

United States Department of the Interior
 National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form*. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions.

1. Name of Property

Historic name: Yankee Fork Gold Dredge

Other names/site number: Bucyrus-Erie Dredge No. 338; IHSI No. 37-4373

Name of related multiple property listing:

N/A

(Enter "N/A" if property is not part of a multiple property listing)

2. Location

Street & number: 300 Yankee Fork Road (Forest Service Road 013)

City or town: Stanley State: Idaho County: Custer

Not For Publication: Vicinity:

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this ___ nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property ___ meets ___ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

___ national ___ statewide ___ local

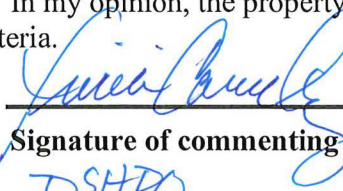
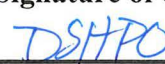
Applicable National Register Criteria:

___ A ___ B ___ C ___ D

<p>_____ Signature of certifying official/Title:</p>	<p>_____ Date</p>
<p>_____ State or Federal agency/bureau or Tribal Government</p>	

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In my opinion, the property <input checked="" type="checkbox"/> meets ___ does not meet the National Register criteria.	
	3-30-21
Signature of commenting official:	Date
	
Title:	State or Federal agency/bureau or Tribal Government

4. National Park Service Certification

I hereby certify that this property is:
___ entered in the National Register
___ determined eligible for the National Register
___ determined not eligible for the National Register
___ removed from the National Register
___ other (explain:)

Signature of the Keeper Date of Action

5. Classification

Ownership of Property
(Check as many boxes as apply.)
Private:
Public – Local
Public – State
Public – Federal

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Category of Property

(Check only **one** box.)

- Building(s)
- District
- Site
- Structure
- Object

Number of Resources within Property

(Do not include previously listed resources in the count)

Contributing	Noncontributing	
_____	_____	buildings
_____	_____	sites
<u>1</u>	_____	structures
_____	_____	objects
<u>1</u>	_____	Total

Number of contributing resources previously listed in the National Register 0

6. Function or Use

Historic Functions

(Enter categories from instructions.)

INDUSTRY/PROCESSING/EXTRACTION/extractive facility

Current Functions

(Enter categories from instructions.)

RECREATION AND CULTURE/museum

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7. Description

Architectural Classification

(Enter categories from instructions.)

Other: eight cubic foot bucket-line placer dredge

Materials: (enter categories from instructions.)

Principal exterior materials of the property: METAL/Iron; METAL/Steel; METAL/Tin;
WOOD

Narrative Description

(Describe the historic and current physical appearance and condition of the property. Describe contributing and noncontributing resources if applicable. Begin with a **summary paragraph** that briefly describes the general characteristics of the property, such as its location, type, style, method of construction, setting, size, and significant features. Indicate whether the property has historic integrity.)

Summary Paragraph

The Yankee Fork Gold Dredge (IHSI No. 37-4373) is located at 300 Yankee Fork Rd. (Parcel RP9912N15E1706), in Custer County, Idaho, about 10 miles north of the intersection with State Highway 75, and about 22 miles northeast of the nearest town, Stanley.¹ The remote dredge property is a 1.66 acre trapezoidal-shaped parcel in the Yankee Fork District (Tract 74-111) on the Morrison Placer claim #1, in Section 8 of Township 12 North, Range 15 East. Built on the Yankee Fork tributary of the Salmon River, the dredge is a Bucyrus-Erie 8-cubic-foot bucket-line placer dredge atop a pontoon hull, with a steel superstructure, and wood-framed massings that house the various control rooms, equipment, and machinery. Located within a dredge pond, surrounded by waste rock piles (tailings), near the confluence of the Yankee Fork and Jordan Creek, the dredge's setting is within a high-elevation river valley surrounded by rugged, steep mountains. Vegetation includes lodge pole pine, spruce, Douglas fir, and sage brush. The dredge is 54' wide by 112.5' long, and 64' high. The Yankee Fork Gold Dredge's significant features are the dredge form; its steel super structure and wood-framed dredge house; the galvanized steel sheet exterior cladding; multi-lite wood-sash bypass and casement windows; bow and stern gantries; spud; pontoon hull; stacker with its cover and conveyor belt; tail sluices; its gold recovery machinery and equipment, including the bucket line, ladder, and tumblers, rock chute, hoppers, trommel, sluices, Save All, jigs, and retort furnace; the dredge operating equipment and

¹ The Yankee Fork Gold Dredge Association (YFGDA) website lists the property address as 300 Yankee Fork Road, while the Custer County tax assessor website lists the parcel property address as 8454 Yankee Fork Road or Forest Service Road 013. The U.S. Postal Service recognizes none of these addresses.

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machinery such as the two Ingersoll-Rand diesel electric engines, electric motors, winches, pumps, bull gear, rheostats and resistors, steam boiler, freshwater storage system, pipes, cables, and shorelines; and the interior details such as the wood stairs, crew lockers, wood storage boxes for tools and spare parts, and the tools and spare parts. Exterior alterations have been minimal and include the installation of a new roof, a cathodic protection system, and wire screening over the windows and openings to prevent vandalism. Interior alterations include the construction of a small dredge museum and gift shop, erection of safety fencing around particularly hazardous equipment, installation of handrails on some of the stairs, and the loss of copper-bearing wiring, brass instruments, and controls to vandals. The Yankee Fork Gold Dredge has experienced limited alterations since its initial erection, it continues to convey a 1940s bucket line placer dredge, and retains integrity of location, design, setting, materials, workmanship, feeling, and association.

Narrative Description

Setting and Landscape

The Yankee Fork of the Salmon River runs through a narrow, high-elevation valley, flanked by the steep, rocky Salmon and Sawtooth Mountains. The surrounding forests generally contain alpine, lodgepole pine (*Pinus contorta*), mountain mahogany (*Cercocarpus Kunth*), Douglas fir (*Pseudotsuga menziesii*), sagebrush (*Artemisia arbuscula* Nutt.), and various grasses.

Towards the end of its operational life, the dredge's then-owner, J. R. Simplot, used it to dredge part of an adjacent claim up Jordan Creek, and then abandoned it at the southern end of the claim. In 1953, after it was discovered that the dredge was still on the neighboring property, Simplot's dredge operators dug the dredge back onto his claim, into a small dredge pond, and left it there. Today the dredge remains in its pond, located about 450' southwest of the current channel of the Yankee Fork and its confluence with Jordan Creek, surrounded by the waste rock tailings it created during years of operation.

Scattered on the property around the dredge are used dredge components and related objects that have been placed or left in the landscape for educational purposes. These include a bucket from the bucket line, plates from the trommel, half of a bull gear, a caisson from the gold testing period, and two deadman anchors. A picnic table and a propane tank are adjacent to the dredge's starboard side entry.

Located nearby on adjacent parcels are two associated nonhistoric buildings, including a Forest Service restroom and covered, three-sided viewing shelter with benches. A poured reinforced concrete walkway flanked by metal handrails leads visitors from Yankee Fork Road, down a slope towards the viewing shelter, then to an Americans with Disabilities Act (ADA) compliant ramp at the main entrance, and the restroom (a vaulted toilet). A dragline excavator is located on an adjacent parcel.

Physical Description

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Exterior

The Yankee Fork Gold Dredge consists of the barge or boat, with a hull, steel superstructure, and dredge house, and the dredge's equipment and machinery.

The dredge has a pontoon-type hull comprising 25 steel pontoons. Each pontoon measures 10' wide by 10' tall by 27' long and weighs 25,500 pounds. When bolted together, the pontoon hull measures 54' wide by 112.5' long. The pontoons in the center of the boat held 15,000 gallons of diesel fuel, while the pontoons along the outside edges of the hull were used to store water for pumping through the gold system, for ballast, and other purposes.²

The superstructure comprises two structural steel bridge trusses that extend the length of the dredge, with steel lattice girders, posts, diagonals, brackets, and braces that are variously riveted, bolted, or welded together. Most of the superstructure is within the walls of the dredge house. The superstructure was fabricated by the Olson Manufacturing Company of Boise, Idaho, to Bucyrus-Erie specifications.³

The dredge house is composed of two-, three-, four-, and five-story wood-framed massings, each clad in Beth-Cu-Loy galvanized steel sheet.⁴ The massings are each topped by a low-pitched gable or shed roof sheathed in ribbed metal sheet roofing. The massings contain the various interior rooms that hold the equipment, machinery, electronics, and delivery systems for the operation of the dredge. Original wood-sash windows in three distinct configurations are found in each of the massings. The majority of the windows in the dredge are two-over two bypass (slider) windows. The operator's control room has six-lite bypass windows, while the bow elevation of the five-story massing has three non-operable two-over-two windows in its fifth level. All the windows have metal cyclone fence-type wire mesh screens to protect them from vandalism.⁵

On the port elevation of the dredge, six screened intakes for the water system are found in the middle of the pontoon hull. Near the stern just above the pontoons is the snatch block that holds the port stern line and a V-shaped H-beam pivoting bracket mounted to the corner. Above the pontoon hull is a two-story massing under a shed roof, with a rectangular plan that spans the

² "Dredging Yankee Fork: With Tools Designed for That Difficult Mining Problem," *Mining World* (November 1940): 3-4.

³ Olson Manufacturing Company, Contract with Snake River Mining Company, January 1940, not executed, on file at Yankee Fork Gold Dredge Association Archives at Land of the Yankee Fork State Park (hereafter YFGDA-LOYF).

⁴ The interior surface of the cladding sheets bears a stamp with "Beth-Cu-Loy, Copper Bearing - L" within an oval. This is the logo of the Bethlehem Steel Corporation, for their zinc-coated copper-bearing steel sheet. *Hearings before the United States Senate Special Committee to Study Problems of American Small Business*, 1947 Senate, (U.S. 1947, statement of Earl A. Graham, Division of Accounts, Statistics, and Economic Reports, Federal Trade Commission), https://books.google.com/books?id=QWFKySXXN8C&dq=Beth-Cu-Loy+copper+bearing&source=gbs_navlinks_s.

⁵ Billy Reed (YFGDA Manager), interview by the author, Yankee Fork Dredge, Stanley, ID, September 9, 2020.

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length of the dredge from the stern to the bow deck. On the first level from stern to bow, this massing has a small door opening with a deteriorated, inset-panel wood door, a window, two inset door openings with metal clad doors, two windows, a door opening filled in with a metal panel, and another window. Two drainage scuppers and two metal brackets of unknown use are also found at the first level. At the second level are seven windows. Two nonoriginal panels of sheet metal (one hanging askew) appear to have been used as a temporary repair at the dredge's second level. Near the stern are six sheets of galvanized corrugated metal panels applied to the wall above the snatch block. Exposed wood rafter tails trimmed with wide fascia boards are visible under the deep eave overhang.

Above and set back from the two-story massing at the centerline of the dredge is a one-story-tall massing that contains a portion of the third floor; it is topped by a low-pitched, front-gabled roof. At the port elevation, this massing has three windows set in the exterior wall stepping up towards the bow. Exposed wood rafter tails are under the narrow eave, which is trimmed by a wide fascia. Fore of and abutting this massing is a tall massing with a rectangular plan that contains a portion of the third, fourth, and fifth floors of the dredge house. The port side has a doorway with a metal clad door and a window at the third level, two windows at the fourth level, and two windows at the fifth level. Two metal diesel exhaust pipes extend through the wall by the doorway. This massing is capped by a low-pitched, front-gabled roof with exposed rafter tails, narrow eaves, and wide fascia boards.

At the bow of the dredge, the dredge house massings are set back, exposing the top surface of the pontoon hull, leaving a trapezoid-shaped deck. At the port side is a snatch block for the port bow line, and, in the two-story massing's bow elevation, a doorway that contains a metal clad door with a security screen and a window opening that is covered by metal sheeting. At the starboard side of the hull deck is a snatch block for the starboard bow line, the gangway bridge, and, aft of the deck, a tall four-story massing under a shed roof that contains the winch/electric motor room, stair case, motor control room, and, at the top, the dredge operator's control room. At the first level in the bow elevation of this massing is a doorway that contains a metal clad door with a heavy-duty security door over it, and a window that is covered by metal security bars and wire screening. Above the door is a seasonal sign indicating "Closed for the Season." Above the window is a wide hole in the siding, through which two winch cables pass through to the winch room inside the dredge house. At the third level is a window. At the fourth level are a ribbon of three tall windows that illuminate the operator's room and allow for a wide view of the digging operation. Two additional windows are in the port side of the winch operator's room, allowing for a view into the bucket line. Exposed wood rafter tails trimmed with wide fascia boards are visible under the eave overhang.

Centered in the bow of the dredge is the bow gantry, which is constructed of heavy steel lattice beams, H-beams, steel channel, and steel angle. The gantry is tied into the dredge's superstructure with structural steel lattice girders and angled H-beams, and is mounted to the top of the hull deck with steel H-beams and heavy brackets. The bow gantry carries two sets of massive quad-line compound pulleys that were powered by winches to lift and lower the bucket line ladder.

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The bucket line is the dredge's massive digging apparatus. It contains 71 close-connected heavy manganese-steel 8-cubic-foot digging buckets with replaceable manganese lips.⁶ The buckets were manufactured by the American Manganese Steel Company expressly for the Yankee Fork dredge.⁷ The buckets, each bearing the AMSCO stamp, are pinned to a large chain that rotated around an 85-foot-long bucket line ladder. The ladder was constructed of heavy steel girders with structure-stiffening angles and plates, and hung from the bow gantry by massive steel castings attached to the pulleys. The bucket line rotated around the ladder on lower and upper tumblers, and on rollers within the ladder. The lower tumbler rotated the buckets at the bottom of the ladder while the upper tumbler drove the bucket line powered by an electric motor inside the dredge house (more on the source of the power later). The bucket line rises diagonally through a slot centered between the deck pontoons up into the five-story massing, and is flanked on the deck and at the top by heavy metal plate walls, which were installed to prevent damage to the dredge should boulders escape the buckets during operation.⁸

On the starboard elevation of the dredge, six screened intakes for the water system are found in the middle of the pontoon hull. The four-story massing at this elevation has two windows in the first, second, and third levels, and a single window in the fourth level. Aft of and abutting this massing is a two-story massing with a rectangular plan and a shed roof, that spans the balance of the starboard side of the dredge. Above the pontoon hull, from bow to stern, are an inset door opening with a metal clad door covered with security bars and screen, an entry door with an ADA-compliant ramp, a window, and a small door opening with a deteriorated, inset-panel wood door. Near the stern just above the pontoons is the snatch block that holds the starboard stern line and a V-shaped H-beam pivoting bracket mounted to the corner. A window is in the wall above the snatch block and in the second level are three windows.

Rising above the two-story massing and set back from its plane is the starboard elevation of the five-story massing. This tallest of the dredge house massings is connected to the four-story massing that contains the operator's control room via a slightly shorter, narrow four-story massing, which contains a window. Exposed wood rafter tails are under the narrow eave, which is trimmed by a wide fascia.

Four H-beam rails of the dredge's superstructure extend out from the five-story massing and two H-beam posts rise through the roof of the two-story massing below, creating a framework to carry a wood deck. The deck structure is braced with steel diagonal angles and cross braces. The deck is accessed via a massive pair of center swing doors with large metal strap hinges. Above the doors is a full-width solid transom that opens awning-style. The doors and transom allow for the movement of large pieces of equipment into and out of the dredge house's fifth level on an overhead crane. A personnel door clad in metal sheet is mounted within the aft door. Braced to the aft end of the deck framework is the dredge's boiler exhaust pipe that rises through the roof

⁶ The bucket line originally contained 72 buckets. When the dredge was first operated, engineers noted too much slack in the bucket line and removed one bucket to tighten the line. Reed interview.

⁷ "Dredging Yankee Fork: With Tools Designed for That Difficult Mining Problem," 5.

⁸ Reed interview.

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of the two-story massing. Aft of the exhaust pipe is the rock chute, which exits the dredge house just aft of the deck and runs at a diagonal through the eave of the two-story massing.⁹ The rock chute comprises rectangular steel bars spot-welded to steel sheeting that is bolted to a framework of steel angle. The rock chute extends out past the plane of the starboard elevation, supported by steel angle brackets that are bolted into the superstructure.

Aft of the five-story massing and rising above and set back from the two-story massing is a one-story-tall massing topped by a low-pitched, front-gabled roof that contains a portion of the third level. At the starboard elevation, this massing has three windows set in the exterior wall stepping down towards the stern. Exposed wood rafter tails are under the narrow eave, which is trimmed by a wide fascia.

Above the pontoon hull, the stern of the Yankee Fork Gold Dredge features two tail sluices, one near the stern-starboard corner and one near the stern-port corner. The tail sluices empty the waste material—gravels, sand, and soil—from the dredge's gold gathering sluices into the dredge pond. These structures are constructed of steel H-beam frames and steel plate floors and are affixed to the dredge's superstructure by bolted flanges just above the hull. The tail sluices are also supported by threaded rods with turnbuckles, which extend from the dredge near the two-story massing's eave to a steel-band hanger that is bolted to flanges on the tail sluice. The ends of the sluices are currently folded up and locked in a nonoperational position. Adjacent to the tail sluice on the port side of the stern are an access door, small window, and, set higher in the wall, a larger window. Near the eave above the window is an original wall-mounted light fixture. Adjacent to the tail sluice on the starboard side of the stern are an access door and a window set higher in the wall.

Centered in the stern of the dredge is the stern gantry and the stacker. The stern gantry is constructed of heavy steel H-beams, channel, angle, and lattice cross-braces. The gantry is tied into the dredge's superstructure with angled steel H-beams through the roof of the rear massing and is mounted to the top of an extension of the superstructure out the stern end of the ship, creating a small deck just above the height of the two-story massings. A doorway flanked by a pair of windows are at the deck. The stern gantry carries one set of massive quad-line compound pulleys hung from the center of the gantry, which is linked to two single pulleys, one of which is attached near the end of the stacker. The stacker is a 105-foot-long conveyor, flanked by wood gangplanks and covered with a wood- and metal-framed canvas cover, that conveys the waste rocks that pass through the trommel out of and behind the dredge into tailings piles. The stacker conveyor rides atop steel rollers mounted in a long lattice-girder frame constructed of steel H-beams, steel channel, and steel angle, which is tied into the superstructure. Centered above the stacker in the stern elevation under the deck is a window.

⁹ Historical images of the dredge under construction and just after completion, indicate that the rock chute originally exited the dredge through the massive deck doors atop the deck and extended out over the starboard side of the ship. Within the dredge's first year of operation, the rock chute was moved to its present location. No information regarding the relocation was found within the archives.

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Mounted under the top crossbeam at the stern gantry's starboard side is a quad-line pulley used to lift and lower the spud anchor. The spud is mounted vertically in two large heavy brackets or keepers; one at the starboard end of the deck at the base of the gantry and one at the top of the pontoon hull. The spud is 55-feet-long and rectangular (both in plan and elevation), with a pointed tip at the bottom end. The spud weighs 17.5 tons and was lowered into the dredge pond, anchoring the dredge during digging operation. This singular anchor created a pivot point that allowed winches to pull the dredge back and forth on the bow lines, which were tied to the shore via deadmen anchors.¹⁰

Interior¹¹

The Yankee Fork Gold Dredge contains a complex group of individual pieces of equipment and machinery that work together to operate the dredge. Within the various massings of the dredge house are multiple levels, with access via wood stairs or ladders. Three men worked the dredge during each shift; they were the dredge operator, also known as the winchman or pilot, the bow oiler, and the stern oiler. They and the entire dredging operation were overseen by the dredgemaster, who was not typically on the dredge but in his office at the dredge camp, located about 4.5 miles north of the intersection of Yankee Fork Road with State Highway 75 (about 4.0 miles south of the dredge's current location). Approximately once every two weeks, the gold man (metallurgist) would enter the dredge, shutting down operations, to perform a cleanup that removed all gold from the dredge.

The dredge house main entry is located on the starboard side's two-story massing, which accesses the basement level. The floor of the basement comprises the tops of each of the pontoons that make up the hull. On the left is the Yankee Fork Gold Dredge Association's gift shop and museum, and on right is the large steam boiler. The boiler, which was manufactured by Johnston Boiler Company of Ferrysburg, Michigan, provided steam heat to the stacker to prevent it from icing up, and to keep the pipes throughout the dredge and the sluices from freezing. The steam heat system also helped keep the men warm during the frigid winters, as the dredge house's exterior walls were uninsulated. A nearby General Electric pump moves water into the dredge's fresh water system, which provided water to the steam boiler, while a pair of pumps built by the Byron-Jackson Company of Berkeley, California, drew water from the dredge pond for the gold washing process. One pump sprayed water into the top of the hopper where the buckets dumped their material, and one pumped water that was sprayed into the trommel.

Continuing towards the bow, into the four-story massing, is the winch room. On the left are a row of winches, including two swing winches and two split winches. On the right is the massive

¹⁰ Dredging crews utilized various deadmen anchors to attach the shorelines. They used buried bundles of logs, buried long metal poles, large stone outcrops, standing tree trunks, and sometimes a parked Caterpillar tractor or other heavy equipment. W. H. Wright, "Side Lines in Dredging," *Engineering and Mining Journal* 98, no. 15 (1914): 643-44.

¹¹ The naming conventions for each of the interior spaces used herein (basement, operator's room, winch room, etc.) were derived from a tour of the dredge given by Billy Reed, YFGDA Manager, on September 9, 2020. All manufacturer data comes from the "Dredge Equipment List" record, YFGDA-LOYF.

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gear-driven ladder hoist winch that raises and lowers the digging ladder and bucket line. Also found in this area of the ship are the General Electric winch motors that power the winches. The wire cable used to move the bucket ladder, spud, and bow shorelines was 1" diameter, while the stern shorelines was 3/4" wire cable.

The motor control room is located at the starboard edge of the winch room, up two levels of steep wood stairs. While vandals have stripped out much of the electrical wiring and brass controls, the motor control room has banks of General Electric resistors and a control board. The control board controlled the speed of the electric motors that powered the bucket line and winches and sent power to electric lights throughout the dredge. Much of the floor in the motor control room is open to the winch room below; some of the floor openings have metal bars in them.

At the top of the four-story massing is the operator's control room. The dredge operator controlled the winches (located four stories below) using the hand controls in this room. The electrical switch controls operated hydraulic brakes and clutches, which managed the dredge components' functions. Using these clutches and brakes, the dredge operator raised and lowered the bucket line; controlled the speed and direction of the bucket line; raised and lowered the rock ejector (grizzly); raised and lowered the gangway at the bow deck; raised and lowered the spud; and controlled the shore line cables at the bow and stern. An opening in the floor, with bars for safety, allowed the operator to see four-stories down into the winch room.

Centered in the control room is a tall square hydraulic fluid tank (a Hannifin hydraulic manifold). On the rear wall are the communication buzzer system, a Bristol's time recorder, which tracked dredge operations on a circular paper graph, and a bronze memorial plaque embossed with,

8 Cu. Ft. Gold Placer Dredge
No. 16639
Designed and Built by
Bucyrus-Erie Company
South Milwaukee, Wis., U.S.A.
for
Snake River Mining Co. Sunbeam, Idaho
1940

Just starboard of the plaque is a ceiling-mounted Young radiator heater and a closet in the stern-starboard corner. A roof access panel is in the closet ceiling.

Out the control room's oversized slider windows, the dredge operator watched the digging operation and the buckets rising up the ladder. The buckets dumped their loads into the hopper (located aft of the control room in the five-story massing), from which the material would travel down into the trommel. If the operator saw a large rock coming up in one of the buckets, he would raise the hopper gate and lower the grizzly, which would then redirect the rock into the rock chute and send it out the starboard side of the dredge into the pond below, thus avoiding damaging the trommel. Mounted on the starboard side of the hopper is a Farval automatic

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lubrication system. This system automatically greased the upper and lower tumbler bearings and the ladder rollers on a periodic basis, supplying each component with a measured amount of grease. The Yankee Fork Gold Dredge was possibly the first gold dredge with a Farval system.¹²

Located on the port side of the five-story massing, adjacent to the upper tumbler of the bucket line, is a massive 6-ton bull gear and its 200-horsepower electric motor, which powered the bucket line. Also found in the five-story massing, mounted to the superstructure, is an 8-ton overhead crane manufactured by Chisholm-Moore Hoist Corporation, of Tonawanda, New York. The crane was used to move heavy equipment and parts in and out of the dredge via the massive doors of the starboard upper deck.

Centered in the dredge's four-story massing is the trommel, which is mounted at an angle sloping down towards the stern of the dredge. The trommel is a large, rotating cylinder whose exterior metal plates are pierced with thousands of 3/8" holes. The rotating action of the trommel screened the gravels dug out of the riverbed. The Yankee Fork Gold Dredge's trommel processed 26 buckets of gravel per minute, which were deposited into the top end of the cylinder. Spray nozzles (which were stolen by vandals) sprayed 3,600 gallons of water per minute into the trommel, washing the small material (gold, sand, small gravels) through the holes and into the sluice boxes below. The trommel is powered by a General Electric motor, with a speed reducer made by Pacific Gear and Tool Works Company, and a large ring gear at the stern end.

One of the dredge's fresh water tanks is located starboard near the stern of the dredge. The fresh water system collected rainwater and snow melt through a system of roof drains. The diesel engines located below the trommel level used the fresh water system.

Waste rocks rotated out the trommel into a hopper at the stern. The hopper dropped the material onto the stacker's 42" wide reinforced-rubber conveyor belt, which carried the waste out of the dredge where they fell to the pond below. Due to the anchoring spud, the rocks falling from the stacker created arcing tailings piles. The conveyor belt was manufactured by Pioneer Rubber Mills Company. Mounted to the stacker framework with metal brackets are wood boards that flank the length of the conveyor belt. Four sets of anti-rollback gates equally spaced along the stacker's length prevented the rocks from rolling back down the belt. The stacker has a full-length canvas cover mounted over the conveyor on segmental-arched wood and metal frames.

The stern oiler adjusted the speed and direction of the trommel and the speed of the stacker's conveyor using General Electric rheostats, which slowed the gears by dissipating the power through the resistors mounted to the ceiling.

Located one level below the trommel is the sluice room. The dredge has 16 sluice boxes below and on each side of the trommel. They are long shallow metal troughs with a mercury-coated copper plate at the head of the sluice to capture flour gold. The length of the sluice was lined with metal Hungarian riffles. Flushed with a constant stream of low-pressure water, the riffles

¹² "Dredging Yankee Fork: With Tools Designed for That Difficult Mining Problem," 5.

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captured the gold and sand that were washed out of the gravels. The sluices emptied into tail sluices—one on either side of the ship—that exit through the stern. The tail sluices returned most of the water from the gold harvesting process back into the dredge pond, along with sand, small gravels, and soil, which mounded around the spud, increasing resistance to the backward thrust of the dredge's digging bucket line.

In the basement below the sluice room are clean-up stations—one each on the port and starboard sides. As previously noted, about every two weeks, the gold man would stop the dredging operation to perform a clean up. He and two helpers would scrape the mercury amalgam off the copper plates into buckets and rinse each sluice down into a gutter. The gutter delivered the gold into a vibrating Pan American clean-up jig in the clean-up station. After concentrating the gold in the jig, mercury was added to further amalgamate the gold and leave the impurities. The gold man would take the amalgam to the dredge camp retort building, where, using a retort furnace, he would further refine and melt the gold into bricks for transport to Denver Mint. (The retort furnace was moved to the dredge for educational purposes and is now located adjacent to the clean-up jig.)

Also in the basement of the dredge is the engine room. The engine room contains two Ingersoll-Rand diesel electric engines connected to direct drive alternators, and exciters, which changed alternating current (AC) to direct current (DC). This system powered the dredge and gold-digging machinery and equipment. These engines used 600 gallons of diesel per day running 24 hours a day, 7 days a week. Elevated above the engines are two 300-gallon fuel tanks, which stored one day's worth of fuel and were refilled from diesel stores in the pontoons. The diesel engines were cooled by the fresh water system. Located nearby is the low-pressure water pump for the sluices and the water pump for the fresh water system. Also found adjacent to the engine room is the Save All. Centered four stories below the hopper, the Save All captured and sluiced any material that spilled out of the digging buckets and hopper.

Alterations

Over the years, the Forest Service, the Yankee Fork Gold Dredge Association, and Bureau of Reclamation have performed regular maintenance and repairs to the dredge. These include installation of a cathodic protection system to prevent corrosion of the pontoons in 2017–2018; replacement of the roof in 2009; interior painting in 1995; repair to roof rafters above the winch room in 1994; construction of an access bridge on the west side of the dredge to ADA standards in 1992; installation of a new canvas cover on the stacker in 1990; replacement of roof rafters above the trommel in 1989; repainting of the gantries in 1988; repainting of portions of the dredge's exterior in 1982; and, over the years, numerous repairs to windows and installation of security and safety screens, bars, and wire mesh over windows, doorways, and hazardous interior spaces.¹³

Statement of Integrity

¹³ Yankee Fork Gold Dredge Association, Maintenance and Repair Records, various, on file at YFGDA-LOYF.

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The Yankee Fork Dredge maintains its distinctive form, rooflines, siding, windows, steel superstructure, pontoon hull, cranes, bucket-line ladder and 71 buckets, covered stacker ladder with its rubber conveyor belt, spud, tailing sluices, crane runway and trolley beams, and gangway bridge. The dredge also maintains nearly all of its operating machinery and interior equipment, including the steam boilers, two Ingersoll-Rand diesel electric engines, pumps, winches and winch motors, the Save All, trommel, 32 sluices, jigs, stacker belts and engine, storage lockers for crew, and the various electrical controls and hand controls for the winches. Losses over time from vandalism include copper wiring, brass instrument gauges, brass spray nozzles, copper piping, copper plates at the heads of each sluice, and some original window glass. When Simplot donated the dredge to the Forest Service, he removed a large Caterpillar generator.¹⁴

The Yankee Fork Gold Dredge retains integrity of **location**; though a moveable structure operated by the Snake River Mining Company, it is still located in the Yankee Fork tributary of the Salmon River, a place for which it was purpose-built. The dredge retains integrity of **design**, as no changes to the dredge's original design are apparent except for the installation of reversible grates and screens at some windows, doors, and at the top of the bucket line to prevent vandalism. The dredge retains integrity of **setting** in a remote, rugged, and undeveloped river valley littered with the curved waste rock piles (tailings) created by the dredge as it processed the river's placers.¹⁵ The dredge retains integrity of **materials**. Although the original asphaltic roof was replaced with a metal roof in 2009, the roof is not visible when viewing the dredge. Other repairs, such as roof underlayment that is visible inside the dredge and the repairs to the crane deck, were made with in-kind materials. The dredge retains integrity of **workmanship**, with the original fabrication and assembly visible in the bolted and welded steel structural system and gantries, top-nailed galvanized metal siding, bolted and welded bucket line, and pontoons. The dredge retains integrity of **feeling**, as the dredge's support structure, gantries, bucket line, pontoons, equipment, and machinery are visible indicators of placer mining operations. Finally, the dredge retains integrity of **association**. Though no longer in operation and currently being used as an interpretive site and museum, a dredge operator from the 1940s would immediately recognize the structure in its current condition.

¹⁴ Reed interview.

¹⁵ The tailings piles and the Yankee Fork Gold Dredge are documented as one site, Idaho Archaeology Site Inventory (ASI) No. 10CR1007 and USFS No. CH-182.

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8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- A. Property is associated with events that have made a significant contribution to the broad patterns of our history.
- B. Property is associated with the lives of persons significant in our past.
- C. Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- D. Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark "x" in all the boxes that apply.)

- A. Owned by a religious institution or used for religious purposes
- B. Removed from its original location
- C. A birthplace or grave
- D. A cemetery
- E. A reconstructed building, object, or structure
- F. A commemorative property
- G. Less than 50 years old or achieving significance within the past 50 years

Areas of Significance

(Enter categories from instructions.)

INDUSTRY

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ENGINEERING

Period of Significance
1940–1953

Significant Dates
1940: initial construction
1953: final year of operation

Significant Person
(Complete only if Criterion B is marked above.)
N/A

Cultural Affiliation
N/A

Architect/Builder
Bucyrus-Erie Company
Olson Manufacturing Company

Statement of Significance Summary Paragraph

The Yankee Fork Gold Dredge is a bucket-line placer dredge. The structure is eligible for listing in the National Register of Historic Places (NRHP) under Criterion A, at the state level, in the area of Industry, for associations with gold mining in Idaho. From 1940–1953, dredge operations extracted over \$1.02 million worth of gold from the Yankee Fork of the Salmon River in Idaho, which employed hundreds of workers and supported the small local communities. The dredge is also eligible under Criterion C, in the area of Engineering, as an unusual example of placer mining technology. The dredge embodies the distinctive characteristics of a bucket-line gold dredge, with typical features including the bucket-line ladder, stacker ladder, gantry cranes, trommel, sluices, winches, hoists, engines, and pumps, and also exhibits evolutionary changes designed for the difficult environment of the Yankee Fork. The dredge’s period of significance is 1940–1953, the period of construction through the last year of operation. The dredge retains

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integrity of location, design, setting, materials, workmanship, feeling, and association. Though no longer used for placer mining, the dredge continues to impart its significant contributions to the Yankee Fork Mining District's heritage through educational tours.

Narrative Statement of Significance

Historic Context

For thousands of years prior to non-Indigenous settlement, a number of Native American tribes used the lands in Idaho for their homes and for seasonal hunting and gathering trips. In northern and central Idaho were tribes of the Plateau cultural groups, including Kootenai, Kalispel, Coeur d'Alene, Palouse, and Nez Perce Tribes. The southern part of Idaho was home to the Great Basin cultural groups, which included the Shoshone, Bannock, and Northern Paiute Tribes. Interactions with groups and tribes from the Great Plains culture area, including the Blackfoot, Cheyenne, Arapaho, and Lakota Sioux, influenced traditional lifeways.¹⁶

With the arrival of fur traders and trappers in the nineteenth century, life for the region's aboriginal people was forever altered. Although only briefly explored during the expedition of Lewis and Clark in 1805, Idaho followed a historical progression similar to other areas in the West. Missionaries, surveyors, prospectors, and settlers soon followed, leading to the establishment of settlements and the mining industry that shaped the history of the area.

Fur traders and trappers from trading posts in Canada first began to appear in the interior Northwest around 1809, establishing trading posts in Montana, Washington, and northern Idaho.¹⁷ In 1818, the Hudson's Bay Company established a trading fort in southeastern Washington and fur trappers ventured through central and southern Idaho, trapping beavers and other fur bearing animals, and skirmishing with Native Americans. In southern Idaho, most early trading sites were transient shelters that were quickly abandoned until the construction of Fort Hall and Fort Boise, both in 1834. These trading posts survived until changing fashions reduced the demand for furs, after which both posts were deserted in the mid-1850s.¹⁸

Missionaries were the next group that sought to establish a presence in Idaho. Among the Nez Perce Tribe in the central part of the state, Eliza and Henry Spalding started a mission at Lapwai in 1836, and three years later, Asa and Sarah Smith started a mission at Kamiah. These missionaries worked to convert tribal members to Christianity, and the Spaldings taught acolytes to farm and raise livestock. Due to growing numbers of Euroamericans in the area and the

¹⁶ Deward E. Walker, Jr., *American Indians of Idaho* (Moscow: University of Idaho Press, 1971).

¹⁷ P. Miller and B. Van Fossen, *Spokane House and its History* (Olympia: Washington State Parks and Recreation Department, 1978), 35; Cort Conley, *Idaho for the Curious: A Guide* (Cambridge, ID: Backeddy Books, 1982), 680–81.

¹⁸ Carlos A. Schwantes, *In Mountain Shadows: A History of Idaho* (Lincoln: University of Nebraska Press, 1991), 28, 33–34.

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associated rising death rate among the tribes from disease, hostilities rose between the missionaries and the tribes, and in response, by 1847 these missions were abandoned.¹⁹

While the federal government had authorized an occasional exploration of the Northwest region of the United States in the early 1830s, the following decade began a boom of survey by federal authorities that continued for 20 years.²⁰ Under the auspices of the Navy, one expedition explored Puget Sound and the Columbia, Snake, and Clearwater Rivers up to Lapwai. Another expedition was a group of Army engineers and map makers, known as the Corps of Topographical Engineers, under the command of John C. Frémont. In 1843, Frémont's team explored and mapped the Oregon Trail and the Great Basin across southern Idaho, Utah, and Nevada. The team's cartographer, Charles Preuss, completed a detailed and widely distributed map of the Trail.²¹

One of the region's most notable expeditions began in 1853, when the government authorized a company of Army engineers, led by Isaac I. Stevens, to find the best railroad route from the Mississippi River to the Pacific Ocean. John Mullan, an engineer on Stevens' field team, was tasked with locating possible routes for a military road across northern Idaho, between the Missouri River at Fort Benton, Montana, and Fort Walla Walla, in Washington Territory on the Columbia River.²² Between 1858 and the early 1860s, Mullan and his team constructed the road, which opened up northern Idaho to exploration and settlement. By 1866, 20,000 people had traversed the route.²³

Emigrants from the East began utilizing the Oregon Trail between 1840 and 1860, heading west from Missouri to Oregon, California, and Washington, with many utilizing Preuss' map, for a chance at owning their own land. While the Trail traversed southern Idaho's Snake River Plain, most travelers passed through Idaho with little thought of staying.²⁴

Having started in 1848, the California gold rush played out by 1855, but gold was found in other locations. Thousands of miners set out for gold rushes in eastern Washington, British Columbia,

¹⁹ Schwantes, *In Mountain Shadows*, 34–35.

²⁰ Schwantes, *In Mountain Shadows*, 44.

²¹ Schwantes, *In Mountain Shadows*, 44; Mary C. Rabbitt, *The United States Geological Survey: 1879–1989*, U.S. Geological Survey Circular 1050, Department of the Interior (Washington, DC: U.S. Government Printing Office, 1989), 5.

²² Jon Axline, National Register of Historic Places Nomination form for the *Point of Rocks Historic Transportation Corridor*, 2009, on file at the Montana Department of Transportation, Helena; Cort Sims, National Register of Historic Places Registration form for *Mullan Road*, 1990, on file at Idaho State Historical Society, Boise.

²³ Axline, NRHP Nomination form for *Point of Rocks Historic Transportation Corridor*; Schwantes, *In Mountain Shadows*, 46.

²⁴ Schwantes, *In Mountain Shadows*, 42–43.

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Colorado, Nevada, South Dakota, Montana, and Idaho.²⁵ It was the discovery of gold in the Clearwater Valley that set the development trajectory of central Idaho.²⁶

Mining in Idaho

The first major gold discovery in central Idaho was in 1860.²⁷ Elias Davidson Pierce, a trader with gold mining experience from the California gold rush, arrived in Walla Walla in the Washington Territory in 1852.²⁸ While an 1855 treaty with the area's Nez Perce Tribe barred Euroamericans from trespassing on tribal lands, Pierce and other prospectors conducted surreptitious excursions deep into the Clearwater River drainages of Nez Perce territory, prospecting for and finding gold. In 1861, a particularly rich find in Florence created a rush that drew 10,000 miners to the area.²⁹

Throughout the 1860s, additional discoveries of gold created mining booms in other regions of Idaho. In 1862, George Grimes and a group of prospectors discovered rich placer deposits and numerous lode deposits in an area encompassing over 300 square acres about 25 miles northeast of Boise in the Boise Basin. Miners established a number of profitable mining towns and districts, including Idaho City, Moore Creek, Centerville, Quartzburg, Pioneererville, and Grimes Pass. By 1863, thirty-thousand people were mining in the Boise Basin.³⁰

In northern Idaho, gold was discovered along tributaries of the St. Joe River as early as 1866. In 1883, a discovery along the North Fork of the Coeur d'Alene River caused a rush to the area.³¹ Placer mining became widespread and prospectors located rich deposits in the hillsides above Mullan and Wallace. The towns that grew up around these diggings were mainly tent cities that supported the miners with supplies.³² By 1885, Noah B. Kellogg's discovery of a massive lead ore and silver deposit changed the mining focus from gold to lead, silver, and zinc, and led to the creation of the massive mining operations of Bunker Hill and Sullivan Mines.³³

²⁵ Kathryn L. McKay, *Mining Idaho's History: Metal Mining in Idaho, 1860–1960*, edited by Elizabeth J. Cunningham (Boise: Idaho State Historical Society, 2011), 29; Michael Kowalewski, "Romancing the Gold Rush: The Literature of the California Frontier," *California History* 79, no. 2 (2000): 204–25, 204.

²⁶ Merle Wells, "Idaho Military Posts and Camps," Number 242, November 1965, Idaho State Historical Society Reference Series, <https://history.idaho.gov/wp-content/uploads/0242.pdf>.

²⁷ George C. Stephens, "Field Guides to the Quaternary Geology of Central Idaho: Part C. History of Gold Mining on the Yankee Fork River, Custer County," in *Guidebook to the Geology of Central and Southern Idaho*, edited by P. K. Link and W. R. Hackett, *Idaho Geological Survey Bulletin* 27 (April 1991): 223–26, 223.

²⁸ McKay, *Mining Idaho's History*, 30–31; Schwantes, *In Mountain Shadows*, 49–50.

²⁹ Bill London and Charlie Powell, *Natural Wonders of Idaho: A Guide to Parks, Preserves, and Open Spaces* (Castine, ME: Country Roads Press, 1994), 62; McKay, *Mining Idaho's History*, 31.

³⁰ McKay, *Mining Idaho's History*, 29; Schwantes, *In Mountain Shadows*, 52.

³¹ Richard G. Magnuson, *Coeur d'Alene Diary: The First Ten Years of Hardrock Mining in North Idaho* (Portland, OR: Metropolitan Press, 1968), 7, 10–12.

³² Magnuson, *Coeur d'Alene Diary*, 16.

³³ Katherine G. Aiken, *Idaho's Bunker Hill: The Rise and Fall of a Great Mining Company, 1885–1981* (Norman: University of Oklahoma Press, 2005), 3–5; and John Fahey, *Hecla: A Century of Western Mining* (Seattle: University of Washington Press, 1990), 4–5.

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The flood of miners and establishment of mining operations altered the traditional hunting, fishing, and gathering lands of Idaho's indigenous people. Skirmishes and battles between settlers or troops and Native Americans became more frequent as the federal government stepped in to protect miners and settlers. Gold found within the boundaries of the Nez Perce Tribe's treaty lands led the government to install Fort Lapwai, east of Lewiston, in 1862, and draft a new treaty the following year as they sought to open these valuable mineral lands to mining. The new treaty reduced the reservation lands from about 7.5 million acres to around 750,000 acres.

Thousands of miners rushed in to take advantage of the newly available lands.³⁴ In the Boise Basin, in 1863 the government constructed Fort Boise on the Oregon Trail near the road into the gold fields. In 1868, after the signing of the Fort Bridger Treaty, the Shoshone and Bannock Tribes were relocated onto a reservation at Fort Hall. The original reservation of about 1.8 million acres was reduced in 1872, and further reduced through later legislation and allotments.³⁵ In northern Idaho, after President Grant's executive order created the Coeur d'Alene Indian reservation in the mid-1870s, most Indigenous families were moved south, away from the nascent mining operations.³⁶

In 1863, the U.S. Congress carved the Idaho Territory out of Washington Territory, which included portions of present-day Montana and Wyoming. The final boundaries of the Idaho Territory were decided in 1868 and Idaho became a state in 1890.³⁷

Placer Gold Mining Methods

The development of placer mining in Idaho (and elsewhere) is due to the environmental and geological conditions of the mining regions. Gold that occurs in hard rock deposits or veins is known as lodes. Over time, geological events and hydraulic forces—stream or glacial action—cause some of the gold to be freed from the lodes. This placer gold is carried by gravity and/or water and deposited in gravel terraces or benches above streams and in waterways such as creeks, rivers, and lakes. The process concentrates the gold and, because gold is heavy, it sifts down through a rocky or gravelly creek bed to the bedrock. These geological and environmental actions make placer gold available to panning, sluicing, hydraulic mining, and dredging.³⁸

Placer mining was originally undertaken with a miner using a gold pan in a creek or river, in the same method as prospecting. Using this method, a miner could typically go through about a

³⁴ McKay, *Mining Idaho's History*, 29–31; Nez Perce Tribe, "History," 2018, <https://nezperce.org/about/history/>; Schwantes, *In Mountain Shadows*, 50–53; Wells, "Idaho Military Posts and Camps."

³⁵ Shoshone-Bannock Tribes, "Culture and History," 2020, <http://www2.sbtribes.com/about/>;

³⁶ Coeur d'Alene Tribe, "Native Names Project," accessed October 9, 2020, <https://gis.cdatribe-nsn.gov/arcgisportal/apps/webappviewer/index.html?id=c16517f7c20c4836aa09c284d6574148>; Anne L. Marshall, "Coeur d'Alene's Old Sacred Heart Mission," *SAH Archipedia*, edited by Gabrielle Esperdy and Karen Kingsley (Charlottesville: UVaP, 2012), <https://sah-archipedia.org/buildings/ID-01-055-0008>.

³⁷ Schwantes, *In Mountain Shadows*, 58–63.

³⁸ McKay, *Mining Idaho's History*, 2–3, 6–7; Yukon-Charley Rivers National Preserve, "What is Placer Gold Mining?," 2015, National Park Service, Department of the Interior, <https://www.nps.gov/yuch/learn/historyculture/placer-mining.htm>.

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cubic yard of placer gravels each day and, unless the placers were very rich, it was difficult to earn enough to pay for the claim.³⁹ Early upgrades to the panning method were the rocker, sluice box, and long tom. The rocker, or rocking cradle, was easily moved when needed, could process about 3 cubic yards of gravel a day, and could be operated with much less water than a sluice box. The rocker could also process partially cemented gravel or clay, as the rocking motion broke up the clay and released the gold. The rocker consisted of a wooden box with a hopper into which gravels were shoveled. A pierced metal sheet in the hopper sorted out the larger gravel, while the smaller material fell to the bottom. The bottom of the rocker was sloped and had a series of wood bars or riffles. The bottom was covered with material (such as burlap or carpet), which caught the fine flour gold and sands.⁴⁰

The sluice, which needed a considerable amount of water and a steep enough gradient to operate efficiently, could handle 10 cubic yards of gravel each day. Sluices typically needed ditches or a flume to redirect water to the sluice for washing the gravels. The sluice comprised a long sloping series of narrow wood troughs with riffles along its bottom and a carpet or material catch blanket at the low end. The sluice was typically supported atop legs or a timber trestle. As miners shoveled in gravels, water washed over them, and other miners removed rocks and other debris, cleared waste rock and sand, and used mercury to create an amalgam to catch the flour gold.⁴¹ The long tom was similar to a sluice, with a screen for separating out coarser gravels, but was a much smaller contraption. Like the rocker, the long tom had cleats along the bottom coated with mercury to catch flour gold. However, the long tom was thought to be more efficient than a rocker.⁴²

Another placer mining method is known as hydraulicking or hydraulic mining, which was used to mine lower grade bench gravels on hillsides and stream banks. Miners built holding ponds at an elevation above the area to be mined and filled them by redirecting water from a creek. Using tapered steel pipes or flumes and hoses with large nozzles, miners would release the water from the ponds into a penstock, and gravity would create high water pressure, which would be directed at hillsides, to blast away soil down to bedrock. The dislodged material would then be shoveled into and run through sluices to capture gold on the mercury-coated riffles.⁴³ Massive tailings piles, sand, and gravel from some of these mining methods have created long-lasting environmental issues requiring remediation.⁴⁴

Draglines and dredges are also used to mine placer gold. A dragline is an excavator with a bucket suspended from a long boom and controlled by cable wires and winches. The dragline picks up gravels in a relatively flat site, such as a creek or river bottom, and deposits them into sluices for

³⁹ Merle Wells, "Placer Mining Methods," Number 99, 1964, Idaho State Historical Society Reference Series, <https://history.idaho.gov/wp-content/uploads/0099.pdf>; McKay, *Mining Idaho's History*, 5–6.

⁴⁰ Wells, "Placer Mining Methods"; McKay, *Mining Idaho's History*, 7–8.

⁴¹ Wells, "Placer Mining Methods"; McKay, *Mining Idaho's History*, 8–9.

⁴² Wells, "Placer Mining Methods"; McKay, *Mining Idaho's History*, 8.

⁴³ Wells, "Placer Mining Methods"; McKay, *Mining Idaho's History*, 9–11.

⁴⁴ Committee on Superfund Site Assessment and Remediation in the Coeur d'Alene River Basin, *Superfund and Mining Megsites: Lessons from the Coeur d'Alene River Basin* (Washington, DC: National Academies Press, 2005), 16.

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processing. A dragline dredge was a floating barge that contained a wash plant—a trommel, sluices, jigs—and a dragline, whose bucket picked up gravel and dumped it into the wash plant.⁴⁵

A bucket-line dredge is a floating barge, with digging buckets mounted to a chain that rotates around a ladder mounted diagonally to the bow (front) of the dredge. The dredge includes a wash plant/sorting equipment inside, including a trommel and riffled sluices. Mercury was used to coat copper plates in the sluices to catch the flour gold. Waste handling devices at the stern (rear) of the dredge include a stacker for removing rocks and tail sluices for returning sand, small gravel, soil, and water back to the creek. A rock chute at the starboard side of the dredge drops large rocks that could damage the trommel off the side of the dredge into the pond below. A vertical anchoring device called a spud is attached at the stern of the dredge. When the dredge is operating, the spud is driven down into the bottom of the dredge pond, and, as the bucket line digs into the rocky material, the dredge is pulled back and forth in an arc on bow winch lines anchored to the shore. As the dredge pivots on the spud, rocks falling from end of the stacker create “wind rows” or curved tailings piles.⁴⁶

Bucket line gold dredges are very effective tools for mining placers but require a large investment to purchase and knowledgeable operators to control. The Dutch were manufacturing bucket line gold dredges in the 1890s, for use in Europe, South America, and Russia, and for the mining of tin placers in Indonesia, Malaysia, and Thailand.⁴⁷

The first successful bucket dredge in the United States was designed by Samuel S. Harper. The dredge, known as the *Fielding L. Graves*, worked Grasshopper Creek in the Bannack Mining District in Montana, beginning in May 1895.⁴⁸

Dredging History in Central Idaho

Central Idaho encompasses the Atlanta lobe of the geological formation known as the Idaho Batholith, which is a 15,400 square mile composite mass of granitic plutons. Contained within the batholith are the Salmon Mountains, Sawtooth Mountains, and the Yankee Fork River tributary of the Salmon River.⁴⁹ The area is extremely rugged, with steep rocky mountains, fierce winters, and narrow high-elevation river valleys with little arable farmland, especially west of Challis. Except for the Native American tribes who utilized the region for hunting, few people

⁴⁵ Wells, “Placer Mining Methods”; McKay, *Mining Idaho’s History*, 12.

⁴⁶ Wells, “Placer Mining Methods”; McKay, *Mining Idaho’s History*, 12; Robin Grayson, “Bucket-line Gold Dredges: A Review of World Techniques,” *World Placer Journal* 8 (2008): 1–41, 3, https://www.researchgate.net/publication/202236459_Bucket-line_gold_dredges_-_a_review_of_world_techniques; Reed interview.

⁴⁷ Grayson, “Bucket-line Gold Dredges,” 3.

⁴⁸ Mike Kaas, “The Mining History of Bannack, Montana,” 2011, <https://www.mininghistoryassociation.org/Bannack.htm#:~:text=The%20first%20dredge%20was%20employed,cont%20inued%20until%20the%20early%201970's.>

⁴⁹ Laura DeGrey, Myles Miller, and Paul K. Link, “Mesozoic Idaho Batholith,” Digital Geology of Idaho, accessed September 20, 2020, http://geology.isu.edu/Digital_Geology_Idaho/Module6/mod6.htm.

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lived in Central Idaho at the time of the first gold discovery in 1860. It was the discovery and promise of gold that attracted the first sustained rush of non-Indigenous settlers into Idaho.

Sid Roberts of Boise, Joe Montgomery of Hailey, and Carl Lane of Challis initiated the first gold dredging operation in central Idaho in 1897. Known as the Stanley Dredging Company, the trio bonded 365 acres of placer ground along Stanley Creek. Organized in Perry, Oklahoma, and backed by investors in Kansas City, Missouri, the company was founded on the prospect of building a dredge to mine the placers.⁵⁰ In mid-August 1899, before the build was complete, the dredge, called the *Pearl L*, began digging and quickly showed its shortcomings. Problems included a too short bucket ladder to reach bedrock, and construction too light to handle the heavy rocks, causing the dredge to break. Expenses outpaced earnings from the cleanouts.⁵¹ Other attempts at dredging in the Stanley Basin were unsuccessful or unfruitful. The Stanley Basin Mining Company, established by George Burroughs, moved the upgraded *Yale* dredge from the Snake River to work in Stanley Creek, but operated it for only a portion of its first season.⁵² Other companies, such as the Saw Tooth Placer Mining Company, Idan-ha Gold Dredge Company, and the Stanley Dredge Company, tried and quit, as their dredges did not produce the earnings touted in their investor prospectuses.⁵³

By the early 1920s, one company, the Sawtooth Dredging Company, was working over 5 miles of Stanley Creek using a steam-driven gold dredge built by the Bucyrus Company of South Milwaukee, Wisconsin.⁵⁴ This 2,000-cubic-yard capacity dredge was fitted with special screens to capture gold- and platinum-bearing black sands. In 1928, after going into receivership, the Sawtooth Dredging Company sold their land and dredge to C. H. Shaw of San Francisco. Shaw's testing of the placers showed good results, but his plans to build an electric power plant and dredge the property did not move forward.⁵⁵ It was not until the late 1940s that a successful run at dredging in Stanley Creek occurred. The Jordan Placer Company, Inc., operated a dragline with a 1-cubic-yard bucket and 70-ton wash plant mounted on tracks that ran atop the creek banks and in the shallows. Between 1948 and 1950, the dredge mined placers along a 1.5-mile stretch of Stanley Creek and collected \$233,000 in gold.⁵⁶

Yankee Fork Mining District

While the first of Idaho's gold rushes was in the 1860s, it was not until a decade later that gold was discovered in the Yankee Fork drainage of the Salmon River.⁵⁷ In 1870, Dudley B. Varney and Sylvester Jordan made discovery claims on Jordan Creek with a group of miners brought in

⁵⁰ Clark C. Spence, *A History of Gold Dredging in Idaho* (Boulder: University Press of Colorado, 2016), 123–24.

⁵¹ Spence, *A History of Gold Dredging in Idaho*, 124.

⁵² Spence, *A History of Gold Dredging in Idaho*, 125.

⁵³ Spence, *A History of Gold Dredging in Idaho*, 126–27.

⁵⁴ Spence, *A History of Gold Dredging in Idaho*, 128; Bucyrus Company, "The Bucyrus Legacy," brochure, on file at YFGDA-LOYF.

⁵⁵ Spence, *A History of Gold Dredging in Idaho*, 129.

⁵⁶ Spence, *A History of Gold Dredging in Idaho*, 130–31.

⁵⁷ Howard A. Packard, Jr., *Gold Dredge on the Yankee Fork* (Great Falls, MT: Yankee Fork Publishing Company, 1983), 1.

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from Loon Creek. Soon, the miners organized the Yankee Fork Mining District and five mining companies prepared to file patents for claims.⁵⁸ In 1873, miner John Morrison found a rich gold claim near the Jordan Creek confluence.⁵⁹ (In 1891, Morrison was issued three lode mining patents—the George Washington, Passover, and Fair Play claims—comprising 56.83 acres along Jordan and Red Rock Creeks.⁶⁰) Word of Morrison’s find spread through the nearby mining communities. In 1875, William A. Norton discovered a high-grade vein, later named the Charles Dickens mine. These, combined with word of the General Custer claim of James Baxter, E. M. Dodge, and Morgan McKeim, led to a mining boom in the Yankee Fork drainage.⁶¹ The influx of miners into the area allowed for the 1877–1878 establishment of Bonanza City and Custer City.⁶² By the early 1880s, Custer City had a population of over 200 residing in boarding houses and 77 residences; Bonanza’s population was 600, and the town had a public school that educated about 25 children.⁶³

To accommodate the transportation of people, supplies, and ore, intrepid trail builders established trails into the Yankee Fork drainage. One trail was constructed from the mining town of Oro Grande in Loon Creek, over the summit into Jordan Creek. Another trail left Custer towards McKay Creek, then over Mill Creek summit to Garden Creek and into Challis. A third, known as the Hay Trail, ran from Bonanza to Stanley through Sawmill, Hay, Kelly, and Stanley Creeks. Around 1879, the first toll road that could accommodate wagons was constructed from Challis to Bonanza.⁶⁴ By 1910, a U.S. Geological Survey (USGS) investigation of the mining districts in Custer County, noted improved roads along the Salmon River, with branches up into the valleys of the Yankee Fork, East Fork, and tributary streams. Although impassable past Sunbeam during the winter months, the Yankee Fork road was traversable through Bonanza to Custer and up Jordan Creek over the Loon Creek summit to Ivers during the summer.⁶⁵

Other early miners in the Yankee Fork drainage were C. J. Johnston, who received two mineral patents for the 13.72-acre Pilot and the 10.28-acre Henry Ward Beecher lode claims in 1887, and Robert C. Chambers, Abraham Hanauer, William S. McCornick, and William A. Norton, who

⁵⁸ Merle Wells, “Site Report – Yankee Fork-Robinson Bar,” Number 204, Revised January 1993, Idaho State Historical Society Reference Series, <https://history.idaho.gov/wp-content/uploads/0204.pdf>.

⁵⁹ Packard, *Gold Dredge on the Yankee Fork*, 1; Caselle L. Wood, “Appendix E – Yankee Fork Historical Timeline,” November 2011, 6, Salmon-Challis National Forest, South Zone Fish Program, U.S. Department of Agriculture, <https://www.usbr.gov/pn/fcrps/ce/idaho/upperalmon/yf/Appendix%20E%20-%20Historical.pdf>.

⁶⁰ Bureau of Land Management (BLM), Serial Patent for John G. Morrison, No. 17618, 1891, General Land Office (GLO) Records, <https://glorerecords.blm.gov>; BLM, Serial Patent for John G. Morrison, 1891, No. 17619, GLO Records, <https://glorerecords.blm.gov>; BLM, Serial Patent for John G. Morrison, No. 17692, 1891, GLO Records, <https://glorerecords.blm.gov>; and U.S. Geological Survey, Custer Quadrangle, Custer County, Idaho, 7.5 Minute Series, Topographical Map, U.S. Department of the Interior, accessed September 12, 2020, <https://ngmdb.usgs.gov/topoview/viewer/#15/44.3844/-114.7254>.

⁶¹ Wells, “Site Report – Yankee Fork-Robinson Bar,” 3–4; Wood, “Appendix E – Yankee Fork Historical Timeline,” 6.

⁶² Wood, “Appendix E – Yankee Fork Historical Timeline,” 1.

⁶³ Wood, “Appendix E – Yankee Fork Historical Timeline,” 1.

⁶⁴ Wood, “Appendix E – Yankee Fork Historical Timeline,” 4.

⁶⁵ Joseph B. Umpleby, *Some Ore Deposits in Northwestern Custer County, Idaho*, Bulletin 539, U.S. Geological Survey, Department of the Interior (Washington, DC: Government Printing Office, 1913), 13.

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filed a claim as partners and also received their lode patent for the 15.12-acre Julietta claim in 1887.⁶⁶ Four years later, Chambers and the heirs of Norton received a lode patent for the 20.62-acre Adelaide claim, and William Toole obtained a lode patent for 9.38 acres for the Capulet claim.⁶⁷

Dredging in the Yankee Fork Mining District

Early attempts to use dredges to work the placers in the Yankee Fork Mining District were unsuccessful. In 1899, the Souther Dredge Company of Boston, which had a successful dredging operation in the Boise Basin, sent an engineer to conduct testing along Jordan Creek (just north of the present location of the Yankee Fork Dredge). Results of the testing showed large amounts of gold, and the company optioned much of the vacant land around the ghost town of Bonanza.⁶⁸ Using options on Souther Dredge Company's lands, in 1926 the New York Engineering Company sent engineers to the area, who tested the placers and reported high values. Seven years later, the company decided not to exercise their options to dredge the lands, for they felt the rocky environment of the Yankee Fork would cause problems for dredging operations.⁶⁹

Around 1935, due to the Great Depression, the costs of labor and materials were down and the price of gold was up slightly, which made the prospect of gold dredging placers enticing again.⁷⁰ Former Idaho state senator Ralph E. Whitten, an electrical engineer originally from New York, worked with land owners in the Yankee Fork District to consolidate the earlier options into one long block, from which he formed the Yankee Fork Placer Mining Company.⁷¹ The company built a dredge camp with a bunkhouse and cookhouse, and purchased a small dredge, built by the Yuba Manufacturing Company, which had it shipped from California to Idaho. The company's engineers quickly discovered the dredge was too small to handle the large boulders and cemented gravels of the Yankee Fork, so they halted operations and sold the dredge to a company in Wallace, Idaho.⁷²

Snake River Mining Company

Into this stalemate came the Silas-Mason Company (a division of Mason & Hanger Company, Inc.), a New York construction firm who had just completed work on the Grand Coulee Dam, in

⁶⁶ BLM, Serial Patents for C. J. Johnston, Nos. 11137 and 11138, 1887, GLO Records, <https://glorerecords.blm.gov>; BLM, Serial Patent for Robert C. Chambers, Abraham Hanauer, William S. McCornick, and W. A. Norton, No. 12719, 1887, GLO Records, <https://glorerecords.blm.gov>.

⁶⁷ BLM, Serial Patent for Robert C. Chambers, and Heirs of William A. Norton, No. 17790, 1891, GLO Records, <https://glorerecords.blm.gov>; BLM, Serial Patent for William Toole, No. 18719, 1891, GLO Records, <https://glorerecords.blm.gov>.

⁶⁸ Spence, *A History of Gold Dredging in Idaho*, 131.

⁶⁹ Spence, *A History of Gold Dredging in Idaho*, 131.

⁷⁰ Spence, *A History of Gold Dredging in Idaho*, 132.

⁷¹ Spence, *A History of Gold Dredging in Idaho*, 131–32.

⁷² Spence, *A History of Gold Dredging in Idaho*, 132; Stephens, "Field Guides to the Quaternary Geology of Central Idaho: Part C," 225.

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Washington.⁷³ In the autumn of 1938, Silas-Mason hired Claire D. Schlemmer, a former mining engineer originally from Richmond, Virginia, as their testing project manager.⁷⁴ At that time, Schlemmer was working the Highland Mine in the Rock Creek Mining District near Baker, Oregon, and had developed a good reputation within the industry. In preparation for testing the ground along the Yankee Fork, and other prospect lands in Oregon, Nevada, Washington, and other areas of Idaho, Schlemmer hired several crews and established prospecting camps.⁷⁵ Crews used a hollow rotary drill within large iron caissons that sunk into the creek channel down to bedrock.⁷⁶ By mid-1939, good early results from the Yankee Fork testing prompted the company to organize a local subsidiary, the Snake River Mining Company, with Schlemmer as its manager, and to halt prospecting in the other locations. The company hired Ralph Whitten as a consultant, and began purchasing options on any available land on the Yankee Fork and Jordan Creek.⁷⁷ Schlemmer and his crews, living in a tent camp near Sunbeam, focused their testing up the Yankee Fork.⁷⁸

In late 1939, the company finalized the decision to request bids for a new dredge. Mail service to the camp was delivered to the “store” only three times a week, and the outgoing Saturday mail sat in Challis until Monday and did not get delivered to New York until Wednesday.⁷⁹ As such, discussions about equipment needed for the dredge continued for months by letters and telegrams between Schlemmer and H. Leslie Myer, Vice President of Silas-Mason. One of the concerns was whether to invest in diesel engines to power the dredge or use hydroelectric power. Myer posited that an existing hydroelectric plant on the Yankee Fork could be purchased for around \$6,000, which would be significantly less than diesel; he was inclined to go “the cheapest route.”⁸⁰ Schlemmer, however, believed diesel engines would be better. He wrote to Myer that utilizing the hydroelectric plant on the Yankee Fork would require a long ditch, equipment, and piping, and would cost about \$120,000, whereas a 500 HP Ingersoll-Rand diesel engine would cost \$32,000 installed and diesel fuel could be easily delivered by truck from Pocatello.⁸¹

⁷³ Spence, *A History of Gold Dredging in Idaho*, 132; Stephens, “Field Guides to the Quaternary Geology of Central Idaho: Part C,” 225.

⁷⁴ Claire D. Schlemmer to W. C. Calder, October 2, 1939, on file at YFGDA-LOYF; W. C. Calder to Claire D. Schlemmer, September 22, 1939, on file at YFGDA-LOYF; Claire D. Schlemmer to Snake River Mining Company, September 23, 1939, on file at YFGDA-LOYF; Henry T. Ireys to Claire D. Schlemmer, October 7, 1939, on file at YFGDA-LOYF.

⁷⁵ “Body of Rich Ore Struck at Highland Mine,” *Eastern Oregon News* (Baker, Oregon), October 29, 1937; Claire D. Schlemmer to V. H. Paquet, November 25, 1939, on file at YFGDA-LOYF; Claire D. Schlemmer to Agnes Schraft, November 20, 1939, on file at YFGDA-LOYF; Don Henderson to Claire D. Schlemmer, July 26, 1939, on file at YFGDA-LOYF.

⁷⁶ Spence, *A History of Gold Dredging in Idaho*, 132; Stephens, “Field Guides to the Quaternary Geology of Central Idaho: Part C,” 225.

⁷⁷ Secretary of State’s Office, Snake River Mining Company, Inc., Articles of Incorporation, State of Idaho, accessed September 14, 2020, <https://sosbiz.idaho.gov/search/business/>; Spence, *A History of Gold Dredging in Idaho*, 132; Stephens, “Field Guides to the Quaternary Geology of Central Idaho: Part C,” 225.

⁷⁸ Schlemmer to Paquet, November 25, 1939.

⁷⁹ Claire D. Schlemmer to Mr. Myer, October 18, 1939, on file at YFGDA-LOYF.

⁸⁰ H. L. Myer to Claire D. Schlemmer, October 9, 1939, on file at YFGDA-LOYF.

⁸¹ Claire D. Schlemmer to Snake River Mining Company, October 13, 1939, on file at YFGDA-LOYF.

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On October 11, 1939, Schlemmer requested bids from the Bucyrus-Erie Company of South Milwaukee, Wisconsin; from the Yuba Manufacturing Company of San Francisco; and from the Washington Iron Works, in Seattle. In his requests, Schlemmer informed the companies that the dredge would be for placer mining on an 8-mile-long property that was between 200' and 1,000' wide. He explained that bedrock was at about 30' and that current testing was being performed by Keystone drill and two shaft crews. He said the rocks in the river were numerous and many weighed up to five tons. From each company, Schlemmer requested a representative come to the site for an assessment of the Yankee Fork prior to putting together a bid.⁸² Both the Washington Iron Works and Bucyrus-Erie representatives promised to do so.⁸³ In their reply, the Washington Iron Works told Schlemmer that they had built a dredge for a company in Alaska that had to deal with "rocks like this" and their dredge could handle them. The Iron Works representative was scheduled to arrive in Sunbeam on November 12, 1939, to look over the area.⁸⁴

Testing of the Yankee Fork placers continued while Schlemmer and Whitten began negotiations with claim owners for lease options. While his land was undergoing testing, one such claim owner, C. S. Hager, Sr., argued that his 8,000-foot-long property was more valuable than the price offered by the company. A strong negotiator, Schlemmer informed Silas-Mason that he would go to Hager's home in Challis and "talk to him."⁸⁵ Schlemmer's visit was successful and the Snake River Mining Company purchased a lease option on Hager's claim.⁸⁶

By October 1939, testing results in the Yankee Fork prospecting holes began to show promise. Tests holes showed some highly variable values, from \$0.107 per yard to \$0.37 per yard, and bedrock depths ranged from 15' to 23'. Myer informed Schlemmer they wanted him to complete testing on the lower end of the property and send him the results before the company committed to ordering a dredge.⁸⁷ The following month, Myer and Arnold Hanger, the President and owner of Silas-Mason, arrived in Sunbeam to see firsthand the ground in the Yankee Fork.⁸⁸

Among Schlemmer's responsibilities with the Snake River Mining Company were government relations and dredge camp infrastructure. In November 1939, Schlemmer, with Whitten, met with then-Governor Clarence A. Bottolfsen in Boise to discuss state taxes the company would

⁸² Claire D. Schlemmer to Bucyrus-Erie Company, October 11, 1939, on file at YFGDA-LOYF; Claire D. Schlemmer to Mr. Myer, October 17, 1939, on file at YFGDA-LOYF; Packard, *Gold Dredge on the Yankee Fork*, 5; Spence, *A History of Gold Dredging in Idaho*, 132-33; Stephens, "Field Guides to the Quaternary Geology of Central Idaho: Part C," 225.

⁸³ Schlemmer to Myer, October 17, 1939, on file at YFGDA-LOYF.

⁸⁴ Claire D. Schlemmer to Mr. Myer, October 2, 1939, on file at YFGDA-LOYF; Francis G. Frink to Claire D. Schlemmer, November 10, 1939, on file at YFGDA-LOYF; Roy Edwards to Claire D. Schlemmer, November 24, 1939, on file at YFGDA-LOYF.

⁸⁵ Claire D. Schlemmer to Snake River Mining Company, October 12, 1939, on file at YFGDA-LOYF; Claire D. Schlemmer to Snake River Mining Company, October 9, 1939, on file at YFGDA-LOYF.

⁸⁶ Claire D. Schlemmer to Snake River Mining Company, November 13, 1939, on file at YFGDA-LOYF

⁸⁷ Claire D. Schlemmer to Snake River Mining Company, November 4, 1939, on file at YFGDA-LOYF; Claire D. Schlemmer to Snake River Mining Company, November 18, 1939, on file at YFGDA-LOYF; H. L. Myer, telegram to C. D. Schlemmer, October 20, 1939, on file at YFGDA-LOYF; H. L. Myer to Claire D. Schlemmer, October 24, 1939, on file at YFGDA-LOYF.

⁸⁸ H. L. Myer to Claire D. Schlemmer, November 3, 1939, on file at YFGDA-LOYF.

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have to pay on its gold earnings. The governor promised to have a committee work on reductions and adjustments for the company or, as Schlemmer stated, "it was liable to chase us away."⁸⁹ Schlemmer also met with E. E. McKee, Forest Supervisor, for the Challis National Forest. The company wanted to be permitted to alter the roads and bridges along the Yankee Fork. McKee promised that the forestry department would cooperate, as they "wanted the country developed."⁹⁰ McKee had the Forest crews install a telephone line from the U.S. Forest Service (USFS) line to the Yankee Fork camp, so Schlemmer would be able to receive calls and wires via Challis. The line was available for winter use only, and cost \$1.00 per month.⁹¹

By November 1939, the Snake River Mining Company informed the dredge manufacturers of their decision to use diesel power on the dredge. In a letter to the Yuba Manufacturing Co., Myer again requested a bid, specifying an 8-cubic-foot dredge that would use diesel power, and stating that the ground "is exceptionally tight and more horse power would handle it all right."⁹² The Yuba bid was never received.⁹³

Bucyrus-Erie Dredge No. 338, Serial No. 16639

The Bucyrus-Erie Company provided four different bid options for dredges. The Snake River Mining Company officers chose a heavy 8-cubic-foot bucket-line dredge, powered by two Ingersoll-Rand diesel electric engines, for a proposed cost of \$309,968, with delivery and on-site construction adding an additional \$45,260.⁹⁴ On January 19, 1940, working with Bucyrus-Erie to their specifications, the Snake River Mining Company accepted a bid from the Olson Manufacturing Company of Boise for pontoons, the steel superstructure, screen supports, main hopper, the Save All, sluices to jigs and tables, roof sheeting, galvanized sheeting, tailing sluices, angle iron riffles, crane runway and trolley beams, platforms, stairway and rails, gangway bridge, and various extras. Delivery was expected by June 1, 1940.⁹⁵

While waiting on delivery of the dredge components, Schlemmer's crew constructed the dredge camp. The camp included a company office, log houses for married dredge workers and their families, a bunkhouse for single men, a cookhouse, a schoolhouse, a maintenance shop located south across Ramey Creek, and the retort shack.⁹⁶ By early May, Schlemmer wrote Myer, "The

⁸⁹ Claire D. Schlemmer to Snake River Mining Company, November 14, 1939, on file at YFGDA-LOYF.

⁹⁰ Claire D. Schlemmer to Snake River Mining Company, November 23, 1939, on file at YFGDA-LOYF.

⁹¹ E. E. McKee to Claire D. Schlemmer, October 11, 1939, on file at YFGDA-LOYF.

⁹² H. L. Myer to Charles M. Romanowitz, Yuba Manufacturing Company, November 24, 1939, on file at YFGDA-LOYF.

⁹³ Spence, *A History of Gold Dredging in Idaho*, 132.

⁹⁴ Packard, *Gold Dredge on the Yankee Fork*, 5; Spence, *A History of Gold Dredging in Idaho*, 133.

⁹⁵ P. G. Olson, Quotation to Snake River Mining Company, New York, NY, January 19, 1940, on file at YFGDA-LOYF.

⁹⁶ The retort shack was the small building at dredge camp used to process the mercury-gold-silver amalgam from the dredge. After removing the amalgam from the bottom of the jig below the dredge's sluices, the gold man collected it in 5-gallon buckets and brought it to the retort shack. The shack contained a retort furnace that was used to heat the amalgam in a crucible to around 700 degrees Fahrenheit, which released the mercury as a vapor. The mercury vapor was captured by a condenser, which condensed it back into a liquid so it could be used again and again on the dredge's sluice plates. Then the retort furnace was heated to 1,800 degrees to melt the gold and silver, which the

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shop and office will be completed to-morrow [sic] ...four houses are started.”⁹⁷ The camp cost over \$16,000 to build and outfit.⁹⁸

About four months after placing their order, the Snake River Mining Company began to receive parts of the dredge. The dredge’s pontoons and heavy steel components made by Olson Manufacturing were shipped to the Yankee Fork by truck; it took over 60 loads to deliver the massive shipment.⁹⁹ Bucyrus-Erie shipped the dredge parts from their manufacturing plant in South Milwaukee, Wisconsin, by railroad to Macay, Idaho; from there, they were offloaded onto special, heavy-duty Lindburg Truck Line trucks and driven to the Yankee Fork.¹⁰⁰ Beginning in May 1940, after delivery of all the components, 43 men worked to construct the dredge under the direction of Schlemmer and William Dingwall, the erecting engineer from Bucyrus-Erie.¹⁰¹ By August, as the dredge neared completion, Schlemmer released Dingwall from service.¹⁰²

Once completed, the Yankee Fork Dredge was an innovative, state-of-the-art, heavy duty placer gold dredge that weighed over 988 tons and measured 112.5’ long by 54’ wide. The dredge’s two Ingersoll-Rand diesel electric engines produced 347 HP at elevation and powered the bucket line, consuming over 1,200 gallons of diesel every week. In the pontoons, 18,000 gallons of diesel were stored in tanks, and a special pump mechanism propelled the diesel up through pipes into smaller tanks mounted in the upper levels of the dredge. General Electric Company electric motors controlled the ladder hoist, upper tumbler drive, trommel, stacker, and other machinery in the dredge.¹⁰³ Originally designed with 72 buckets on the bucket line, the dredgemaster had the crew remove one bucket to tighten up the slack, which made the dredge run more efficiently.¹⁰⁴ Each bucket weighed over a ton and was attached to the chain with 5-inch-thick pins. The bucket ladder was kept lubricated by one of the first automatic high-pressure lubrication systems in America, while oilers on each shift used a bucket filled with grease, a mop, and a grease gun to keep other machinery and parts lubricated.¹⁰⁵ Another design innovation was the installation of hydraulic pumps for controlling the electric motor winches that moved line/cable/wire throughout the dredge.¹⁰⁶

The dredge was designed to run 24 hours a day, year-round, with a crew of three men and three shifts per day. The dredgemaster was in charge of the dredging operation, the crew, and made all important decisions, such as the dredge’s route and how to make repairs. When not on shift, the dredgemaster remained on call. Also on each shift was a winchman, who controlled the dredge

gold man then poured into bar molds. He stamped the bars with a Snake River Mining Company and Federal stamps and shipped them by U.S. Mail to the U.S. Mint in Denver. YFGDA-LOYF; Reed interview.

⁹⁷ Claire D. Schlemmer to Mr. Myer, May 9, 1940, on file at YFGDA-LOYF

⁹⁸ Reed interview.

⁹⁹ Packard, *Gold Dredge on the Yankee Fork*, 8.

¹⁰⁰ Packard, *Gold Dredge on the Yankee Fork*, 5–7.

¹⁰¹ F. P. Christman to Claire D. Schlemmer, May 10, 1940, on file at YFGDA-LOYF.

¹⁰² Claire D. Schlemmer to Bucyrus-Erie Company, October 23, 1940, on file at YFGDA-LOYF.

¹⁰³ Packard, *Gold Dredge on the Yankee Fork*, 11–20; Spence, *A History of Gold Dredging in Idaho*, 133–34.

¹⁰⁴ Reed interview.

¹⁰⁵ Reed interview; Spence, *A History of Gold Dredging in Idaho*, 134.

¹⁰⁶ Reed interview; Spence, *A History of Gold Dredging in Idaho*, 134.

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and two oilers.¹⁰⁷ A so-called cat skinner worked the day shift where, using a bulldozer, he cleared trees and sagebrush and set the onshore anchors, also known as “dead men” anchors.¹⁰⁸ A gold man adjusted the sluice boxes, checked the sluice riffles and the Save All riffles for gold, and, if the color was good, would have the dredge shut down for a clean out.¹⁰⁹ This occurred about every two weeks, when between 1,500 and 2,100 troy ounces of gold would be recovered at each clean out.¹¹⁰

The dredge had large steam boilers, which piped steam around the dredge, including to the covered stacker. The hot steam prevented the stacker’s conveyor belt and rollers from freezing.¹¹¹

During the dredge’s first runs, changes were made to the settings on the gold tables, the original riffles were replaced with Hungarian riffles, and a mercury coating was added to the copper traps. These changes increased the amount of gold captured during operation.¹¹²

The rocky Yankee Fork continued to vex the dredge. Large boulders pulled up by the bucket line damaged equipment and machinery. The Snake River Mining Company accused Bucyrus-Erie of designing a defective dredge, while Bucyrus-Erie blamed Snake River for not buying the recommended but expensive rock-removing equipment for the dredge.¹¹³ Additionally, corrosive diesel fuel delivered from Yale Oil Corporation in Billings, Montana, corroded the big engines despite the use of recommended additives. This issue caused many problems for the Snake River Mining Company, who broke their contract with Yale and filed a lawsuit.¹¹⁴

The dredge operated from August 1940 to October 1942, at which time the War Production Board shut down operations due to World War II. Lobbying in 1941 by Whitten and Idaho’s then-governor, Chase Clark, gained the company some time to take possession of dredge replacement parts and resume dredging, but the resumption did not last long. The dredge was shut down on October 15, 1942, due to the nonessential status of gold mining for the war effort.¹¹⁵

In the spring of 1946, operations resumed and continued for about a year, until values decreased just north of West Fork Creek. As well, working farther upstream meant higher costs for labor,

¹⁰⁷ Reed interview; Packard, *Gold Dredge on the Yankee Fork*, 21–25.

¹⁰⁸ Reed interview; Packard, *Gold Dredge on the Yankee Fork*, 25.

¹⁰⁹ Reed interview; Packard, *Gold Dredge on the Yankee Fork*, 25.

¹¹⁰ A troy ounce is a unit of measurement used to weigh gold and other precious metals. One ounce is equal to 0.9115 troy ounces. Reed interview; Wikipedia, “Troy weight,” accessed September 14, 2020, https://en.wikipedia.org/wiki/Troy_weight.

¹¹¹ Reed interview.

¹¹² Reed interview; Packard, *Gold Dredge on the Yankee Fork*, 11–20; Spence, *A History of Gold Dredging in Idaho*, 133–34.

¹¹³ Spence, *A History of Gold Dredging in Idaho*, 134–35.

¹¹⁴ Spence, *A History of Gold Dredging in Idaho*, 135.

¹¹⁵ Spence, *A History of Gold Dredging in Idaho*, 135; Stephens, “Field Guides to the Quaternary Geology of Central Idaho: Part C,” 225.

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fuel, and parts. By mid-1947, the company decided to park the dredge and sell it.¹¹⁶ J. R. Simplot and his partner, Fred Baumhoff, purchased the dredge and ran it between April 1950 and June 1953, mining the rich placers just south of Bonanza north to Jordan Creek, which was the northern edge of the claim. For a short time, the dredge worked the neighboring Jordan Creek, but was turned back in August of 1952 at a narrowing of the creek valley.

The last time the dredge was operated was in June 1953, when it was discovered to be sitting on the neighboring claim. The dredge was started up, turned around, and dug itself into a small pond on Simplot property, where it continues to sit today.¹¹⁷ The Snake River Mining Company filed for dissolution on July 31, 1953.¹¹⁸ In 1967, Simplot donated the dredge and 1 acre of land surrounding it to the USFS, who continues to retain ownership.¹¹⁹

Conclusion

The Yankee Fork Gold Dredge is significant to Idaho's gold mining heritage. Constructed in 1940 for the Snake River Mining Company, a subsidiary of Silas-Mason Company, the structure operated from 1940–1953. The dredge dug its way through the Yankee Fork drainage, moving millions of yards of material, casting out boulders, sand, rock, and water, and capturing over \$1.0 million worth of gold. Following the period of operation, for 14 years, the dredge languished in its surrounding pool, attacked by vandals and subject to damaging weather. In 1967, J. R. Simplot, the owner of the dredge at the time, donated it and the surrounding one acre of land and pond to the USFS, Challis National Forest. The USFS repaired broken windows, added screening, gates, and other protective measures. The Yankee Fork Gold Dredge Association, a non-profit organization, was formed in 1979 by former dredge workers and their families following a reunion at the dredge that resulted in an outpouring of support by visitors. The Association, whose purpose is to assist the USFS to preserve the dredge, worked cooperatively with the USFS to clean up the dredge, repair vandalism to the structure and equipment, and have opened the dredge for public tours.

The Yankee Fork Gold Dredge engages and invites the community to explore a vestige of a time past, share a museum filled with interpretation of the growth of an industry, and to celebrate Idaho's rich mining history. Preservation of the resource keeps the story of mining in Idaho alive and accessible. It teaches visitors of the ingenuity of industry and evolution of technology in gold extraction under difficult environmental conditions.

Relationship to the National Register Criteria

¹¹⁶ Spence, *A History of Gold Dredging in Idaho*, 135; Stephens, "Field Guides to the Quaternary Geology of Central Idaho: Part C," 225.

¹¹⁷ Reed interview; Packard, *Gold Dredge on the Yankee Fork*, 30; Spence, *A History of Gold Dredging in Idaho*, 136.

¹¹⁸ Secretary of State's Office, Snake River Mining Company, Inc., Articles of Incorporation.

¹¹⁹ Packard, *Gold Dredge on the Yankee Fork*, 30–31; Spence, *A History of Gold Dredging in Idaho*, 136.

Yankee Fork Dredge
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The Yankee Fork Gold Dredge is eligible for listing in the NRHP under Criterion A, in the area of Industry, for contributions to the history of gold placer mining in Idaho. Per *Mining Idaho's History: Metal Mining in Idaho, 1860–1960*, “the remains of placer mining activity in Idaho may be eligible for listing under Criterion A if they are associated with an important source of placer gold.”¹²⁰ The Yankee Fork of the Salmon River was an important source of placer gold, with over \$2.0 million worth removed from the Yankee Fork drainage, and the Yankee Fork Gold Dredge producing over \$1.02 million of the total.¹²¹

The Yankee Fork Gold Dredge is also eligible for listing under Criterion C, for its engineering significance. According to *Mining Idaho's History: Metal Mining in Idaho, 1860–1960*, to be eligible under Criterion C, “the resource must be a representative or unusual example of an important placer mining technology or of building design and construction.”¹²² The Yankee Fork Gold Dredge is a rare surviving example of a heavy-duty bucket-line dredge, possibly the most intact bucket line placer dredge *in situ* in Idaho. The dredge embodies the distinctive characteristics of a type of dredge, specifically that of an 8-cubic-foot bucket-line placer gold dredge. This dredge was manufactured to handle the challenging mining in the Yankee Fork drainage, which included immense boulders. When it was built, a *Mining World* magazine wrote that the dredge was a 10-cubic-foot gold dredge carrying 8-cubic-foot buckets, digging in one of the toughest environments since dredging began in 1895.¹²³

¹²⁰ McKay, *Mining Idaho's History*, 102.

¹²¹ Spence, *A History of Gold Dredging in Idaho*, 137.

¹²² McKay, *Mining Idaho's History*, 103.

¹²³ “Dredging Yankee Fork: With Tools Designed for That Difficult Mining Problem,” 2–10.

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Previous documentation on file (NPS):

- preliminary determination of individual listing (36 CFR 67) has been requested
- previously listed in the National Register
- previously determined eligible by the National Register
- designated a National Historic Landmark
- recorded by Historic American Buildings Survey # _____
- recorded by Historic American Engineering Record # _____
- recorded by Historic American Landscape Survey # _____

Primary location of additional data:

- State Historic Preservation Office
- Other State agency
- Federal agency
- Local government
- University
- Other

Name of repository: Yankee Fork Gold Dredge Association Archives

Historic Resources Survey Number (if assigned): _____

10. Geographical Data

Acreage of Property 1.66 acres

Use either the UTM system or latitude/longitude coordinates

Latitude/Longitude Coordinates

Datum if other than WGS84: _____
(enter coordinates to 6 decimal places)

Yankee Fork Dredge
Name of Property

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- | | |
|-------------------------|------------------------|
| 1. Latitude: 44.377496° | Longitude: 114.722669° |
| 2. Latitude: | Longitude: |
| 3. Latitude: | Longitude: |
| 4. Latitude: | Longitude: |

Or

UTM References

Datum (indicated on USGS map):

NAD 1927 or NAD 1983

- | | | |
|----------|----------|-----------|
| 1. Zone: | Easting: | Northing: |
| 2. Zone: | Easting: | Northing: |
| 3. Zone: | Easting: | Northing: |
| 4. Zone: | Easting: | Northing: |

Verbal Boundary Description (Describe the boundaries of the property.)

The boundary of the subject property is the tax parcel (Custer County Parcel RP9912N15E1706) addressed as 300 Yankee Fork Road, Stanley, Idaho 83278. The parcel is bounded by Parcel RP9912N15E0848 on the north, by Parcel RP9912N15E1708 on the northern portion of its western boundary, and by Parcel RP9912N15E3210 on the balance of the western boundary, and the south and east boundaries.

Boundary Justification (Explain why the boundaries were selected.)

The boundary is the current 1.66-acre tax parcel, which encompasses the footprint of the historic structure and the pond in which it sits, and is the boundary of the parcel donated by J. R. Simplot to the USFS with the dredge.

11. Form Prepared By

name/title: Kathryn Burk-Hise, Architectural Historian
organization: Historical Research Associates, Inc.
street & number: 715 E Sprague Ave., Suite 200

Yankee Fork Dredge
Name of Property

Custer County, Idaho
County and State

city or town: Spokane state: WA zip code: 99202

e-mail: kburkhise@hrassoc.com

telephone: (509) 624-0441

date: January 20, 2021

Additional Documentation

Submit the following items with the completed form:

- **Maps:** A **USGS map** or equivalent (7.5 or 15 minute series) indicating the property's location.
- **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to this map.
- **Additional items:** (Check with the SHPO, TPO, or FPO for any additional items.)

Photographs

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels (minimum), 3000x2000 preferred, at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map. Each photograph must be numbered, and that number must correspond to the photograph number on the photo log. For simplicity, the name of the photographer, photo date, etc. may be listed once on the photograph log and doesn't need to be labeled on every photograph.

Photo Log

Name of Property: Yankee Fork Gold Dredge

City or Vicinity: Vicinity of Stanley

County: Custer

State: Idaho

Photographer: Kathryn Burk-Hise

Date Photographed: September 9, 2020

Description of Photograph(s) and number, include description of view indicating direction of camera:

Yankee Fork Dredge

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- 1 of 27. ID_CusterCounty_YankeeForkGoldDredge_0001. View northwest, bow and port elevations.
- 2 of 27. ID_CusterCounty_YankeeForkGoldDredge_0002. View north, bow elevation.
- 3 of 27. ID_CusterCounty_YankeeForkGoldDredge_0003. View southeast, starboard and partial stern elevations.
- 4 of 27. ID_CusterCounty_YankeeForkGoldDredge_0004. View southwest, stern and port elevations.
- 5 of 27. ID_CusterCounty_YankeeForkGoldDredge_0005. View northwest, detail of pontoon hull port side water intake.
- 6 of 27. ID_CusterCounty_YankeeForkGoldDredge_0006. View east, detail of bow gantry.
- 7 of 27. ID_CusterCounty_YankeeForkGoldDredge_0007. View north, detail of bucket line.
- 8 of 27. ID_CusterCounty_YankeeForkGoldDredge_0008. View east, detail of rock chute and starboard side deck.
- 9 of 27. ID_CusterCounty_YankeeForkGoldDredge_0009. View southwest, detail of port side tail sluice at the stern.
- 10 of 27. ID_CusterCounty_YankeeForkGoldDredge_0010. View southeast, detail of starboard side tail sluice and spud at the stern.
- 11 of 27. ID_CusterCounty_YankeeForkGoldDredge_0011. View south, detail of stern gantry.
- 12 of 27. ID_CusterCounty_YankeeForkGoldDredge_0012. View west, detail of stacker.
- 13 of 27. ID_CusterCounty_YankeeForkGoldDredge_0013. View west, steam boiler.
- 14 of 27. ID_CusterCounty_YankeeForkGoldDredge_0014. View north, winch room.
- 15 of 27. ID_CusterCounty_YankeeForkGoldDredge_0015. View southeast, motor control room.
- 16 of 27. ID_CusterCounty_YankeeForkGoldDredge_0016. View southeast, dredge operator's control room.
- 17 of 27. ID_CusterCounty_YankeeForkGoldDredge_0017. View northeast, dredge operator's control room.
- 18 of 27. ID_CusterCounty_YankeeForkGoldDredge_0018. View southeast, hopper and Farval lubricating system.
- 19 of 27. ID_CusterCounty_YankeeForkGoldDredge_0019. View southwest, bull gear.
- 20 of 27. ID_CusterCounty_YankeeForkGoldDredge_0020. View west, overhead crane.
- 21 of 27. ID_CusterCounty_YankeeForkGoldDredge_0021. View south, trommel.
- 22 of 27. ID_CusterCounty_YankeeForkGoldDredge_0022. View west, freshwater tank.
- 23 of 27. ID_CusterCounty_YankeeForkGoldDredge_0023. View north, detail of stacker with anti-roll back device.
- 24 of 27. ID_CusterCounty_YankeeForkGoldDredge_0024. View south, port side sluice boxes.
- 25 of 27. ID_CusterCounty_YankeeForkGoldDredge_0025. View east, clean up station.
- 26 of 27. ID_CusterCounty_YankeeForkGoldDredge_0026. View southwest, engine room with Billy Reed demonstrating on starboard Ingersoll-Rand diesel engine.

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27 of 27. ID_CusterCounty_YankeeForkGoldDredge_0027. View south, Save All.

Paperwork Reduction Act Statement: This information is being collected for nominations to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.). We may not conduct or sponsor and you are not required to respond to a collection of information unless it displays a currently valid OMB control number.

Estimated Burden Statement: Public reporting burden for each response using this form is estimated to be between the Tier 1 and Tier 4 levels with the estimate of the time for each tier as follows:

- Tier 1 – 60-100 hours
- Tier 2 – 120 hours
- Tier 3 – 230 hours
- Tier 4 – 280 hours

The above estimates include time for reviewing instructions, gathering and maintaining data, and preparing and transmitting nominations. Send comments regarding these estimates or any other aspect of the requirement(s) to the Service Information Collection Clearance Officer, National Park Service, 1201 Oakridge Drive Fort Collins, CO 80525.

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Yankee Fork Gold Dredge

Name of Property

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Name of multiple listing (if applicable)

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- Figure 5:** Delivery truck arriving at construction site on the Yankee Fork, carrying part of the bucket line ladder of the Yankee Fork Gold Dredge, 1940. Photo 2_5_2, courtesy of Yankee Fork Gold Dredge Archives, Land of the Yankee Fork State Park, Challis, Idaho. 6
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United States Department of the Interior
National Park Service

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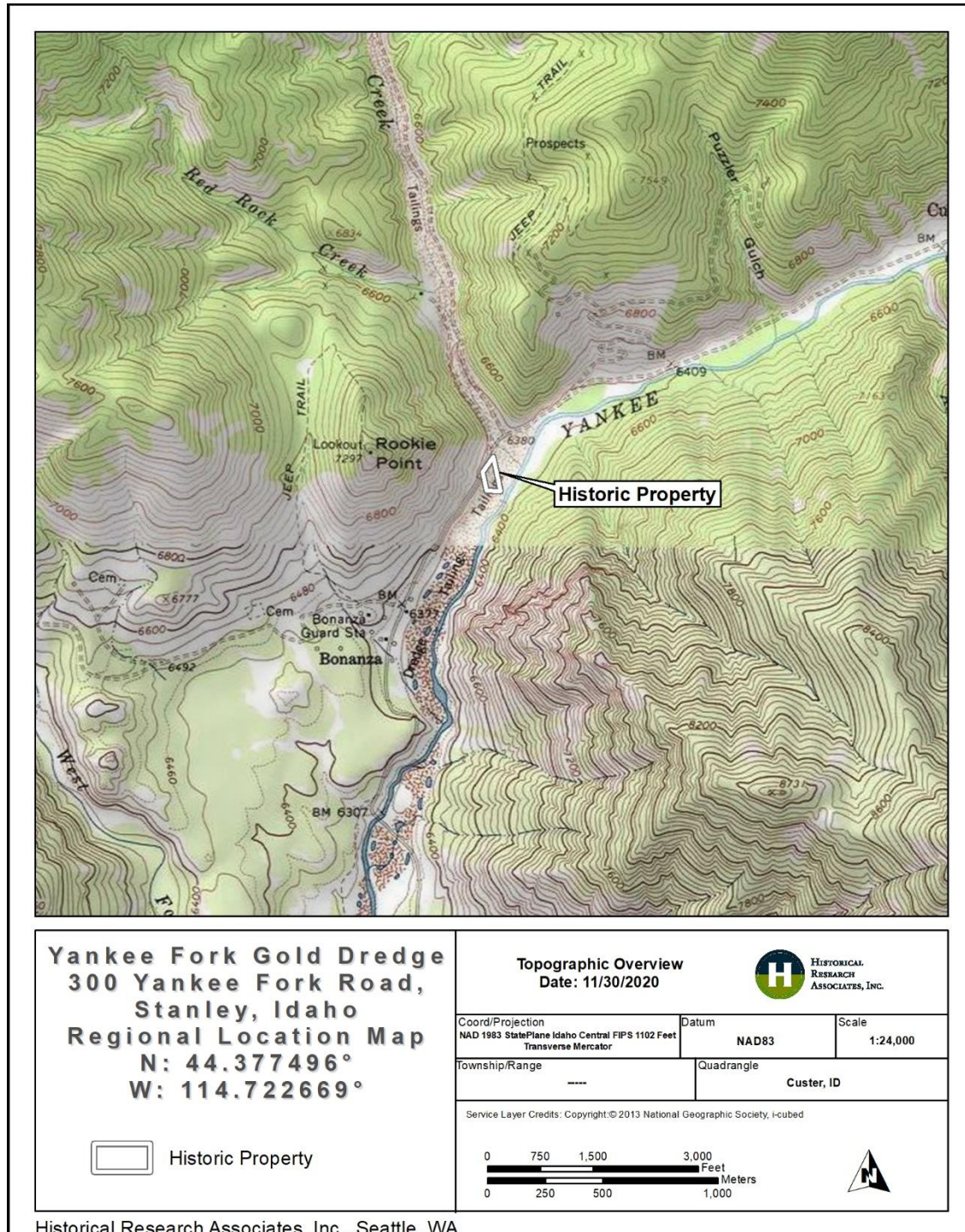
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Figure 1: Regional Location Map.



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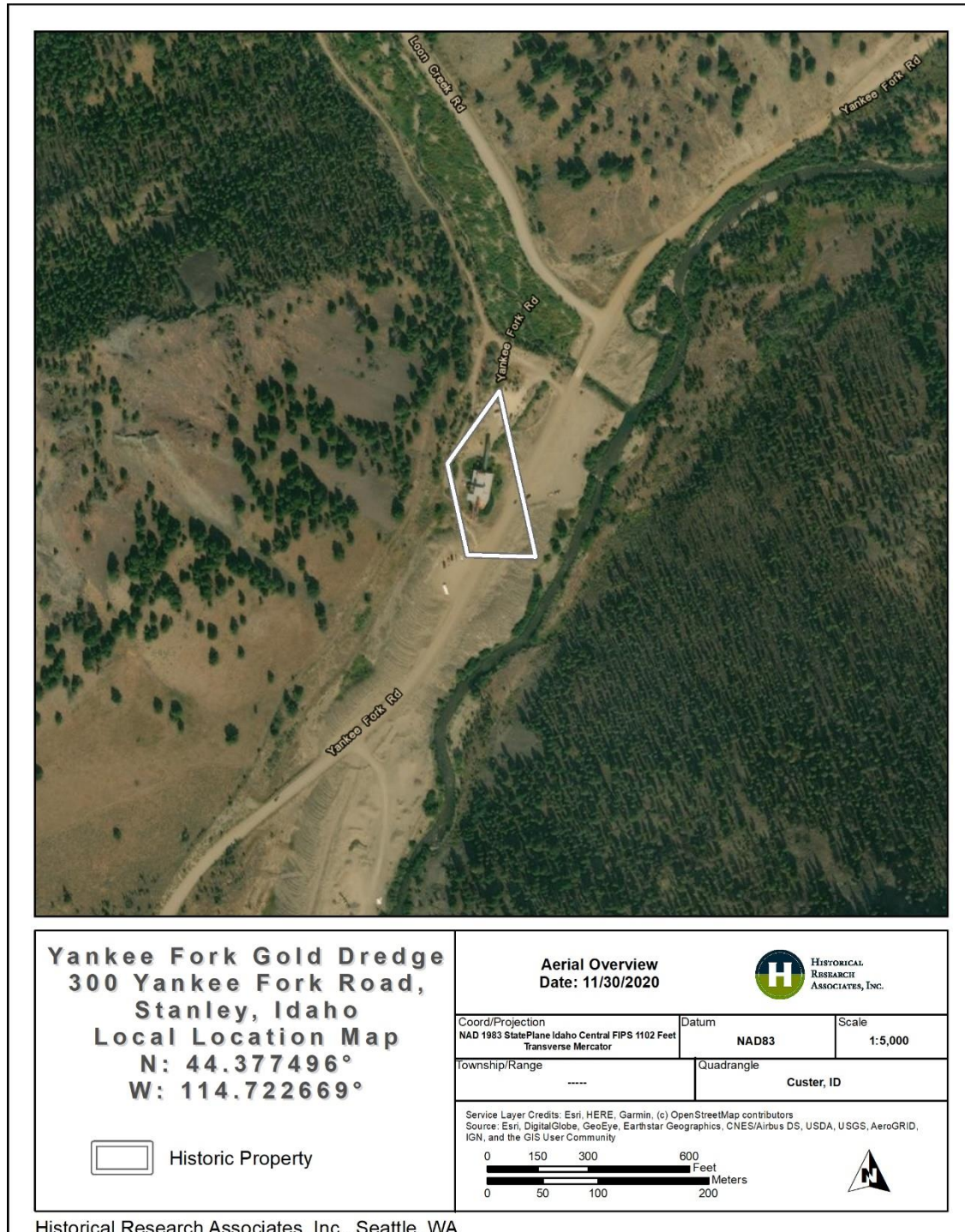
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Figure 2: Local Location Map.



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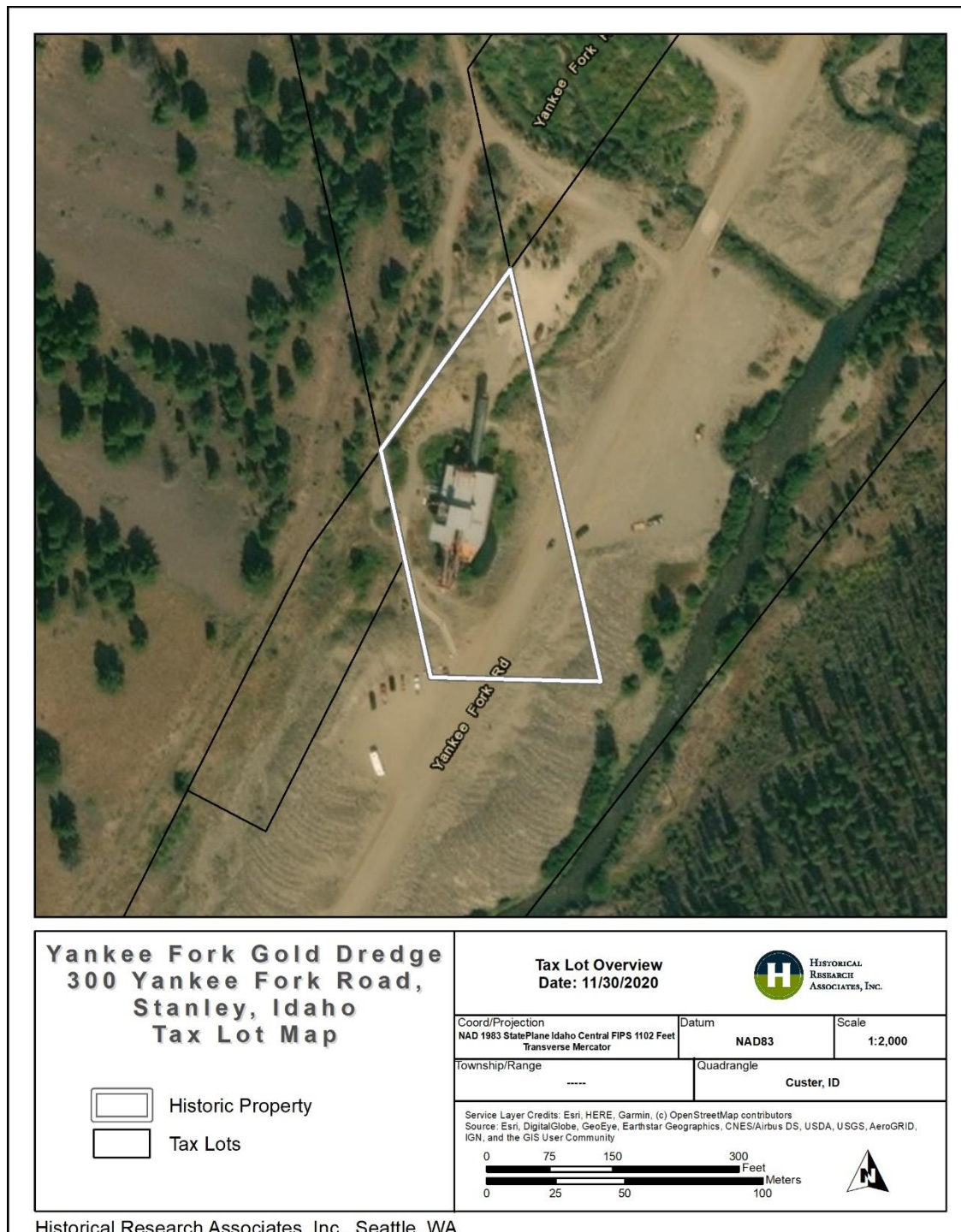
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Figure 3: Tax Lot Map.



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Figure 4: Delivery trucks leaving Olson Manufacturing Company, Boise, Idaho, carrying pontoons for hull of the Yankee Fork Gold Dredge, 1940. Photo 3_3_1, courtesy of Yankee Fork Gold Dredge Archives, Land of the Yankee Fork State Park, Challis, Idaho.



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Figure 5: Delivery truck arriving at construction site on the Yankee Fork, carrying part of the bucket line ladder of the Yankee Fork Gold Dredge, 1940. Photo 2_5_2, courtesy of Yankee Fork Gold Dredge Archives, Land of the Yankee Fork State Park, Challis, Idaho.



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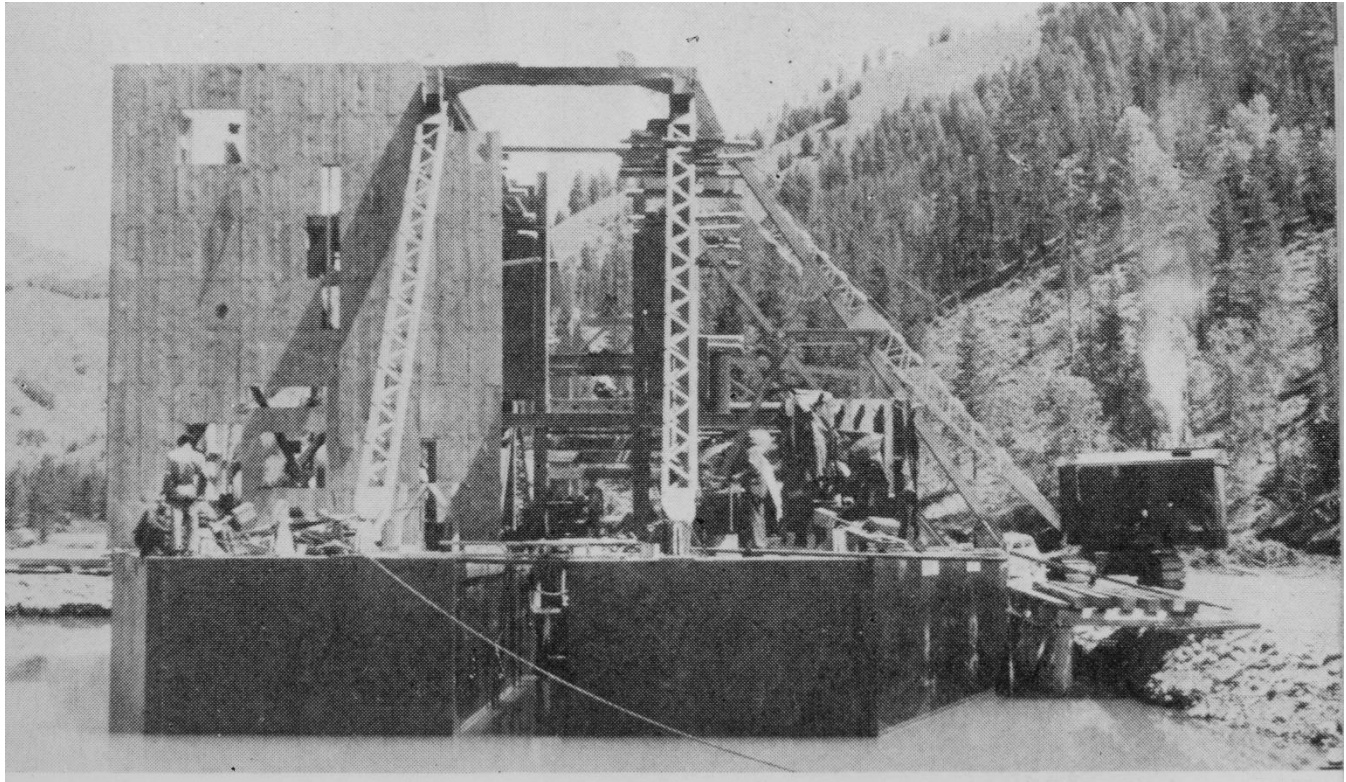
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Figure 6: Yankee Fork Gold Dredge under construction, bow, 1940. Note slot in hull at center of image, for bucket line ladder. Photo 5_6_1, courtesy of Yankee Fork Gold Dredge Archives, Land of the Yankee Fork State Park, Challis, Idaho.



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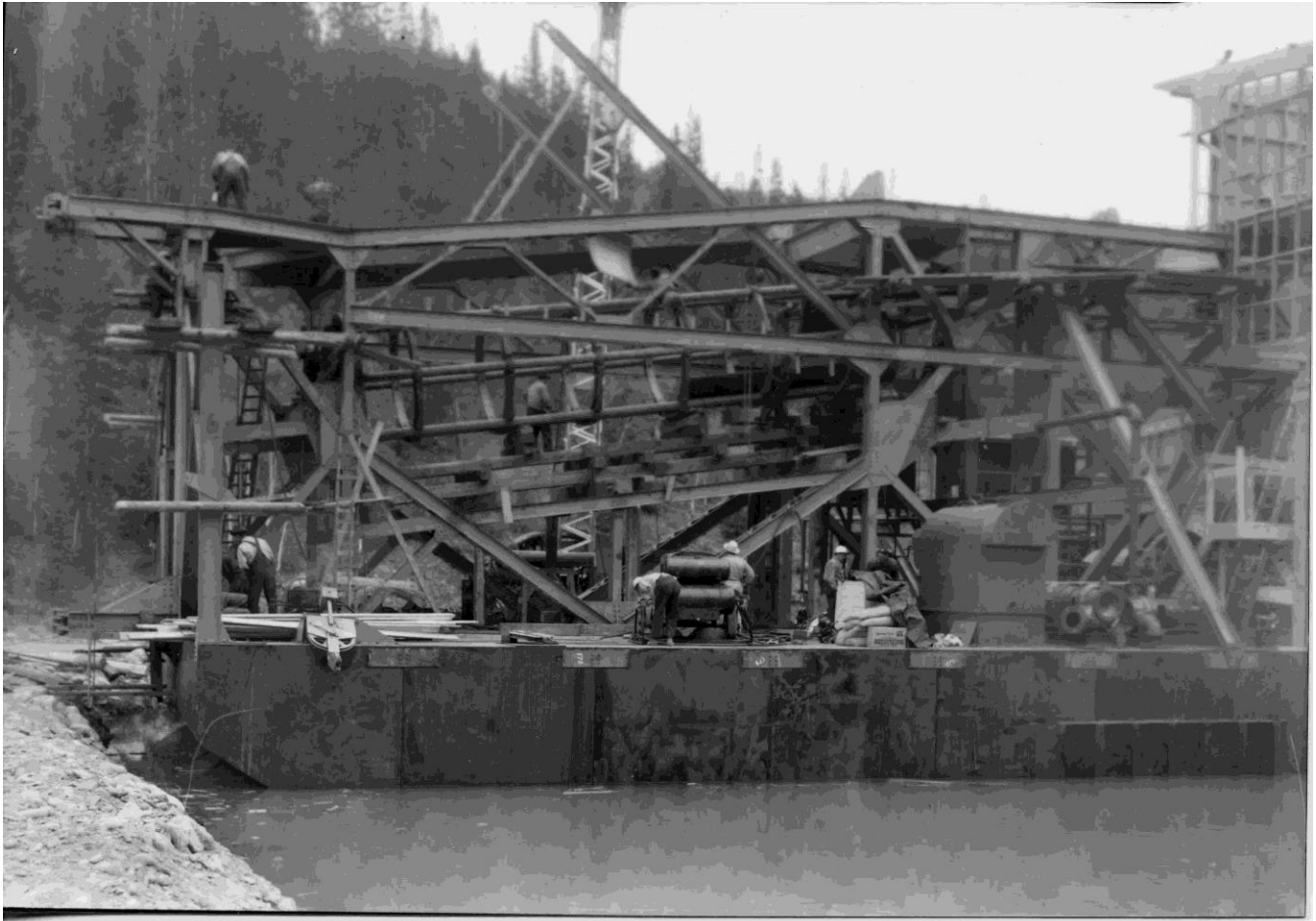
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Figure 7: Yankee Fork Gold Dredge under construction, starboard side, 1940. Note cylindrical framework for trommel at center of image. Photo File0005, courtesy of Yankee Fork Gold Dredge Archives, Land of the Yankee Fork State Park, Challis, Idaho.



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Figure 8: Spud delivery during construction of the Yankee Fork Gold Dredge, port and stern sides, 1940. Photo 2_4_1, courtesy of Yankee Fork Gold Dredge Archives, Land of the Yankee Fork State Park, Challis, Idaho.



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Figure 9: The Yankee Fork Gold Dredge, construction complete, bow, 1940. Photo 08523A, from the Bucyrus-Erie collection, courtesy of Yankee Fork Gold Dredge Archives, Land of the Yankee Fork State Park, Challis, Idaho.



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Figure 10: The Yankee Fork Gold Dredge, construction complete, bow and starboard sides, 1940. Photo 08523C, from the Bucyrus-Erie collection, courtesy of Yankee Fork Gold Dredge Archives, Land of the Yankee Fork State Park, Challis, Idaho.



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Figure 11: Bucyrus-Erie Dredge No. 16639, Section Drawing, from *Gold Dredge on the Yankee Fork* by Howard A. Packard, Jr., adapted by Burk-Hise.

