

Final
2021 Monitoring Well Decommissioning Report
National Guard Federal Scout Readiness Center

Gambell, Alaska

ADEC File No. 660.38.007

ADEC Hazard ID 4276

Contract W911KB17D0020

Task Order W911KB18F0155

February 2022

Prepared for:
U.S. Army Corps of Engineers



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Prepared for:
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ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
ADEC	Alaska Department of Environmental Conservation
AKARNG	Alaska Army National Guard
AST	aboveground storage tank
Brice	Brice Engineering, LLC
Bristol	Bristol Construction Services, LLC
DCRA	Department of Community and Regional Affairs
Eagle Eye	Eagle Eye Electric, LLC
FSRC	Federal Scout Readiness Center
GPS	Global Positioning System
PVC	polyvinyl chloride
USACE	U.S. Army Corps of Engineers

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EXECUTIVE SUMMARY

In August 2021, Brice Engineering, LLC decommissioned monitoring wells at the former Alaska Army National Guard Federal Scout Readiness Center in Gambell, Alaska. Wells were decommissioned following Alaska Department of Environmental Conservation (ADEC) guidance (ADEC 2013).

Brice located and decommissioned six of the seven permanent groundwater monitoring wells installed in 2016 (Eagle Eye Electric, LLC 2017). One permanent groundwater monitoring well from 2016 could not be located and was determined to have been removed previously. None of the 10 temporary groundwater monitoring wells installed in 2011 could be located (CH2M HILL 2013) and are presumed to have been removed previously.

Monitoring well materials were disposed at the local landfill in Gambell, Alaska.

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1.0 INTRODUCTION

In August 2021, Brice Engineering, LLC (Brice) mobilized to the former Alaska Army National Guard (AKARNG) Federal Scout Readiness Center (FSRC) in Gambell, Alaska, to decommission groundwater monitoring wells (Figure 1). These groundwater monitoring wells were installed in 2011 by CH2M HILL and in 2016 by Eagle Eye Electric, LLC (Eagle Eye) for site investigations related to a 3,000-gallon heating oil spill from an aboveground storage tank (AST) in 1983.

Activities in 2021 were performed in accordance with Alaska Department of Environmental Conservation (ADEC) *Monitoring Well Guidance* (ADEC 2013). This report was prepared by Brice for the U.S. Army Corps of Engineers (USACE), Alaska District, under Contract W911KB17D0020, Task Order W911KB18F0155.

1.1 Project Objectives

The primary objectives of this project were to locate and decommission 17 monitoring wells at the Gambell FSRC (Figure 2) and to dispose of the monitoring well materials.

1.2 Physical Setting

Gambell, Alaska, is located on a gravel spit on the northwestern tip of Saint Lawrence Island, 36 miles from the coast of Siberia (Figure 1). The Gambell FSRC location is in Section 03, Township 020S, Range 0670W of the Kateel River Meridian. The approximate geographic coordinates of the Gambell FSRC are 63.7783386°N and -171.3400335°W (1984 World Geodetic System datum, revised 2004).

The Gambell area was used by the U.S. Army, Navy, and Air Force from approximately 1948 until the late 1950s. Various facilities around the village of Gambell were constructed to provide housing, communication, and other functions (Bristol Construction Services, LLC [Bristol] 2007).

1.2.1 Topography

Gambell falls within the transitional climate zone, characterized by tundra interspersed with boreal forests (Alaska DCRA 2020). The city is located approximately 30 feet above mean sea level. Sevuokuk Mountain lies approximately 1 mile to the east of the city, rising to an elevation of 614 feet above mean sea level. West of Sevuokuk Mountain, the topography of the area is relatively flat (Brice 2020).

1.2.2 Geology

St. Lawrence Island consists of isolated bedrock highlands of igneous, metamorphic, and older sedimentary rocks, surrounded by unconsolidated surficial deposits, overlying a relatively shallow erosional bedrock surface. The city of Gambell lies on Quarternary surficial deposits of highly permeable, unconsolidated gravels and coarse sands (Bristol 2007; Patton and Csejtey 1980).

1.2.3 Surface Water

The three major surface water features in the area are the Bering Sea, Kittlingook Bay, and Troutman Lake. The nearest body of surface water is Troutman Lake, approximately 1,200 feet south of the site. The lake water is considered slightly brackish because of influences from the Bering Sea (USACE 2005). The level of the lake is approximately 2 feet above sea level. Surface water flow direction from the site is estimated to be toward the north, away from Troutman Lake, with localized variations due to mounded gravel (Brice 2020).

1.2.4 Groundwater

During the August 2006 monitoring well sampling event, it was determined that the predominant groundwater flow direction during the summer months in the vicinity of the village well is to the northeast, parallel to the toe of the Sevuokuk Mountain. Groundwater resources are limited. Groundwater in the central gravel spit is subject to saltwater intrusion, is difficult to recover, and is located in an active lens above permafrost. It is therefore unsuitable as a drinking water source (Brice 2020).

1.2.5 Climate

The climate of Gambell is characterized by weather patterns of long, cold winters and shorter, warm summers. Wind and fog are common, and precipitation occurs 300 days per year. The Bering Sea freezes during mid-November, with breakup at the end of May. Temperature extremes from -30 to 65 degrees Fahrenheit (°F) have been recorded (Alaska DCRA 2020). Average monthly temperatures range from 1.8 to 45.9°F with an annual mean temperature of 25.1°F (Western Regional Climate Center 2019).

1.3 Site Background

The Gambell FSRC is an inoperable scout readiness center located 0.25 miles northeast of the Gambell Airport. The facility is currently used as an office for the Native Corporation and for dry storage. The facility includes two buildings: the Old FSRC was built around 1970, and the New FSRC building was built in 1979. The site currently contains two 1,500-gallon double-walled ASTs near the southeastern corner of the New FSRC building and two ASTs beside the northwestern corner of the Old FSRC building.

AKARNG site investigations and cleanup activities at the Gambell FSRC have been ongoing since 1990 following a 3,000-gallon heating oil spill from an AST in 1983. In 2017, the site was recommended for “cleanup complete with institutional controls” (Eagle Eye 2017). The areas of concern identified through the course of these cleanup activities have since achieved “Cleanup Complete” status based on an ADEC-approved Decision Document (Brice 2020). Previous site investigations and site history are detailed in the Decision Document. Groundwater monitoring wells were determined to be no longer required or necessary at this site.

2.0 FIELD ACTIVITIES

In August 2021, Brice decommissioned monitoring wells at the former AKARNG FSRC in Gambell, Alaska. Wells were decommissioned following ADEC guidance (ADEC 2013).

Field activities are described in this section. Logbooks are included in Appendix A, field forms in Appendix B, and a photograph log in Appendix C.

2.1 Mobilization

All equipment, supplies, and materials were mobilized to the site via air from Anchorage through Nome, Alaska, from 2 to 3 August 2021. Personnel were mobilized to the site via air from Anchorage to Nome, then to Gambell on 3 August 2021.

2.2 Utility Locates

Since no excavations were to be made during this project, it was determined during the planning phase that utility locates were not necessary. However, a sewer manhole cover and associated aboveground piping were identified adjacent to the former AKARNG armory building. This area was avoided during the monitoring well decommissioning activities.

2.3 Monitoring Well Locates

Upon arrival at the site, groundwater monitoring wells were identified using a combination of metal detector, handheld Global Positioning System (GPS), and the original figures from previous investigations (CH2M HILL 2013; Eagle Eye 2017). Brice located six of the seven permanent groundwater monitoring wells installed in 2016 by Eagle Eye (Eagle Eye 2017). Monitoring wells 16GAMMW01, 16GAMMW02, 16GAMMW03, 16GAMMW04, 16GAMMW06, and 16GAMMW07 were located successfully, with most steel flush mount covers buried 6 to 12 inches below the surface.

One permanent groundwater monitoring well installed in 2016 (16GAMMW05) could not be located. GPS showed the well location in an area of piled gravel that differed in size from the gravel of the surrounding site. An approximately 80-foot by 80-foot grid was established around the GPS location of the well. Multiple attempts were made to search for the well using a metal detector in east to west and north to south passes. Anomalies indicated by the metal detector were investigated with hand tools and resulted in a collection of small, miscellaneous metal debris unrelated to the monitoring wells. The field crew on site presumed that heavy equipment was used to move gravel in and out of this area and could have damaged the steel overcasing of the well, which may have then been removed. Heavy equipment was not used to further investigate the subsurface in this area, and no evidence of well 16GAMMW05 was found.

None of the 10 temporary groundwater monitoring wells installed in 2011 by CH2M HILL could be located using the GPS or the original figures from previous investigations. These wells are presumed to have been removed previously. One photo in the 2013 report shows the temporary wells completed as polyvinyl chloride (PVC) stickups, and the report does not mention the installation of steel overcasings or flush mount lids (CH2M HILL 2013). If any of these wells still existed onsite, they are presumed to have been broken off below the surface or otherwise buried by gravel and could not be found using a metal detector.

2.4 Monitoring Well Decommissioning

Brice located and decommissioned six permanent groundwater monitoring wells using a combination of front-end loader and hand tools. Brice's procedure for well decommissioning was to first use hand tools to expose the well overcasing and remove the entire overcasing and concrete assembly. The gravel immediately around the PVC well was then removed by shovel to prevent any sloughing into the borehole once removed. A strap was attached to the PVC well and connected to one blade of the front-end loader, which was used to pull the PVC well vertically approximately 1 foot. A slide hammer was then placed into the well and used to break the end cap beneath the well screen in place, and to push ice from the bottom of the well into the borehole. Bentonite pellets were poured into the top of the PVC well for the well to act as a tremie pipe for depositing the bentonite into the borehole. The front-end loader was then used to remove the PVC well. Excess bentonite was cleaned from the surface, and gravel from the surrounding area was used to fill the remaining 12 to 18 inches between the top of the plugged borehole and the ground surface.

In some wells, the depth of the slide hammer was used to determine that the wells were filled with ice and could not be used as a tremie pipe. These wells were pulled out without breaking the end cap, and a funnel was used at the top of the borehole to fill the borehole with bentonite pellets. In these cases, the frozen sidewalls of the borehole were stable enough to not collapse during decommissioning.

2.5 Waste Management

Monitoring well materials were disposed at the local landfill in Gambell, Alaska.

2.6 Demobilization

All project equipment, supplies, and personnel were demobilized on 4 August 2021.

3.0 WORK PLAN DEVIATIONS

Deviations from the Work Plan were related to the number of wells decommissioned. The Work Plan specified that 17 wells would be decommissioned, but only 6 were located onsite. As described in Section 2.3, wells that were not located were determined to have been removed previously or damaged to the extent that locating them would require extensive excavation.

4.0 CONCLUSIONS

The primary objectives of this project were to locate and decommission 17 monitoring wells at the Gambell FSRC and to dispose of the monitoring well materials. Brice located and decommissioned six permanent groundwater monitoring wells in accordance with ADEC guidance. All other wells were determined to have been removed previously or damaged to the point where they could not be located. Monitoring well materials were disposed at the local landfill in Gambell, Alaska.

5.0 REFERENCES

- Alaska Department of Environmental Conservation (ADEC). 2013. *Monitoring Well Guidance*. September.
- Alaska Department of Community and Regional Affairs (DCRA). 2020. *Community Database*. <https://dcra-cdo-dcced.opendata.arcgis.com/>. Accessed October 15, 2020.
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- CH2M HILL. 2013. *Final Gambell Federal Scout Readiness Center Data Gap Investigation Report*. January.
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- Patton, William W. and Béla Csejtey, Jr. 1980. *Geologic Map of St. Lawrence Island, Alaska*.
- U.S. Army Corps of Engineers (USACE). 2005. *Decision Document Gambell Formerly Used Defense Site F10AK0690, St. Lawrence Island, Alaska*. June.
- Western Regional Climate Center (WRCC). 2019. <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?akgamb>. Gambell, Alaska (503226), Period of Record General Climate Summary – Temperature, Period of Record: 9/1/1949 to 8/31/1997. Accessed 15 October 2020.

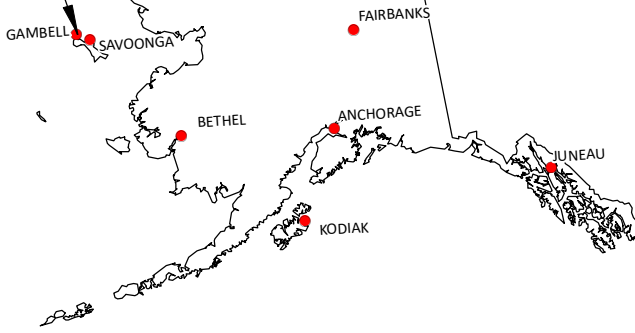
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FIGURES

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PROJECT LOCATION



Document Path: Q:\BELUS PROJECTS\DUPLICATE AK SB HTRW\5505_AKARNG_GAM.SAV\NOA\10 - Submittals\Gambel-2021_Final\Supplemental\GIS1_MXD\REPORT\F1_Location_and_Site_Vicinity.mxd



Basemap Source: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

GAMBELL FEDERAL SCOUT READINESS CENTER
GAMBELL, ALASKA

LOCATION AND SITE VICINITY

DATE:
2/2/2022
PROJECT No.:
550501
DRAWN:
J. P.

FIGURE:
1

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GAMBELL FEDERAL SCOUT READINESS CENTER

GAMBELL, ALASKA

FORMER GAMBELL AKARNG FSRC AND GROUNDWATER MONITORING WELL LOCATIONS

Legend

-  2016 Groundwater Monitoring Well Decommissioned in 2021
-  2016 Groundwater Monitoring Well Not Decommissioned in 2021
-  2011 Groundwater Monitoring Well Not Decommissioned in 2021
-  AKARNG Property Boundary

Notes:

1. Wells not decommissioned in 2021 are presumed to have been removed or damaged to the extent that location would be impractical.

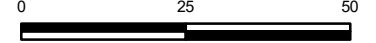
Abbreviations:

AKARNG - Alaska Army National Guard
FSRC - Federal Scout Readiness Center

Sources:

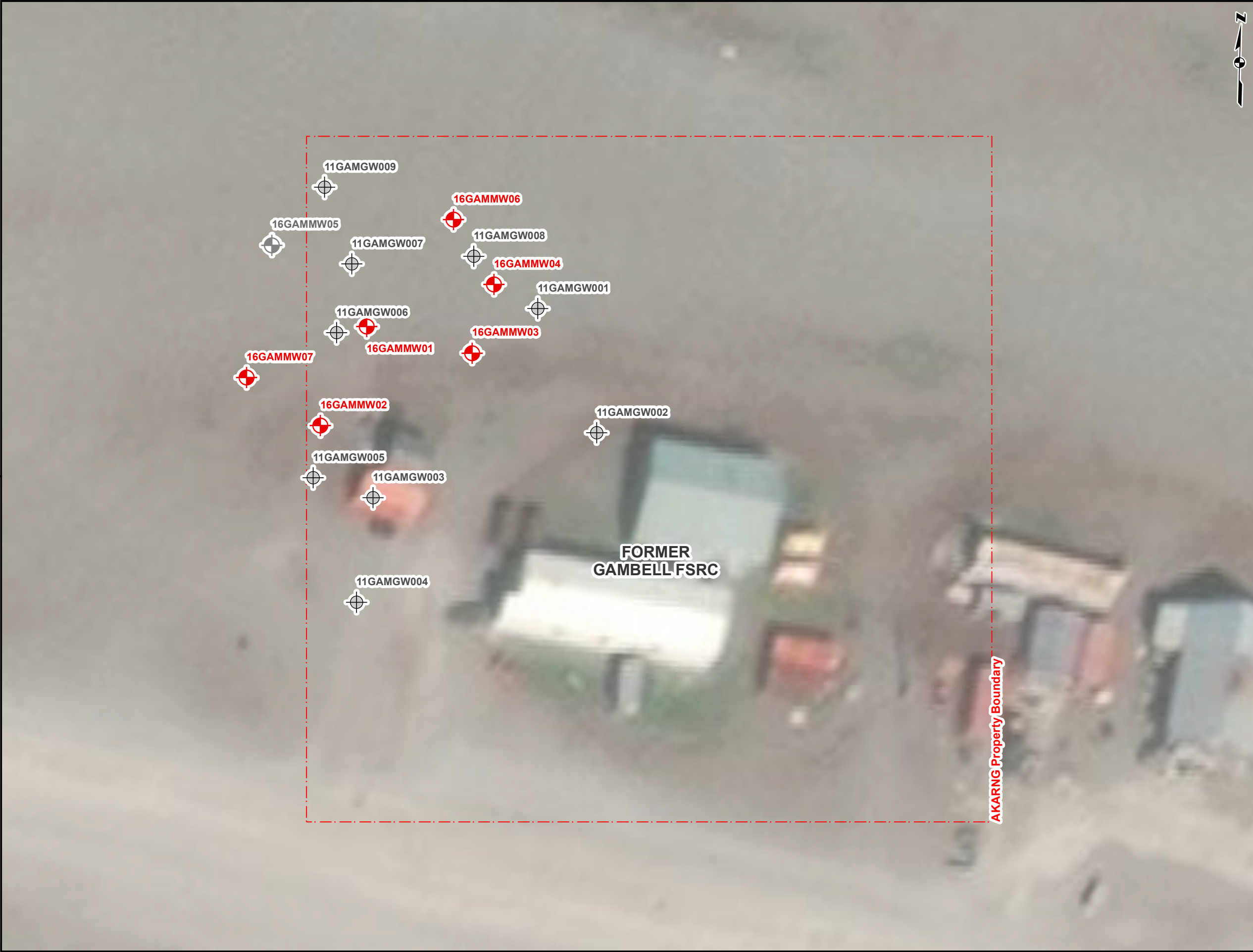
1. Well locations from CH2M Hill (2013) and Eagle Eye (2017). Property boundary from AKARNG staff.
2. Imagery from Esri, Maxar, GeoEye, Earthstar

ALASKA STATE PLANE ZONE 9
HORIZONTAL DATUM: NAD83 (2011)
VERTICAL DATUM: NAVD88



SCALE IN FEET

PROJECT No.: 550501	DATE: 10/11/2021	FIGURE: 2
P.M.: MO	DRAWN: JP	



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APPENDIX A
FIELD LOGBOOK

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JOSH PAUL

8/3/21

GAMBELL WELL DECOM.

1025 Arrive @ Gambell w/
S. Manley, picked up
by Sivugaq lodge employee
Gary & shuttled to lodge
w/ gear.

1050 Local Bering Air agent
Merle shuttles gear
shipped via cargo to
Armory building, meet
City of Gambell / Sivugaq
staff working in the building

1115 Start locating wells using
Trimble Geo 7x GPS unit
and metal detector; SM
goes to city of Gambell
office to pick up loader

1225 SM returns with
loader, start removing →

J. PAUL
8/3/21

→ wells using loader and straps

Well ID	Time Removed
16GAMMW02	1227
16GAMMW07	1252
16GAMMW01	1310
16GAMMW03	1406
16GAMMW06	1430
16GAMMW04	1445

1500 - 1600 Searching for last flushmount well in gravel pile using metal detector, could not locate

1600-1630 Break

1630-1800 Set approx. 80' x 80' grid around GPS location for well 16GAMMW05; searched 2x with metal detector, pulling scraps

of metal but did not find well.

1815 Call to M. Oakley, advises to continue grid search with metal detector

1900 Did not find well after additional grid search with metal detector on highest sensitivity, decided to end search for well 16GAMMW05.

Packed equipment on loader for return to lodge.

Cleaned up site, smoothed out loader tracks made in gravel around Armory building. All well debris & trash transported to landfill by Meste. SM returns loader to city office.

J. Paul

8/3/21

1945 Transfer photos from SM camera to JP laptop.
Compare notes, write daily report, etc.

2000 End work for the day,
planning to depart
Gambell x 1000 flight

8/4/2021

0730 Repack/consolidate gear
at Sivuyaq lodge

0830 Meet Merle to transport
additional heliplug brackets
to dump.

0900 Go to city of Gambell
office; SM pays dump
fee (\$75) and rental
fee for loader (\$325)

1000 Arrive @ Airport, depart GAMBELL

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APPENDIX B
FIELD FORMS

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Daily Activity Report

PROJECT **AKARNG GAMBELL WELL DECOMMISSIONING** **DATE** 8/3/2021

CONTRACT # W911KB-17-D-0020 / W911KB-18-F-0155 **REPORT #** 1

WEATHER & TEMPERATURE 55F, clouds & fog, moderate winds

ACTIVITY PROGRESS:

- Arrive in Gambell, gear personnel transported to lodge by SVI lodge staff (Gary)
 - Held daily safety meeting
 - Met by local Bering Air agent (Merle) with cargo shipped on earlier flight
 - Met city of Gambell office staff currently working at former Armory building
 - Picked up loader equipment from city of Gambell office
 - Located and decommissioned 6 flushmount wells, backfilled boreholes with bentonite
 - Could not locate 7th flushmount well after multiple hours of grid search with metal detector
 - Confirmed temporary wells already removed
 - Cleaned up site of all equipment and debris; smoothed out tire tracks made by the loader tires
 - Transported well debris to local landfill via local Bering Air agent (Merle)
 - Demobilized from site and moved all gear back to lodge
 - Returned city of Gambell backhoe equipment
-

ACTIVITIES PLANNED FOR TOMORROW:

- Consolidate equipment, depart Gambell
-

CUMULATIVE PROGRESS AS OF DATE

- 6 wells decommissioned
 - Well debris disposed at local landfill
 - Demobilized from site
 - Returned rented equipment
-

COMMENTS OR ISSUES

- One of the seven permanent flushmount wells (installed 2016) could not be located. GPS showed the well location in an area of piled gravel which differed from the gravel of the surrounding site. It is likely that heavy equipment was used to move this gravel pile and potentially damaged the well's flushmount cap and concrete casing. Well could not be located during multiple hours of grid search with metal detector, but other miscellaneous metal debris was located in this gravel pile proving that the metal detector was working and being used properly.
 - * Hour meter on the loader was inoperable.
-

ACCIDENT REPORTING

No incidents

Daily Activity Report

VISITORS ON SITE

No visitors

LABOR HOURS

EMPLOYER \ CLASSIFICATION	NAME	HOURS
Brice	Josh Paul	12
Brice	Sean Manley	12
Total		

SUBCONTRACTORS ON SITE

COMPANY	# people	HOURS
Total		

EQUIPMENT HOURS

HOURS
Loader rented from City of Gambell
Unknown*

On behalf of the contractor, I certify that this Daily Activity Report is complete and all equipment and material used and work performed during this Reporting period are in compliance with the contract plans and specifications, to the best of my knowledge, except as noted in Concerns and Issues.

Field Lead Signature *Josh Paul*

Date 8/3/2021

Daily Activity Report



Photograph 1: Well 16GAMMW02 with concrete casing and lid removed. Well PVC strapped to loaded fork blade. JP pouring bentonite pellets into well before removal.

Daily Activity Report



Photograph 2: Well 16GAMMW02 being removed by SM using loader. Well screen has been knocked from bottom of well using slide hammer attachment in bottom right of photo. Well PVC has been filled with bentonite pellets before removing to act as a tremie pipe.

Daily Activity Report



Photograph 3: Six flush mount wells, casings, and lids removed and ready for disposal.

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Daily Activity Report



Photograph 4: Miscellaneous metal debris found in the vicinity of the gravel pile while attempting to locate well 16GAMMW05.

Daily Activity Report



Photograph 5: GPS location of well 16GAMMW05 is within this area of gravel that differs from surrounding gravels. It is evident that there was once a larger gravel pile in this area. Heavy equipment used to move this gravel may have damaged or removed the well.

Daily Activity Report

PROJECT AKARNG GAMBELL WELL DECOMMISSIONING **DATE** 8/4/2021

CONTRACT # W911KB-17-D-0020 / W911KB-18-F-0155 **REPORT #** 2

WEATHER & TEMPERATURE 55F, partly sunny, high winds

ACTIVITY PROGRESS:

- SM pays for city dump fee (\$75) and loader rental fee (\$325) at city of Gambell office
 - Met by local Bering Air agent (Merle) at lodge to transport gear to airport
 - Depart Gambell
-

ACTIVITIES PLANNED FOR TOMORROW:

- None
-

CUMULATIVE PROGRESS AS OF DATE

- 6 wells decommissioned
 - Well debris disposed at local landfill
 - Demobilized from site
 - Returned rented equipment
 - Departed Gambell
-

COMMENTS OR ISSUES

None

ACCIDENT REPORTING

No incidents

VISITORS ON SITE

No visitors

LABOR HOURS

EMPLOYER \ CLASSIFICATION	NAME	HOURS
Brice	Josh Paul	3
Brice	Sean Manley	3
Total		

Daily Activity Report

SUBCONTRACTORS ON SITE		
COMPANY	# people	HOURS

Total	
EQUIPMENT HOURS	HOURS

On behalf of the contractor, I certify that this Daily Activity Report is complete and all equipment and material used and work performed during this Reporting period are in compliance with the contract plans and specifications, to the best of my knowledge, except as noted in Concerns and Issues.

Field Lead Signature *Josh Paul*

Date 8/4/2021



DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
8/3/2021	Gambell Well Decommission	Sean Manley

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Remove Monitoring Wells.	Shovel Metal Detector	Pinch Points Loose Gravel	Level D
	Loader Straps	Awkward Loads Overhead Hazards	
		Forks on Loader	

	Name	Signature	Date	Company
1	JOSH PAUL	<i>[Signature]</i>	8/3/2021	Brice Eng.
2	Sean Manley	<i>[Signature]</i>	8/3/2021	Brice Eng.
3				
4				
5				
6				
7				
8				
9				
10				

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APPENDIX C
PHOTOGRAPH LOG

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**2021 PHOTOGRAPH LOG
MONITORING WELL DECOMMISSIONING REPORT
NATIONAL GUARD FEDERAL SCOUT READINESS CENTER GAMBELL, ALASKA**

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Photograph 1: Well 16GAMMW02 with concrete casing and lid removed. Well PVC strapped to loaded fork blade. JP pouring bentonite pellets into well before removal.C-1

Photograph 2: Well 16GAMMW02 being removed by SM using loader. Well screen has been knocked from bottom of well using slide hammer attachment in bottom right of photo. Well PVC has been filled with bentonite pellets before removing to act as a tremie pipe.....C-1

Photograph 3: Six flushmount wells (16GAMMW01, 16GAMMW02, 16GAMMW03, 16GAMMW04, 16GAMMW06, 16GAMMW07), casings, and lids removed and ready for disposal.....C-2

Photograph 4: Miscellaneous metal debris found with the metal detector in the vicinity of the gravel pile while attempting to locate well 16GAMMW05.....C-2

Photograph 5: GPS location of well 16GAMMW05 is within this area of gravel that differs from surrounding gravels. It is evident that there was once a larger gravel pile in this area. Heavy equipment used to move this gravel may have damaged or removed the well.C-3

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Photograph 1: Well 16GAMMW02 with concrete casing and lid removed. Well PVC strapped to loaded fork blade. JP pouring bentonite pellets into well before removal.



Photograph 2: Well 16GAMMW02 being removed by SM using loader. Well screen has been knocked from bottom of well using slide hammer attachment in bottom right of photo. Well PVC has been filled with bentonite pellets before removing to act as a tremie pipe.



Photograph 3: Six flush mount wells (16GAMMW01, -02, 1-03, -04, -06, -07), casings, and lids removed and ready for disposal.



Photograph 4: Miscellaneous metal debris found with the metal detector in the vicinity of the gravel pile while attempting to locate well 16GAMMW05.



Photograph 5: GPS location of well 16GAMMW05 is within this area of gravel that differs from surrounding gravels. It is evident that there was once a larger gravel pile in this area. Heavy equipment used to move this gravel may have damaged or removed the well.

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