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APR 29 2024

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APR 26 2024

WATER RESOURCES
WESTERN REGION

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
STATEMENT OF COMPLETION
FOR SUBMITTING PROOF OF BENEFICIAL USE

FOR OFFICE USE ONLY
Amt. of Fee \$ 50.00
Receipt No. W051912
Received By CC
Date Received 4-26-24

The Idaho Department of Water Resources (Department) considers this form a statement that the permit holder(s) applied water to beneficial use and completed development of a water right to the extent described below. **This form must be accompanied by an examination fee, when necessary, or by a completed Beneficial Use Field Report prepared by a certified water right examiner (CWRE).** Please refer to the instructions and fee schedule for this form. If ownership of the permit has changed, complete an Assignment of Permit form. If you wish to relinquish your permit because you have not established the authorized water use and are not applying for an extension, please notify the Department in writing.

1. Permit No. 63-34858 Name of Permit Holder(s) Canyon County

Telephone No. 208-454-7507 Email BOCC@canyoncounty.id.gov

Mailing Address 1115 Albany Street City Caldwell State ID Zip 83605

2. Source of Water Groundwater If Ground Water (well), Date Drilled mo. 05 / yr. 1994

Drilling Permit/Tag No. 63-94-W-0268-00 Drilling Company's Name: Adamson Pump and Drilling

3. Extent of use(s) completed as authorized by the water right permit:

Domestic (No. households) _____ Irrigation (No. acres) _____ Stockwater (No. and stock type) _____

Other Commercial - dust control

4. Total diversion rate or volume (storage only) for which proof is submitted 0.044 cfs OR _____ af
If the total developed water use is 5 acres of irrigation or less, is stockwater storage of 14.6 acre-feet or less, or has a diversion rate of less than 0.24 cfs, attach a map of the place of use and point of diversion and photographs showing beneficial use.

5. Describe the diversion and delivery system from the water source to the use (pump, lift, irrigation method, etc.)

Groundwater is pumped and transferred by a pipeline to a 15,000 gallon concrete tank. The tank is connected to a pump located in the concrete tank that transfers the water via a J-stand to water trucks used for dust control.

6. Permit condition compliance. Refer to the permit approval conditions and check all the items required, then check "Yes" or "No" to indicate whether the required items were established, submitted, and/or installed:

Required? Yes No (If "Yes", attach required data, evidence of compliance, or evidence of installation)

- | | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|---|
| ☒ | ☒ | ☐ | Ground water level data, pumping information, or other diversion data |
| ☐ | ☐ | ☒ | Mitigation plan |
| ☐ | ☒ | ☐ | Lockable controlling works - Gate and locked building |
| ☒ | ☒ | ☐ | Measuring device - flow meter controlled by VFD, pump controls, transducer and floats |
| ☐ | ☐ | ☒ | Fish screen |
| ☒ | ☐ | ☒ | Other requirements of the water right permit _____ |
| | ☐ | ☒ | Reasonably Anticipated Future Needs ("RAFN") Municipal use |

If RAFN Municipal use, additional increment of beneficial use developed? ☐ Yes (attach CWRE report) ☐ No

7. Fee Enclosed \$ \$50.00 or ☐ CWRE field report attached or ☐ No fee required

See fee schedule on page 3 of the instructions. Proof statements filed without an appropriate fee are incomplete.

8. Person to contact to accompany a Department representative during the field examination of the water system:

Name: David M. Loper Telephone No. 208-614-5005 Email David.Loper@canyoncounty.id.gov

Mailing Address 15500 Missouri Avenue City Nampa State ID Zip 83686

The information given on this form is my true statement of the extent to which the above numbered permit has been developed and water has been diverted and applied to beneficial use. I understand that any undeveloped portion of the permit is relinquished to the State of Idaho.

SEE ATTACHED SIGNATURE PAGE

SIGNATURE OF PERMIT HOLDER*

PRINTED NAME AND TITLE

DATE

*Attach power of attorney if completing on behalf of permit holder.

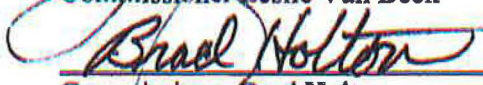
BOCC SIGNATURE PAGE

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
STATEMENT OF COMPLETION
PERMIT NO. 63-34858

DATED this 04th day of April, 2024.

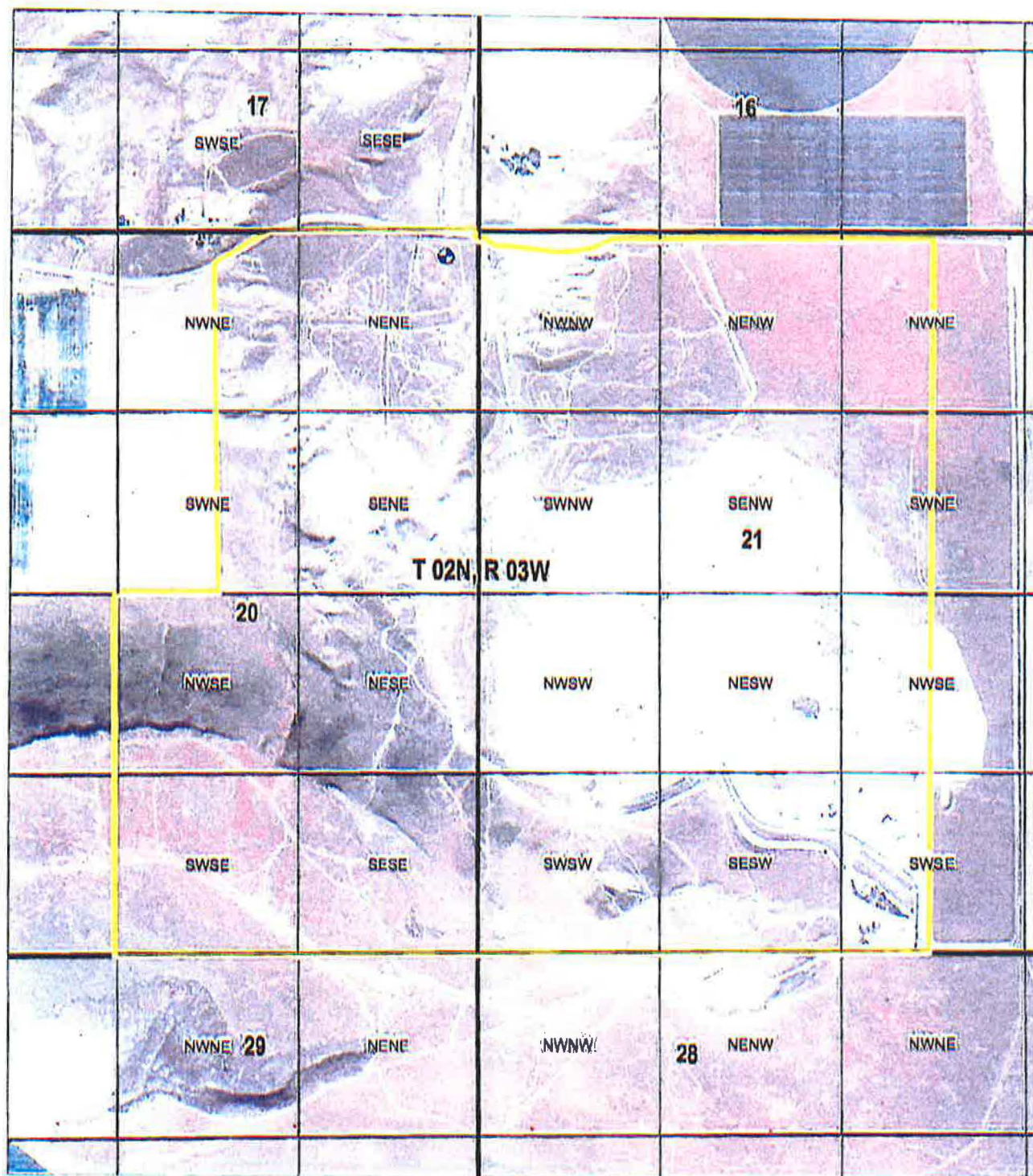
CANYON COUNTY BOARD OF COMMISSIONERS

- ☒ Motion Carried Unanimously
☐ Motion Carried/Split Vote Below
☐ Motion Defeated/Split Vote Below

	Yes	No	Did Not Vote
 _____ Commissioner Leslie Van Beek	_____	_____	_____
 _____ Commissioner Brad Holton	<u>X</u>	_____	_____
 _____ Commissioner Zach Brooks	<u>X</u>	_____	_____

ATTEST: RICK HOGABOAM, CLERK

By: JR088
Deputy Clerk



- Point of Diversion
- Place of Use Boundary
- Townships
- Sections
- Quarter Quarters

Water Appropriate Location for
Commercial and Fire Protection
IDWR Permit Application 63-34858
Pickles Butte Sanitary Landfill
Canyon County, ID



CANYON COUNTY SOLID WASTE

15500 MISSOURI AVENUE
NAMPA, IDAHO 83686

RECEIVED

MAR 07 2024

WATER RESOURCES
WESTERN REGION

February 29, 2024

State of Idaho
Department of Water Resources
Western Regional Office
2735 Airport Way
Boise, ID 83705-5082

RE: Application for Permit 63-34858

Dear Mr. Nick Miller:

Canyon County applied for a new water right (application 63-34858) for commercial purposes, which includes dust control and emergency fire suppression for Pickles Butte Sanitary Landfill (PBSL). The proposed point of discharge (Well ID #298341, water right ID 63-21870) was acquired by Canyon County, as part of a land purchase agreement. The original domestic well was deepened in 2019 and then an aquifer test was conducted in 2021. Results of the step-test and constant discharge aquifer were used to design the dust suppression system and storage for supplemental water to be used for dust suppression. The dust suppression system consists of the supply well, 15,000-gallon storage tank, pump house, J-stand filling station and controls. Construction of the system was completed and turned over to PBSL for inclusion into their operations on February 7, 2024. The system was designed to pump from the Stewart supply well at a rate of 20 gpm or less (0.044 cfs); based on a maximum sustainable pumping rate determined during constant discharge aquifer testing performed in August 2021.

The State of Completion is attached with the following additional attachments:

- Attachment A: A copy of the aquifer test results report (Tetra Tech, Pump Test Memo, October 2021) is included to demonstrate that the water supply is sufficient for the desired beneficial use.
- Attachment B: Photographs of the dust suppression filling station, pump house, flow meter and totalizer, and controls.
- Attachment C: A map showing the place of use and point of diversion is attached.

We believe this information supports IDWR State of Completion required to grant the new water right (application 63-34858) for commercial purposes at the PBSL. Should you have any questions or need additional information regarding the information presented in this letter, please feel free to contact me by phone (208-614-5005) or email (David.Loper@canyoncounty.id.gov).

Sincerely,

David M. Loper, REHS/RS
Director, Canyon County Solid Waste

Cc: Board of Canyon County Commissioners (BOCC), Canyon County
Carl Erickson, Chief Civil Prosecuting Attorney, Canyon County

PICKLES BUTTE SANITARY LANDFILL

Tele 208-614-5005

Fax 208-466-7296

email: picklesbutte@canyoncounty.id.gov

Attachment A: Pump Test Memo_102621.pdf



To: David Loper, Canyon County Solid Waste
From: William Craig; Maureen McGraw, Tetra Tech
Date: 26 October 2021
Subject: Pump Test at Well Tag 0089090 for Dust Control

1.1 INTRODUCTION AND BACKGROUND

On August 23-25, 2021, Tetra Tech and Hiddleston Drilling conducted a series of step-drawdown aquifer tests and a 10-hour constant discharge rate aquifer test using the Pickles Butte Sanitary Landfill (PBSL) dust suppression well (Well Tag 0089090; aka Stuart Well or Stewart Well). The purpose of the tests were to determine the sustainable well yield for dust suppression water supply. The tests were designed to pump the well long enough to determine if the water level in the well casing would reach a state of equilibrium where no further drawdown would occur. The region around the pumping well where the water level (head) has been lowered is called the cone of depression. When equilibrium has been achieved, the cone of depression stops expanding outwardly because it has reached a recharge boundary or condition where the recharge rate equals the pumping discharge rate. This is also known as steady-state pumping conditions and is analogous to sustainable well yield, which is the target flow rate for the design of the dust suppression system water supply.

The aquifer testing was conducted using a dedicated submersible pump, motor, drop pipe, and flow meter supplied by Hiddleston, a pressure transducer permanently installed in the well, and communication cable. The transducer depth was set at a depth of approximate 584 feet below ground surface(bgs) and the pump depth set to approximately 600 feet bgs.

Earlier in 2021, Hiddleston Drilling extended the cased portion of the Canyon County Landfill dust suppression well with a 5-inch steel casing sleeve down to the total depth of the well 1,130 feet bgs. The well was previously deepened by others, but the lower portion was uncased and was susceptible to loss of total depth due to cave-ins and well bore annular space sloughing. Hiddleston perforated the well casing over two intervals; from 500 to 520 feet bgs and from 1,050 to 1,130 feet bgs. It is unclear why the upper portion of the sleeve was perforated. The casing perforations were made with a downhole perforator in rows of 1/4-inch width. A copy of the Canyon County Landfill well log is attached.

The well was reportedly not developed after rehabilitation by Hiddleston, which likely increased well inefficiencies and impacted the ability to analyze aquifer drawdown data. In addition, the upper perforated zone and lack of adequate development likely contributed to the well producing sediment when the flow rate exceeded 23 gallons per minute (gpm) and/or when the water level dropped below 500 feet, which corresponds to the top of the upper perforation zone. Sediment produced during normal pumping operations is detrimental to the service life of the submersible pump in the well and to the pump used to transfer water from a storage tank to the dust suppression water trucks.

1.2 STEPDRAWDOWN TESTING PROCEDURES AND RESULTS

On August 23 and 24, 2021 Tetra Tech and Hiddleston Drilling conducted a series of step-drawdown aquifer tests to estimate a sustainable pumping rate for a sustainable yield pump test. The objective was to identify the maximum pumping rate that could be used to provide a sufficient volume of water for dust suppression at the landfill without causing excessive drawdown in the well. Hiddleston Drilling measured a static water level of 322 feet below the top of casing (TOC) measuring point during the pump setup.

To determine the well's long-term sustainable pumping rate, a predictive analysis of the relationship between drawdown in the well since pumping began for several different pumping rates was compared to the amount of remaining available head in the well casing. This evaluation was based on transient conditions in the well, and included well recovery after pumping was discontinued. The data from the test was compared to the pre-test water levels to evaluate aquifer recharge and sustainability. Figure 1 is a graph of the series of step tests conducted on August 23 and 24, 2021. The notes provide observations made during the tests. The green line in the figure represents temperature, and the water in the well is warm. At the beginning of the test the temperature was 30.1 °C (86.2 °F) and the maximum temperature observed during testing was 35.9 °C (96.6 °F), which indicates that the water supply for the well is supplied from the lower screened interval below a 1000 feet rather than the screened interval between 500 and 520 feet.

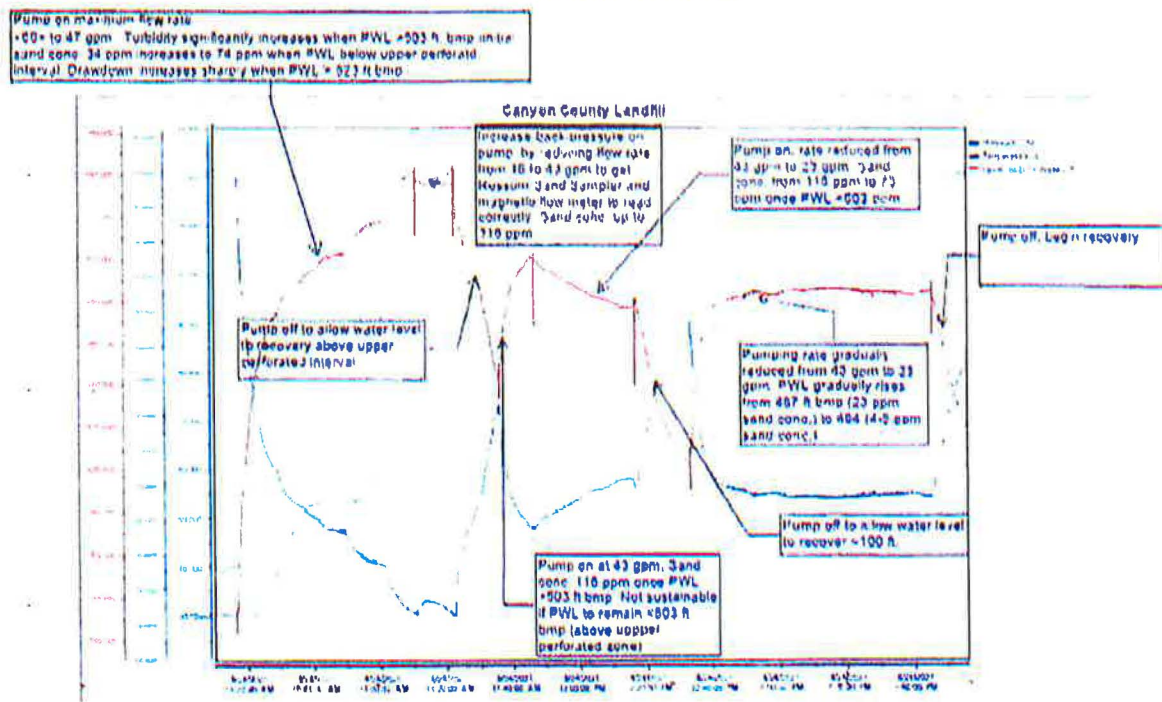
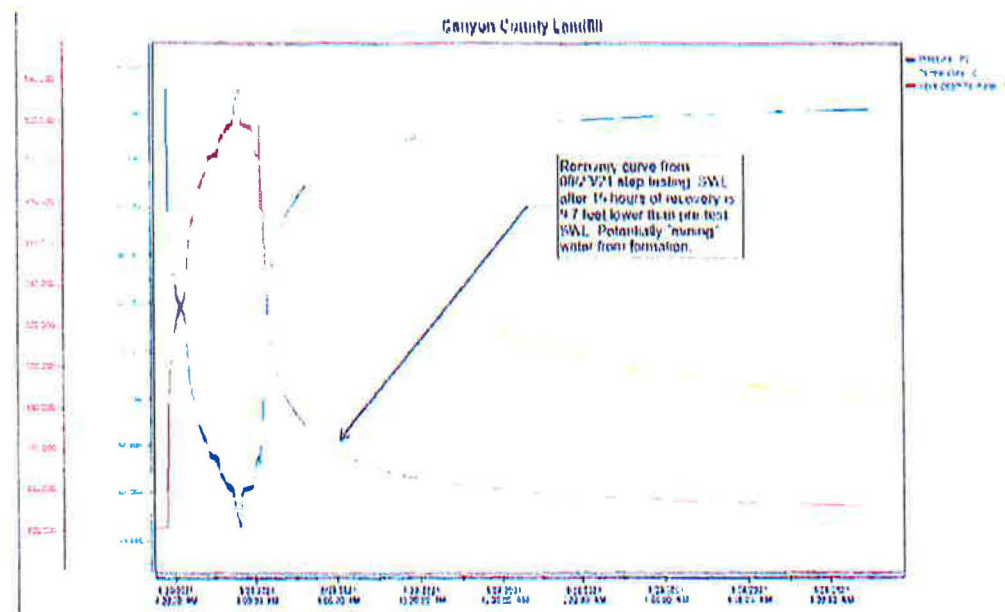


Figure 1: Step Test Results for pressure in pounds per square inch (psi) (blue), temperature in °C (green), and water level in feet (red)

Turbidity was also measured during the step-drawdown pump tests using a Rossum Sand Sampler. The tests determined that when the pumping rate was greater than 40 gpm as measured by an acoustic flow meter

The step-test also indicated that pumping rates on the order of 40 gpm produced a non-sustainable drawdown of greater than 225 feet within several hours. The pump was shut off and the water level in the well was allowed to recover for 15 hours. As shown in Figure 2, the water level in the well did not fully recover to pre-test water levels. The water level was 10 feet lower than pre-pumping conditions, which indicates that a pumping rate around 40 gpm would result in "mining of groundwater" from aquifer storage. This would not be sustainable for a dust suppression system. Based on the above analysis, a pumping rate of 23 gpm was selected for the 10-hour constant discharge pump test to maximize well production and minimize sediment production and drawdown.



1.3 CONSTANT DISCHARGE AQUIFER TESTING AND RESULTS

Tetra Tech and Hiddleston Drilling conducted a 10-hour constant discharge aquifer test on August 25, 2021. The test was initiated before the well had completely recovered from the step-testing conducted on the previous days. Well recovery was monitored for several weeks after the conclusion of the constant discharge test. Based on the step-test analysis, the pumping rate was set and maintained at 23 gpm as measured with the acoustic flow meter and verified with a bucket and stopwatch on multiple occasions throughout the test. The 23 gpm flow rate was adjusted down to 20 gpm after 10 hours (600 minutes) because the water level

continued to drawdown and was not considered sustainable for a standard work-day shift at the landfill. The pumping drawdown rebounded after the adjustment and appeared to be recovering after 120 minutes of additional pumping, which indicates that 20 gpm is a sustainable pumping rate.

The well recovery period was also monitored by the transducer and data logger to determine long-term sustainability. On October 15, 2021, the water level was 324.32 feet bgs (approximately 2.3 feet below pre-test SWL) and represent the highest level observed since testing. Recovery of the well to this level took approximately 7 weeks. **Figure 3** shows the long term recovery data and the fluctuations within the data. Although the water level is not the same as the beginning of the test, the well is considered to have recovered based on the lack of historical data to understand natural variability and seasonal variations.

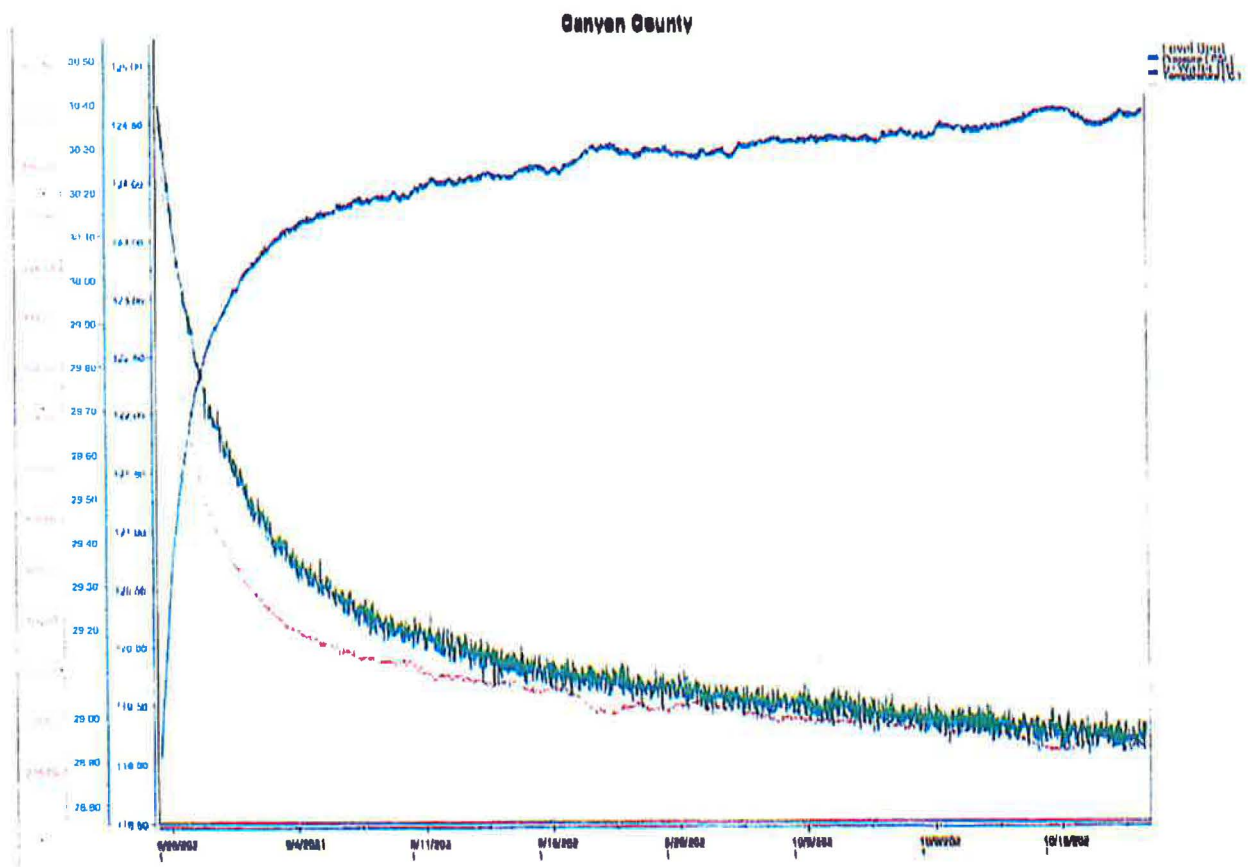


Figure 3: Constant Discharge Test Long Term Recovery Curve

Tetra Tech analyzed the time versus drawdown data during pumping and recovery using curve-matching software (Aqtesolv v4.5 Pro) to derive aquifer properties from the Analytical Solution. A copy of the aquifer test report and best fit curve match for the Hantush-Jacob method is provided as **Figure 4**.

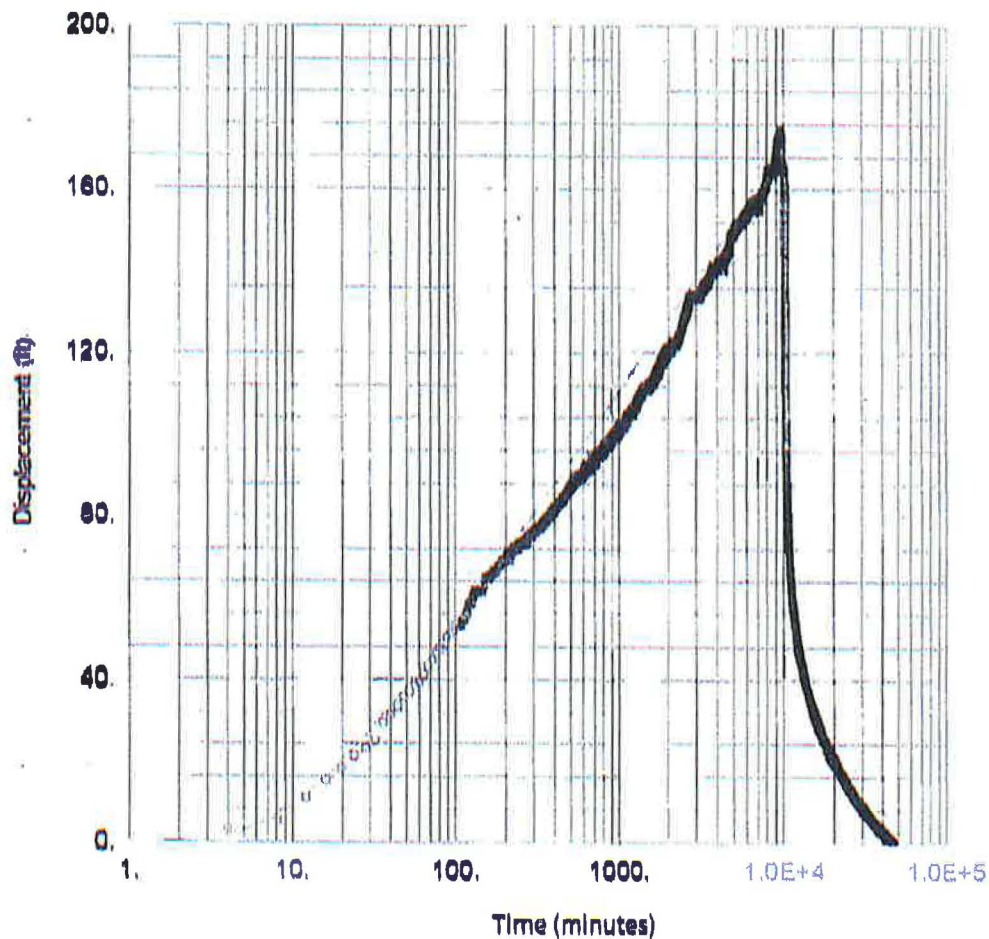


Figure 4: Comparison of Field Data (squares) versus Calculated Hantush-Jacob (line) Projection

The Hantush-Jacob analytical method assumes a leaky confined aquifer conditions, which seems to best fit the site conceptual model at the landfill. Tetra Tech assumed an aquifer thickness of 620 feet based on the well log provided. Based on this approximation, the aquifer properties were calculated and are provided in Table 1. The value estimated for storativity is limited because an observation well was not available for the step-test or constant discharge test.

Table 1: Aquifer Properties

Aquifer Property	Result	Units
Transmissivity	13.95	Ft ² /day
Hydraulic Conductivity	2.2×10^{-3}	Ft/day
Vertical to horizontal hydraulic conductivity ratio (K_z/K_r)	0.099	Ratio (dimensionless)
r/B (leakage parameter)	1×10^{-6}	Ratio (leakage through aquitard compared to yield due to aquifer compressibility- aka storage)
Storativity*	0.28	Ratio (dimensionless)

Note: Accurate assessment of storativity/storage coefficient cannot be made using a single-well aquifer test

1.4 ESTIMATED VOLUME AVAILABLE FOR DUST CONTROL

Using the information gathered during this investigation, Table 2 below provides a hypothetical water truck filling schedule for a typical 10-hour work day based on input from landfill operations. Tetra Tech assumed the water would be pumped from the well into a 15,000 gallon storage tank. The water truck at the landfill holds a maximum of 3,500 gallons of water and will require approximately 5 minutes to fill. A certain volume of water needs to be maintained in the tank to ensure that the pump inlet is covered, and the total capacity of the tank does not equate to the total available for dust control.

Based on testing, to prevent mining groundwater the pumping rate for the system will be 20 gpm, and the water trucks will not be filled at a frequency greater than once every 105 minutes. Once the tank for dust control has been filled and the well has recovered, the well at the landfill could supply a sufficient volume of water to fill five or six trucks per day for dust suppression purposes. Any increase in the pumping rate or increase in the frequency of filling the water trucks may cause the water level in the well to decrease into the upper perforated zone of the well. This could lead to an increase in turbidity and potentially damage the well pump and the pump used to transfer water from the storage tank to the trucks. In addition, if more than five or six trucks are filled on a regular basis (i.e. daily) the water level in the storage tank may drop below the intake of the transfer pump, and could cause excessive heating of the pump motor and premature failure.

A transducer was permanently installed in the well, and after the dust control system is constructed and operational the water level in the well should be monitored periodically to determine whether the pumping rate and/or the number of trucks filled per day should be adjusted to prevent groundwater mining.

Table 2: Hypothetical Water Truck Filling Schedule

	Elapsed Time (minutes)	Pumped for Tanker (gal)	Pumped from Well into Tank (gal)	Gallons of water Remaining in Tank
7:30 AM	0			15,000
7:35 AM	5	-3500	100	11,600
9:20 AM	110		2100	13,700
9:25 AM	115	-3500	100	10,300
11:10 AM	220		2100	12,400
11:15 AM	225	-3500	100	9,000
1:00 PM	330		2100	11,100
1:05 PM	335	-3500	100	7,700
2:50 PM	440		2100	9,800
2:55 PM	445	-3500	100	6,400
4:40 PM	550		2100	8,500
4:45 PM	555	-3500	100	5,100
7:30 AM	1440		9900	15,000

Note: Scenario Assumes Tank is Full and Aquifer Recovered

1.5 REFERENCES

Aqtesolv for Windows, (Aqtesolv), Version 4.5 Profession, 1998-2021 HydroSOLVE, Inc. All Rights Reserved, Reston, VA.

Hantush, M.S. and C.E. Jacob, 1955. Non-steady radial flow in an infinite leaky aquifer, Am. Geophys. Union Trans., vol. 36, pp. 95-100.

Attachment B: Photolog of Dust Suppression System at the PBSL

**PHOTOGRAPH LOG
PICKLES BUTTE SANITARY LANDFILL
DUST CONTROL SYSTEM**



Photo 1: Supply well, pump controls, and power.



Photo 2: Well flow meter inside the pump house



Photo 3: Pump house for PBSL dust suppression system



Photo 4: Filling station



Photo 5: Manhole for 15,000 gallon concrete tank

Attachment C: Map show point of use and point of diversion for the PBSL dust suppression system