONING		0			0																
SUB-CONTRACTOR / EQUIPMENT SUPPLIER START-UP TESTING		0			0																
CONTRACTOR / OWNER FUNCTIONAL SYSTEM TESTING		0			0																
COMMISSIONING / TESTING		0			0																
PROJECT CLOSE-OUT		0			0																

Remaining Level of Effort
 Remaining Work
 Actual Level of Effort
 Critical Remaining Work
 Actual Work
 Milestone

TASK filter: All Activities
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