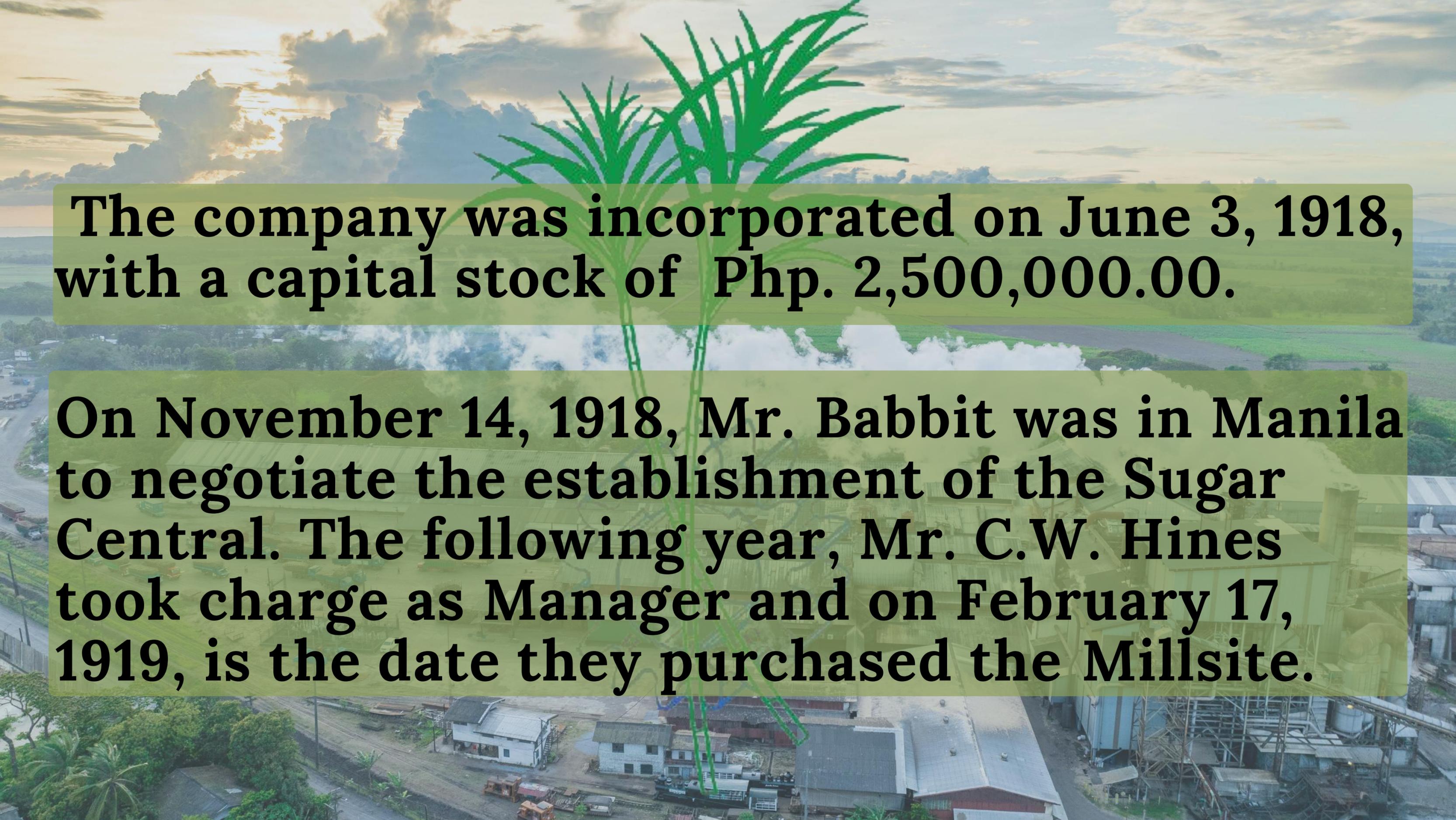


An aerial photograph of a sugar mill complex. The foreground shows several industrial buildings with grey roofs, a paved area with some equipment, and a road. In the middle ground, there are more buildings and a large area with what appears to be a conveyor system or processing area. The background consists of vast green agricultural fields, likely sugarcane, under a sky with scattered clouds and a bright sun. A large, stylized green plant with long, pointed leaves is superimposed over the center of the image, appearing to grow from the ground. A dark green rectangular box is overlaid on the lower half of the image, containing white text.

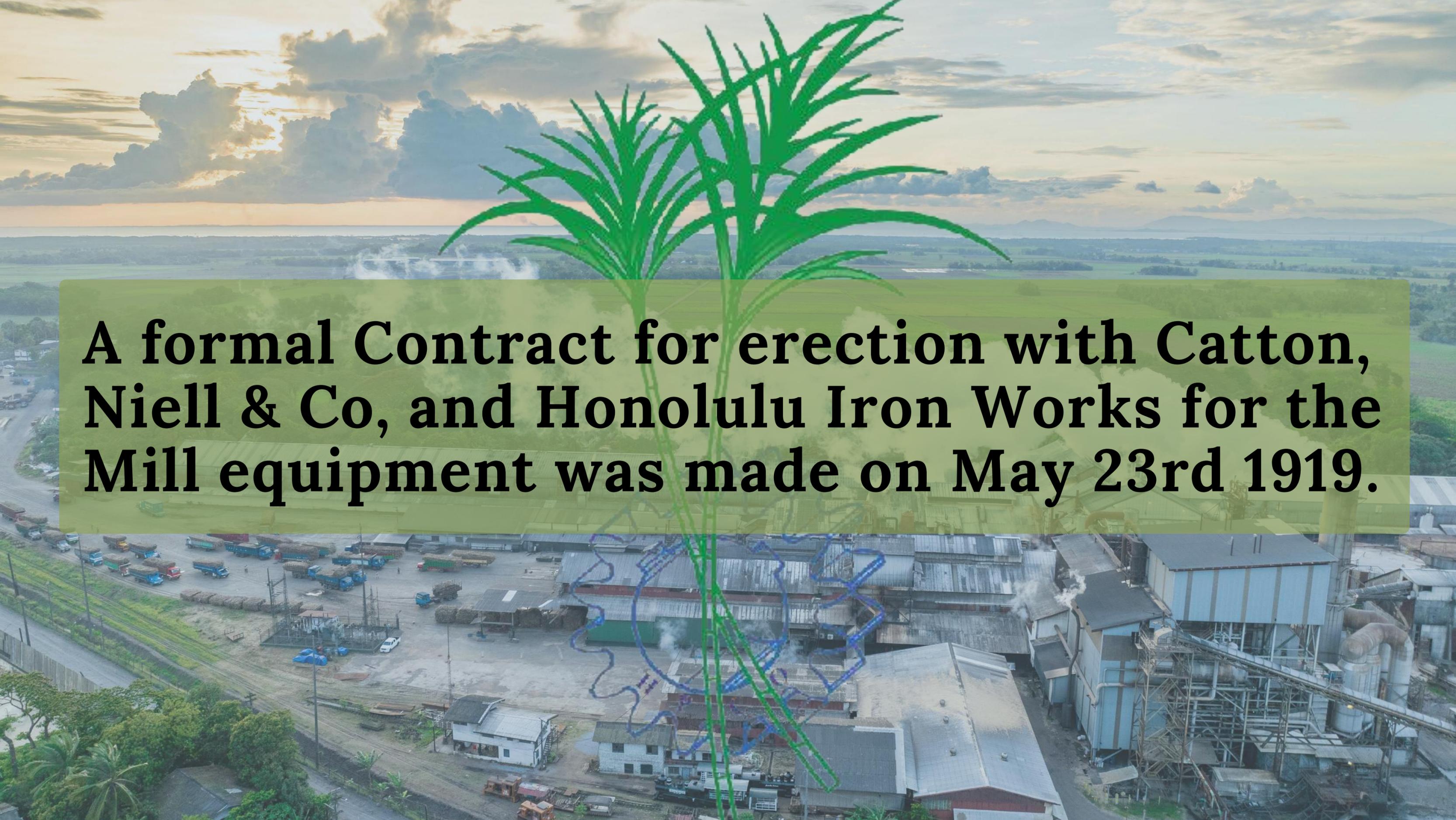
HPCO'S STEAM LOCOMOTIVES' HISTORY

Prepared By: Rodeo P. Suating

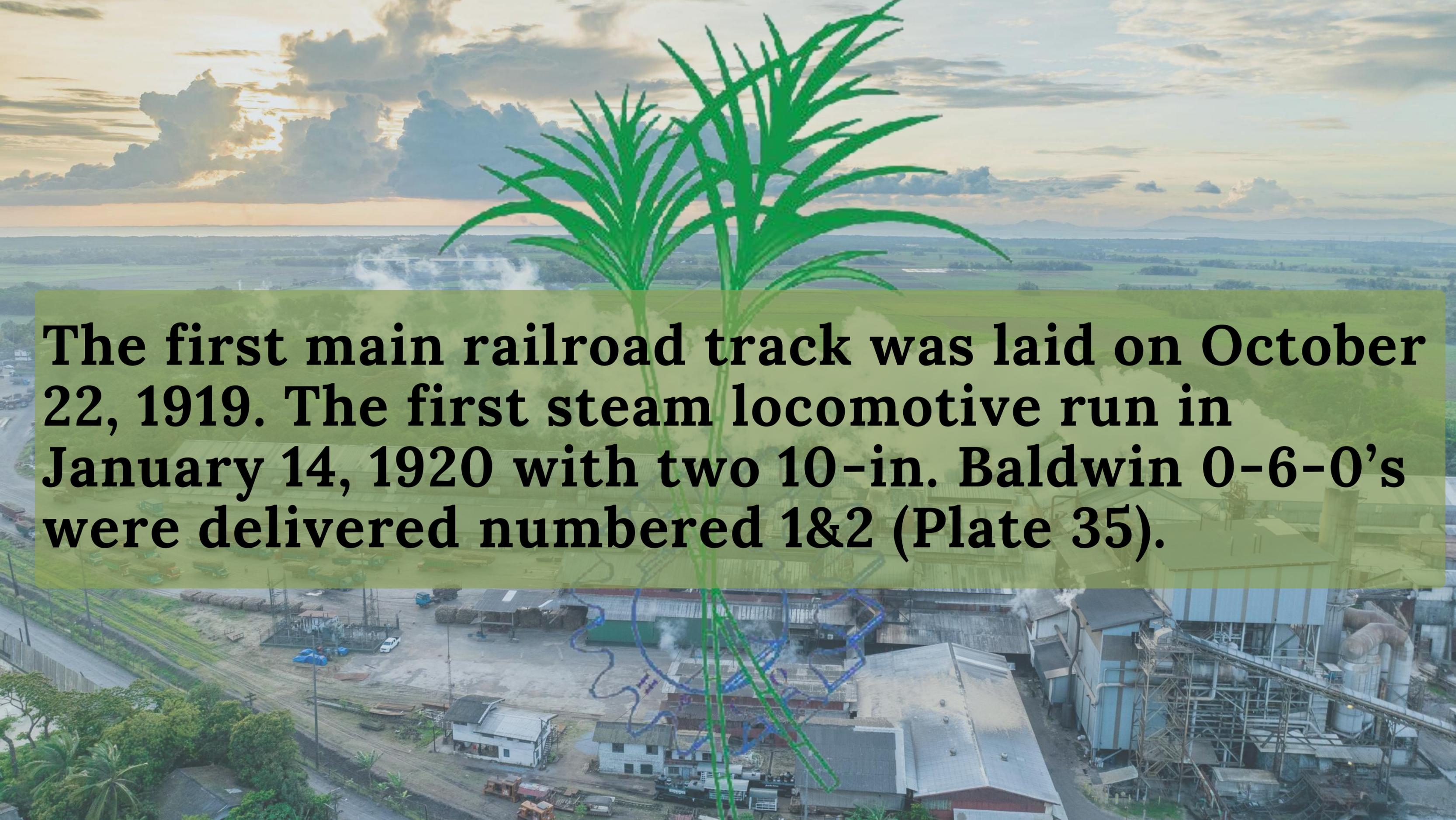
An aerial photograph of a sugar mill complex. In the foreground, a large, vibrant green sugarcane plant stands prominently. The background shows a sprawling industrial facility with various buildings, including a large white structure and several smaller ones, surrounded by green fields and a clear sky with scattered clouds. The sun is visible on the horizon, casting a warm glow over the scene.

The company was incorporated on June 3, 1918, with a capital stock of Php. 2,500,000.00.

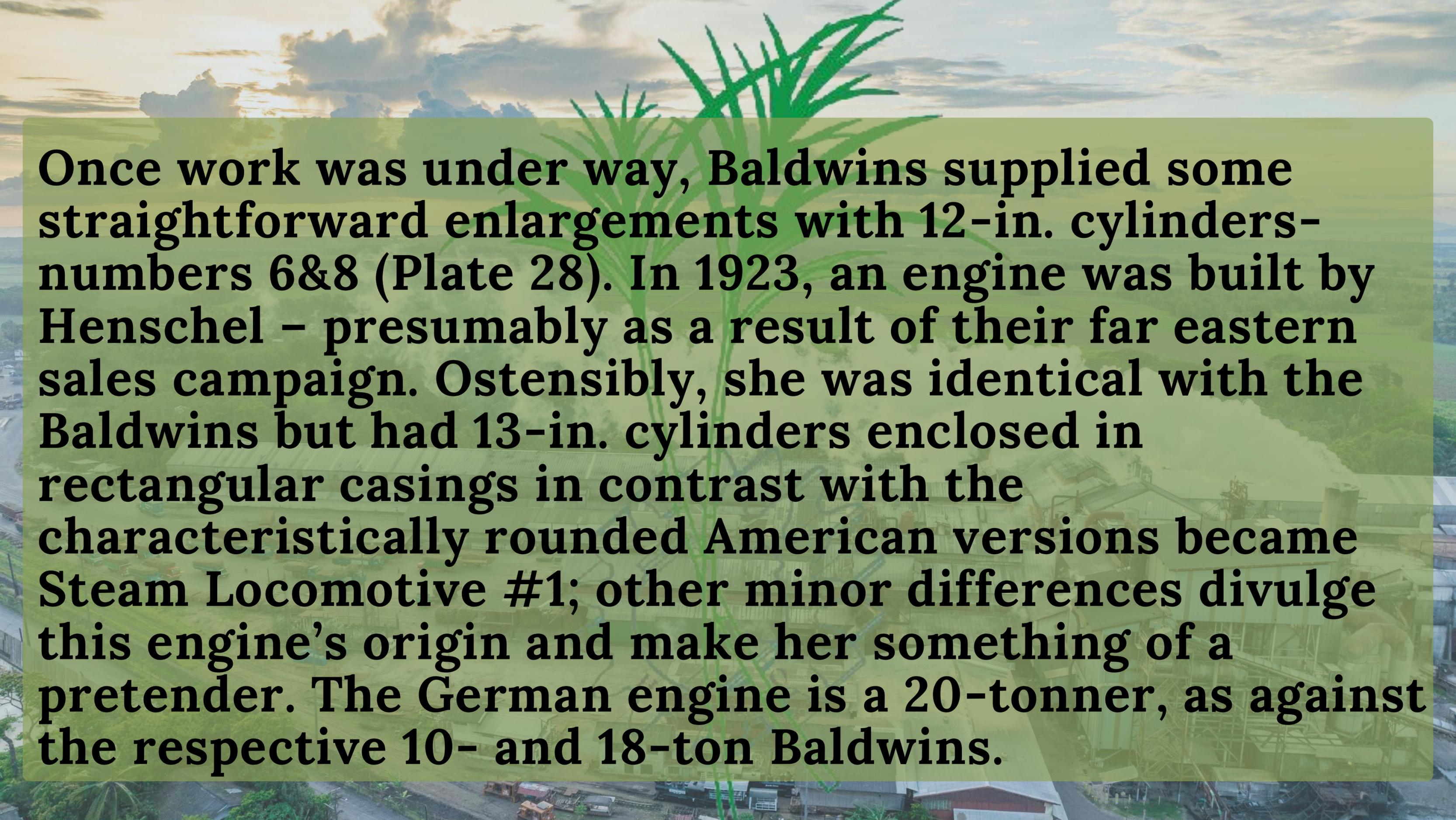
On November 14, 1918, Mr. Babbit was in Manila to negotiate the establishment of the Sugar Central. The following year, Mr. C.W. Hines took charge as Manager and on February 17, 1919, is the date they purchased the Millsite.

An aerial photograph of a large industrial facility, likely a sugar mill, featuring several large buildings with corrugated metal roofs, a complex network of pipes and scaffolding, and a parking area with numerous trucks. The scene is set against a backdrop of a sunset sky with scattered clouds and a distant horizon. A large, vibrant green plant with long, pointed leaves is superimposed over the center of the image. A semi-transparent green rectangular box is placed over the middle of the image, containing text. A blue gear-like graphic is also visible, partially overlapping the plant and the text box.

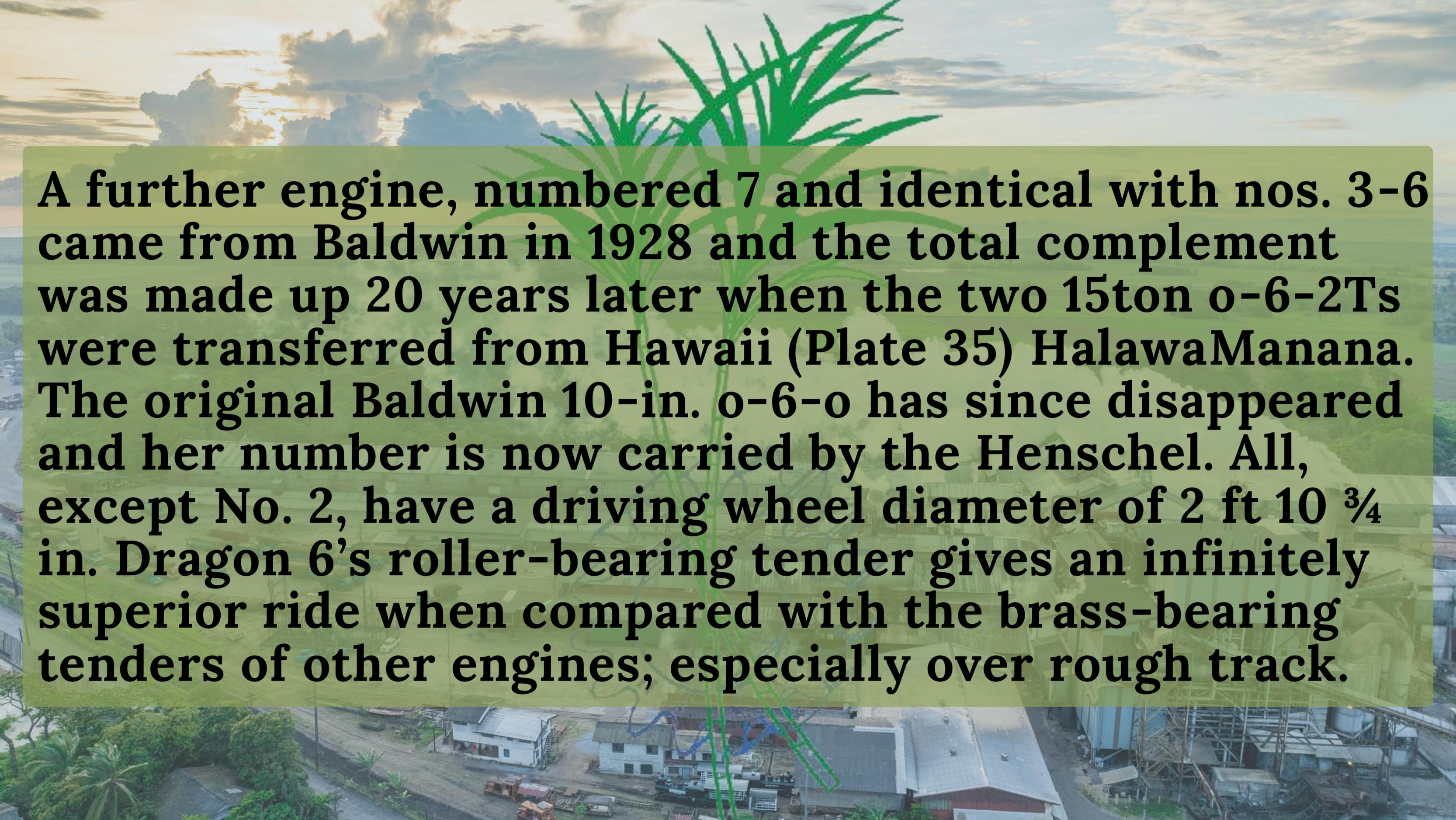
A formal Contract for erection with Catton, Niell & Co, and Honolulu Iron Works for the Mill equipment was made on May 23rd 1919.

The image is a composite. The top half shows a sunset over a landscape with a green plant overlay. The bottom half shows an industrial facility with a train track. A semi-transparent green box with white text is overlaid on the middle of the image.

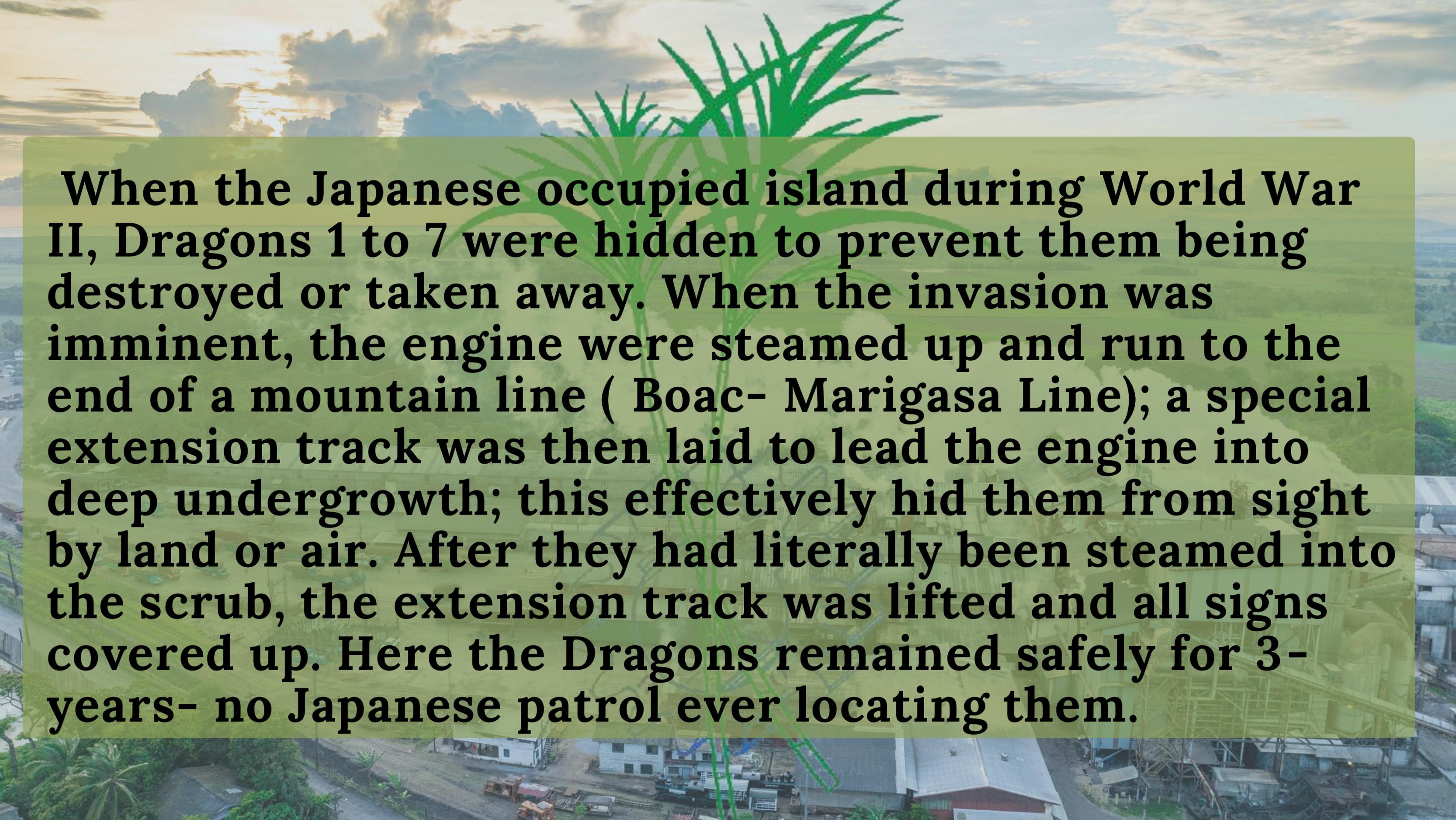
The first main railroad track was laid on October 22, 1919. The first steam locomotive run in January 14, 1920 with two 10-in. Baldwin 0-6-0's were delivered numbered 1&2 (Plate 35).



Once work was under way, Baldwins supplied some straightforward enlargements with 12-in. cylinders-numbers 6&8 (Plate 28). In 1923, an engine was built by Henschel – presumably as a result of their far eastern sales campaign. Ostensibly, she was identical with the Baldwins but had 13-in. cylinders enclosed in rectangular casings in contrast with the characteristically rounded American versions became Steam Locomotive #1; other minor differences divulge this engine's origin and make her something of a pretender. The German engine is a 20-tonner, as against the respective 10- and 18-ton Baldwins.

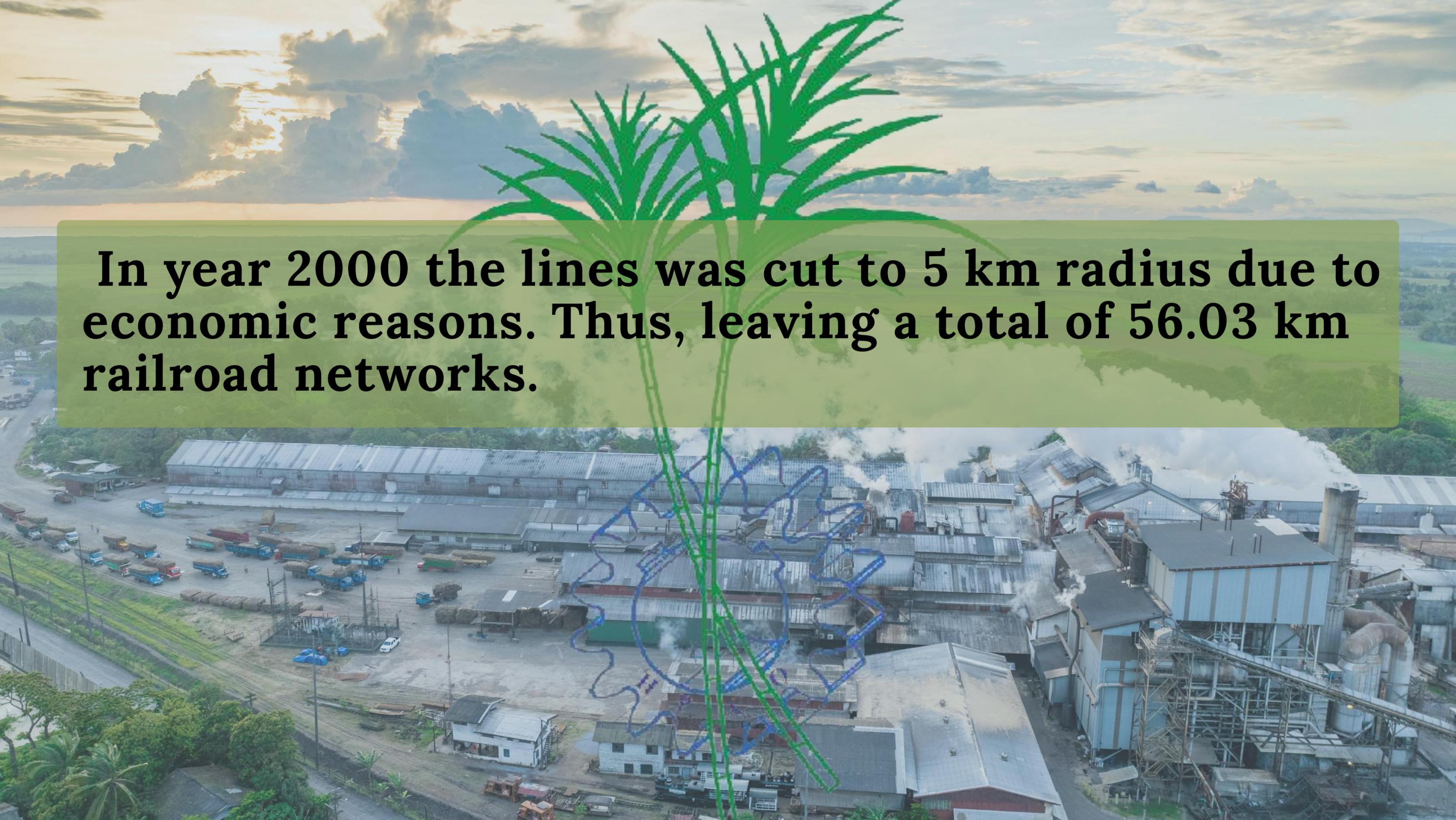


A further engine, numbered 7 and identical with nos. 3-6 came from Baldwin in 1928 and the total complement was made up 20 years later when the two 15ton 0-6-2Ts were transferred from Hawaii (Plate 35) HalawaManana. The original Baldwin 10-in. 0-6-0 has since disappeared and her number is now carried by the Henschel. All, except No. 2, have a driving wheel diameter of 2 ft 10 ³/₄ in. Dragon 6's roller-bearing tender gives an infinitely superior ride when compared with the brass-bearing tenders of other engines; especially over rough track.

The background of the image features a sunset with a bright sun partially obscured by clouds, casting a warm glow over a landscape. In the foreground, there are several palm trees and a building with a corrugated metal roof. The text is overlaid on a semi-transparent green rectangular area.

When the Japanese occupied island during World War II, Dragons 1 to 7 were hidden to prevent them being destroyed or taken away. When the invasion was imminent, the engine were steamed up and run to the end of a mountain line (Boac- Marigasa Line); a special extension track was then laid to lead the engine into deep undergrowth; this effectively hid them from sight by land or air. After they had literally been steamed into the scrub, the extension track was lifted and all signs covered up. Here the Dragons remained safely for 3- years- no Japanese patrol ever locating them.

The locomotives looked like a collection put together as a tourist attraction; like big painted toys with more than a hint of fairground engines about them. It was hard to believe that they were part of a large company operating stringent production and economic control. Referred to as “Dragons”, all engines were in radio contact with the control office, so enabling their movements throughout the plantation to be properly coordinated. Although milling had just begun, the Dragons were hard at work with three shifts daily; out of 8:00 a.m. returning 1 pm, leaving again at 3:00 p.m. until 7:00 p.m., departing again at 9:00 p.m. and coming back around 3:00 a.m., the following morning. Originally a total of 165 km railroad networks from the millsite up to the mountains.

An aerial photograph of a large industrial complex, possibly a sugar mill, featuring numerous buildings with corrugated metal roofs, a parking lot filled with trucks, and a railway line. A large green plant with long, pointed leaves is superimposed over the center of the image. A semi-transparent green rectangular box is positioned in the upper half, containing text. The sky is filled with dramatic, dark clouds, suggesting a sunset or sunrise.

In year 2000 the lines was cut to 5 km radius due to economic reasons. Thus, leaving a total of 56.03 km railroad networks.



L E G E N D	
①	LINE STATION NUMBER
- · - · - · -	RAILROAD LINE
—————	HIGHWAY LINE
- - - - -	BOUNDARY LINE

SILAY-SARAVIA RR COMPANY			
LINES	LENGTH(km)	LINES	LENGTH(km)
DOCK	10.74	NACAYAO	2.60
GUIMBALAON	3.10	E.B. MAGALONA	3.89
SILAY	8.56	ALICANTE	15.78
CONCEPCION	7.33	MILL SITE	4.03
TOTAL		56.03	

Seven different lines, namely: 1. Navacao; 2. Dock Upper & Lower; 3. Guimbala-on Line; 4. Silay-Concepcion; 5. Saravia (E.B. Magalona); 6. Alicante Line; 7. BOAC-Marigasa Lines) being worked, each locomotive with a different name “call sign”

No cane was loaded on Sundays- a day put aside for servicing and cleaning.



**Steam Locomotive #1.Henschel and Sonn
“Mr. HINES / A.B. COLAYCO”**

LOCOMOTIVE No.1

- Made by: HENSCHEL & SONN, Cassel, Germany
- Date: 1921
- Weight: 25 tons
- Wheel Arrangement: 0-6-0
- Locomotive Type: Freight & General Services
- Boiler Horse Power: 60 HP
- Operating Pressure: 150 lbs/sq.in.
- Fuel Used: Baled bagasse or firewood, convertible to bunker fuel oil fired
- Valve Motion Type: Walschaert
- Wheel Diameter: 34 inches \
- Wheel Track Gauge: 36 inches
- No. of Boiler Tubes: 158 pcs., 1-3/4" dia. B.I. Seamless





**Steam Locomotive #2
10" Ø Baldwin**



LOCOMOTIVE No.2

- **Locomotive Type: Six Wheel Switcher Type (Switching & General Services)**
- **Locomotive Weight: 15 tons**
- **Wheel Arrangement: 0-6-0**
- **Builder: Baldwin**
- **Date Built: 1918**
- **Boiler Horsepower: 25 HP**
- **Engine Horsepower: 180 HP**
- **Driving Wheel Ø: 28 inches**





**Steam Locomotive #3
12" Ø Baldwin**

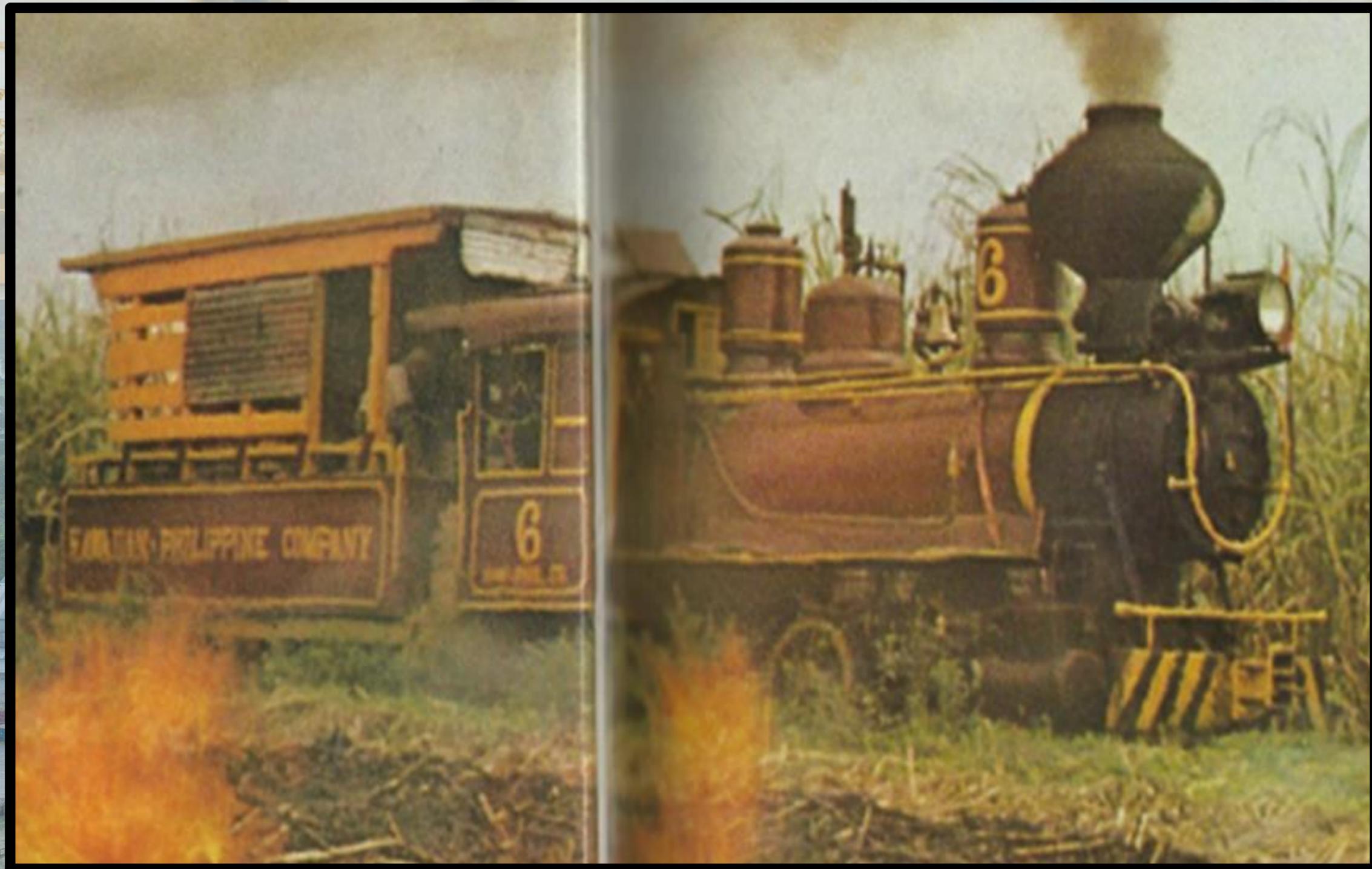


**Steam Locomotive #4
12" Ø Baldwin**



**Steam Locomotive #5
12" Ø Baldwin
"Mr. WOODS"**





**Steam Locomotive #6
12" Ø Baldwin**



**Steam Locomotive #7
12" Ø Baldwin**



LOCOMOTIVE Nos. 3,4,5,6,7

- Locomotive Type: Six Wheel Switcher Type (Switching & General Services)
- Locomotive Weight : 20 tons
- Wheel Arrangement : 0-6-0
- Builder : Baldwin Locomotive Works, Philadelphia, Pa, USA
- Date Built : 1918
- Boiler Horse Power : 40 HP
- Engine Horse Power : 300 HP
- No. of Boiler Tubes : 94 pcs., 1-3/4" dia. B.I. Seamless
- Operating Pressure : 150 psi
- Water Test Pressure Prior to Operation : 225 psi





LOCOMOTIVE Nos. 3,4,5,6,7

- Smokestack : Rushton Improved Stack, Radley & Hunter Type
- Eccentric & Straps : Stephenson Motion
- Valve Type : D-Slide valve (Balance type)
- Driving Wheel Diameter : 34 inches
- Thread Width : 4-1/2" on flange type & 6" flat
- Wheel Track Gauge : 36 inches





**Steam Locomotive #8
12" Ø Saddle Tank Baldwin(Halawa Manana)
"Mr. WEATHERALL"**



**Steam Locomotive #9
12" Ø Saddle Tank Baldwin
(HalawaManana)
"Mr. RICH"**





LOCOMOTIVE Nos. 8 & 9 (Saddle Tank Locomotive)
(Previously Named Halawa&Manana from Hawaii)

- Locomotive Type: Switching & Logging Service
- Locomotive Weight : 18 tons
- Wheel Arrangement : Previously 0-6-4, converted to 0-6-0
- Builder : Baldwin Locomotive Works, Philadelphia, Pa, USA
- Date : 1916
- Boiler Horse Power : 35 HP
- Engine Horse Power : 250 HP
- No. of Boiler Tubes : 66 pcs., 1-3/4" dia., B.I. Seamless
- Operating Pressure : 150 psi
- Water Test Pressure : 225 psi
- Other aspects are the same as in Locomotives 3, 4, 5, 6 & 7

IDEAL STEAM LOCOMOTIVE START-UP/SHUTDOWN PROCEDURES

Steam Up

These procedures have been developed to provide engineers/authorized person in operating steam locomotives. In general, following the steps will give satisfactory results during operation.

STEAM LOCOMOTIVE START-UP CHECKLIST:

ITEM	ACTIVITY	DURATION
Water	Check Tender water level and boiler water site glass level. Ensure that the volume is more than enough for the whole operation. Re-fill to comfortable level if volume is not enough.	10 mins.
Bagasse / Fuel	Check number of baled bagasse loaded at the tender. Ensure that the fuel is more than enough for the whole travel duration. Load more baled bagasse if number of bales is not enough.	10 mins.
Firebox	Check firebox for clinkers and other debris. Check condition of fusible plug.	10- 30 mins.
Grates	Check and ensure that no foreign materials are caught in-between the grate bars.	

STEAM LOCOMOTIVE START-UP CHECKLIST:

ITEM	ACTIVITY	DURATION
Injector (Water)	Check injector steam, water and feed valves. Make sure that they are free from dirt and loose materials.	20 min.
Lubricator	Check lubricator oil level; ensure that lubricating lines are functioning properly.	10 min.
Brake System	Check brake lever and assembly, check for looseness, re-tighten fasteners securely.	10 min.
Throttle Valve	Check throttle valve by pulling it all throughout and returning it to full close position. Check for looseness and correct it immediately.	3 min.

STEAM LOCOMOTIVE START-UP CHECKLIST:

ITEM	ACTIVITY	DURATION
Forward-Reverse Lever	Check lever by pulling it all throughout and returning it to full forward position. Check for looseness and correct it immediately.	3 min.
Wheels and Brake shoes	Check wheels and brake shoes see to it that they are free from defects and nothing is wedging in-between.	10-25 min.
Rods & Linkages	Thoroughly check connecting rods, pins, bushings and bearings including linkages. See to it that all fasteners, locks and wedges secured. Check for looseness and cracks. Log in the maintenance sheet for proper action on the next maintenance period.	10 – 25 min.

STEAM LOCOMOTIVE START-UP CHECKLIST:

ITEM	ACTIVITY	DURATION
Tender	Check tender bogie, wheels, crowns and springs. See to it that they are free from defects and looseness. Apply grease to all the wheel bearings.	10-20 min.
Turbine for lightings	Check steam inlet line, check wirings and connection. Check carbon brushes and see to it that the flywheel is free from any debris or foreign objects. Try to spin the flywheel and check for imbalance or rubbing signs on the casing. Correct immediately.	10 min.

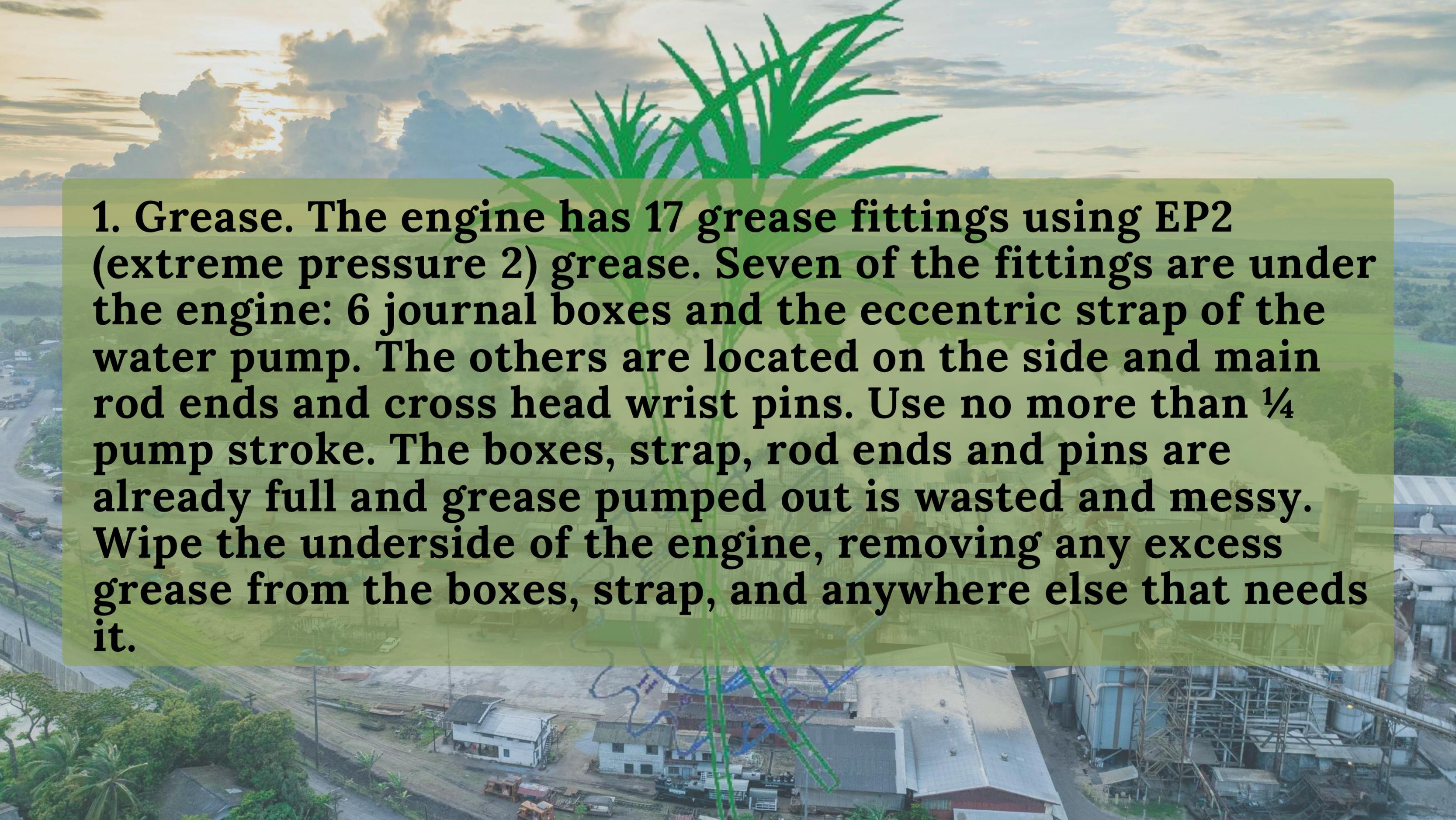
STEAM LOCOMOTIVE START-UP CHECKLIST:

ITEM	ACTIVITY	DURATION
Front ,Rear and Cab Lights	Check and test front, rear and cabin lights, replace busted bulbs immediately.	5 min.
Valves (Water, steam and oil)	Check all valves may it be for water, steam or oil. Check it they are operating properly. Replace it necessary.	10 min.
Sand	Ensure that there are sufficient supplies of sand in the sand box for the whole trip duration.	5 min.
Whistle Line and valve	Check if the whistle line and valve are connected properly.	5 min.
Bell line	Ensure that the bell rope line is securely tied to the bell. Check for signs of wear and replace immediately.	5 min.

STEAM LOCOMOTIVE START-UP CHECKLIST:

ITEM	ACTIVITY	DURATION
Crew	Check if your whole crew is present. Never operate or travel underman.	2 min.



An aerial photograph of an industrial facility, possibly a refinery or chemical plant, with several large buildings and complex piping. The image is overlaid with a semi-transparent green rectangular box containing text. In the background, there are palm trees and a sunset sky with scattered clouds.

1. Grease. The engine has 17 grease fittings using EP2 (extreme pressure 2) grease. Seven of the fittings are under the engine: 6 journal boxes and the eccentric strap of the water pump. The others are located on the side and main rod ends and cross head wrist pins. Use no more than $\frac{1}{4}$ pump stroke. The boxes, strap, rod ends and pins are already full and grease pumped out is wasted and messy. Wipe the underside of the engine, removing any excess grease from the boxes, strap, and anywhere else that needs it.

2. Water.

Engine: Check the water fitting into the left or right blow down valve. Be sure the opposite valve is closed. Ideally, we need to pour 2 oz. of boiler treatment into the hose, and then connect it to the fitting. Turn the faucet handle on $\frac{1}{2}$ turn. Open the injector handle to allow air in the boiler to vent. When the sight gauge shows $\frac{1}{4}$ inch of water, close the valve on the hose and close the injector handle.

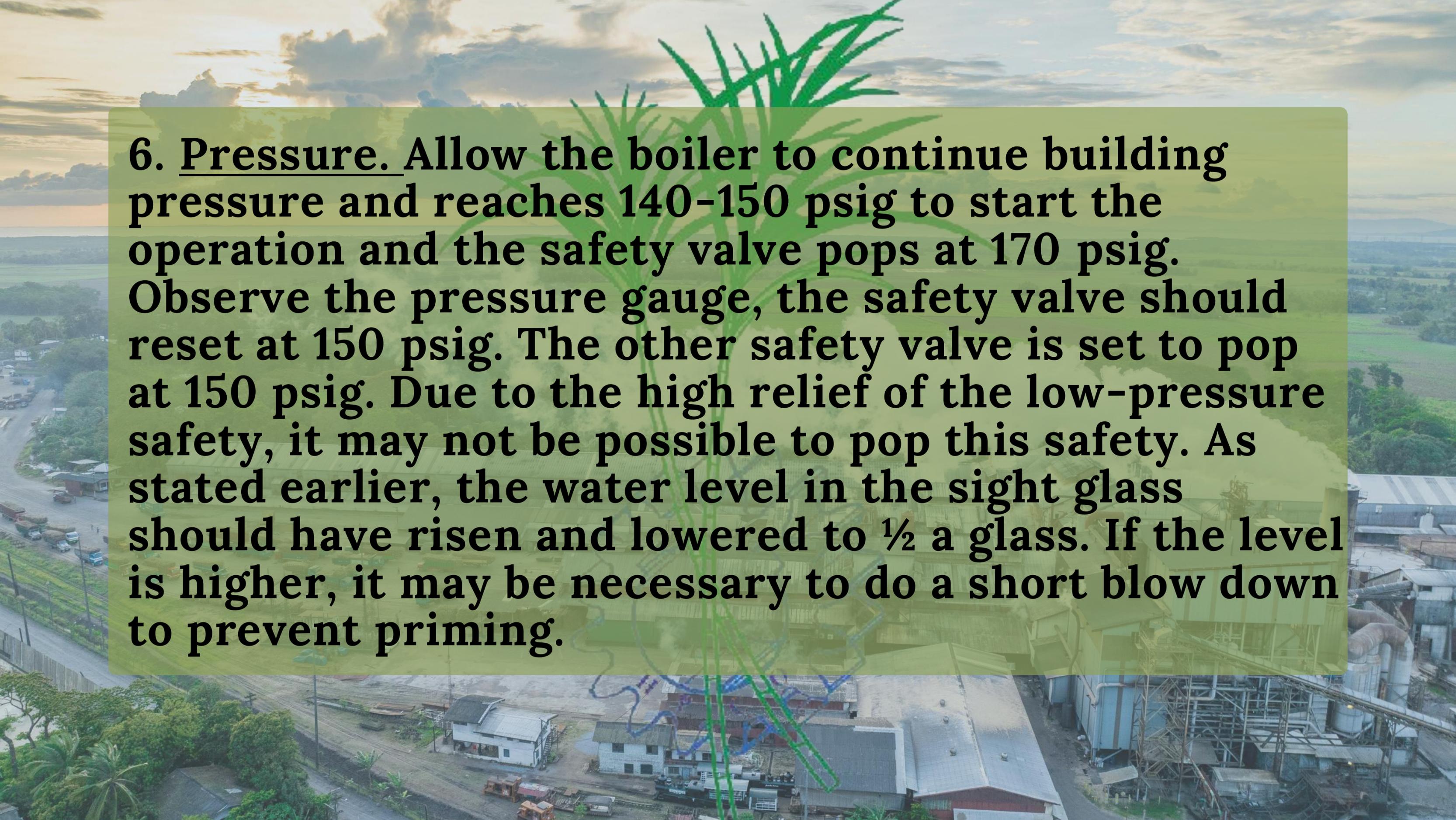
a. (The water level will rise to about $\frac{2}{3}$ of a glass and then drop back to about $\frac{1}{2}$ of a glass as operating pressure is reached). But we are doing it here due to our nature of operation.

b. Tender: Ensure that the tender drain valve is closed. Pour 2 oz. of boiler treatment into the tender and then fill with water to within 3 inches of the top of the tender. Any higher than that will cause the water to splash out of the top deck which is not sealed.

3. Bagasse. Open the firebox and feed it with fuel (bagasse). Continue firing until the steam pressure reaches its working pressure (140-150 psi). The combustion inside the firebox is being maintained by proper mixture of fuel and oxygen. So, the operator must regulate the air inside the firebox in order to attain good combustion.

4. Oil. Oil the valve motion and fill the cups on the upper cross head guide bars (Steaval B or Omala S2 G 320). Top off the cylinder oil tank located above the right upper cross head guide bar.

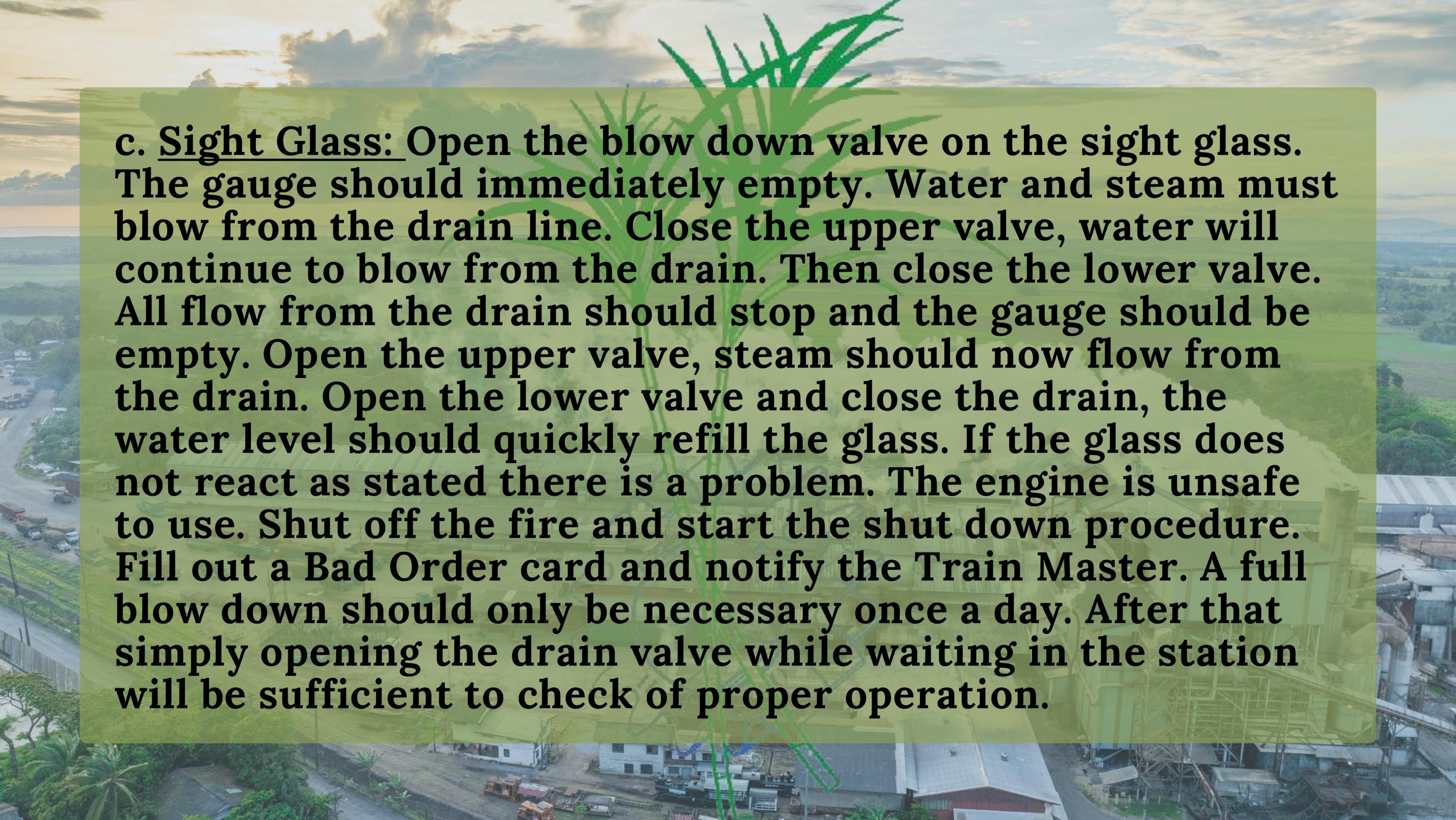
5. Blower. When the boiler pressure reaches 40 psi, crack the steam blower valve to clear condensed water from the line. Close the air blower valve and adjust the steam blower volume to control the burner flame blow back.

The background of the slide is an aerial photograph of an industrial plant or refinery. The facility includes several large buildings with grey roofs, a complex network of pipes and scaffolding, and various pieces of industrial equipment. In the foreground, there are some smaller structures and what appears to be a parking area with a few vehicles. The sky is overcast with soft, grey clouds. A large, stylized green plant with long, pointed leaves is superimposed over the center of the image, partially overlapping the text box.

6. Pressure. Allow the boiler to continue building pressure and reaches 140-150 psig to start the operation and the safety valve pops at 170 psig. Observe the pressure gauge, the safety valve should reset at 150 psig. The other safety valve is set to pop at 150 psig. Due to the high relief of the low-pressure safety, it may not be possible to pop this safety. As stated earlier, the water level in the sight glass should have risen and lowered to $\frac{1}{2}$ a glass. If the level is higher, it may be necessary to do a short blow down to prevent priming.

7. Water Injection.

- a. Injector: Open the tender water valve. A steady stream of water should come from the injector over flow line. Quickly open the injector steam valve. If the injector does not pick up, (steam coming from the over flow) open the water valve until it does. If water pours from the over flow line reduces the water flow until the injector picks up. While it is not a good practice to use the injector when the boiler is not working steam, it may still be necessary to use it to bring the water level up to $\frac{1}{2}$ glass if needed. Shut off the injector after the test.**
- b. Brakes: Open the brake valve and ensure that the brakes set. Close the valve and check that the brakes release.**



c. Sight Glass: Open the blow down valve on the sight glass. The gauge should immediately empty. Water and steam must blow from the drain line. Close the upper valve, water will continue to blow from the drain. Then close the lower valve. All flow from the drain should stop and the gauge should be empty. Open the upper valve, steam should now flow from the drain. Open the lower valve and close the drain, the water level should quickly refill the glass. If the glass does not react as stated there is a problem. The engine is unsafe to use. Shut off the fire and start the shut down procedure. Fill out a Bad Order card and notify the Train Master. A full blow down should only be necessary once a day. After that simply opening the drain valve while waiting in the station will be sufficient to check of proper operation.

OPERATION

Ideally, there are too many variables, such as, ambient temperature, wind, condition of the rails, load, grade, etc., to be able to create a step-by-step guide on how to operate the steam engine. With that said what follows is a body of recommended practices, which have been compiled from members who are current on the locomotive.

As we are operating our old steam locomotive on short distances ad resources, we just see to it that all critical aspect of steam locomotive operation is closely monitored.

OPERATION

1. Departure. When you are given permission to depart by the control tower, acknowledge the order with the appropriate whistle signal (o - - o). Release the brakes and move the reverse lever to the corner notch. Slowly bring the throttle back until the engine starts to move and adjust it for a smooth start. Now is the time to make fine adjustments before travelling at the junction of the main line (Acacia Gate or Per #1 Gate) suggest sounding the whistle general warning(- - o -) or sounding the passing bell. Be prepared to make an emergency stop if an approaching vehicle does not yield the right of way. The cylinders will be hot by now and no longer blowing water from the cocks so you can close them by opening the control valve.

OPERATION

2. Trip Setup. Run at reduced speed until clear of the turnouts and junctions, bridges. As you start down on the normal operation, check the water glass to see if the engine needs water. You should have already decided how you are going to manage your water by the injector. Additionally, since the water entering the boiler is cold it requires more fuel to maintain pressure. The injector, on the other hand, pumps water heated to about 200 degrees but will reduce pressure when in use and is easy to forget. Further it can be tricky to use if you cannot see the over flow pipe. You need to continue feeding bagasse to maintain operating pressure.

OPERATION

3. Arrival. The rest of the trip is a combination of train handling, and engine management. As you start to enter into the yard, I suggest making a brake application to control train speed. Kick the brakes off as you cross the bike trail and continue up the grade. When approaching to arrive, start setting up for the station stop. Open the blower valve to prevent flames from leaving the firebox. The burner should be adjusted to maintain pressure. After the train is unloaded, open the cylinder cocks. Leave them open while you pull forward to the passenger loading point.

SHUTDOWN

The goal when shutting down the engine is to drain the boiler and then dry it as much as possible, before putting it away.

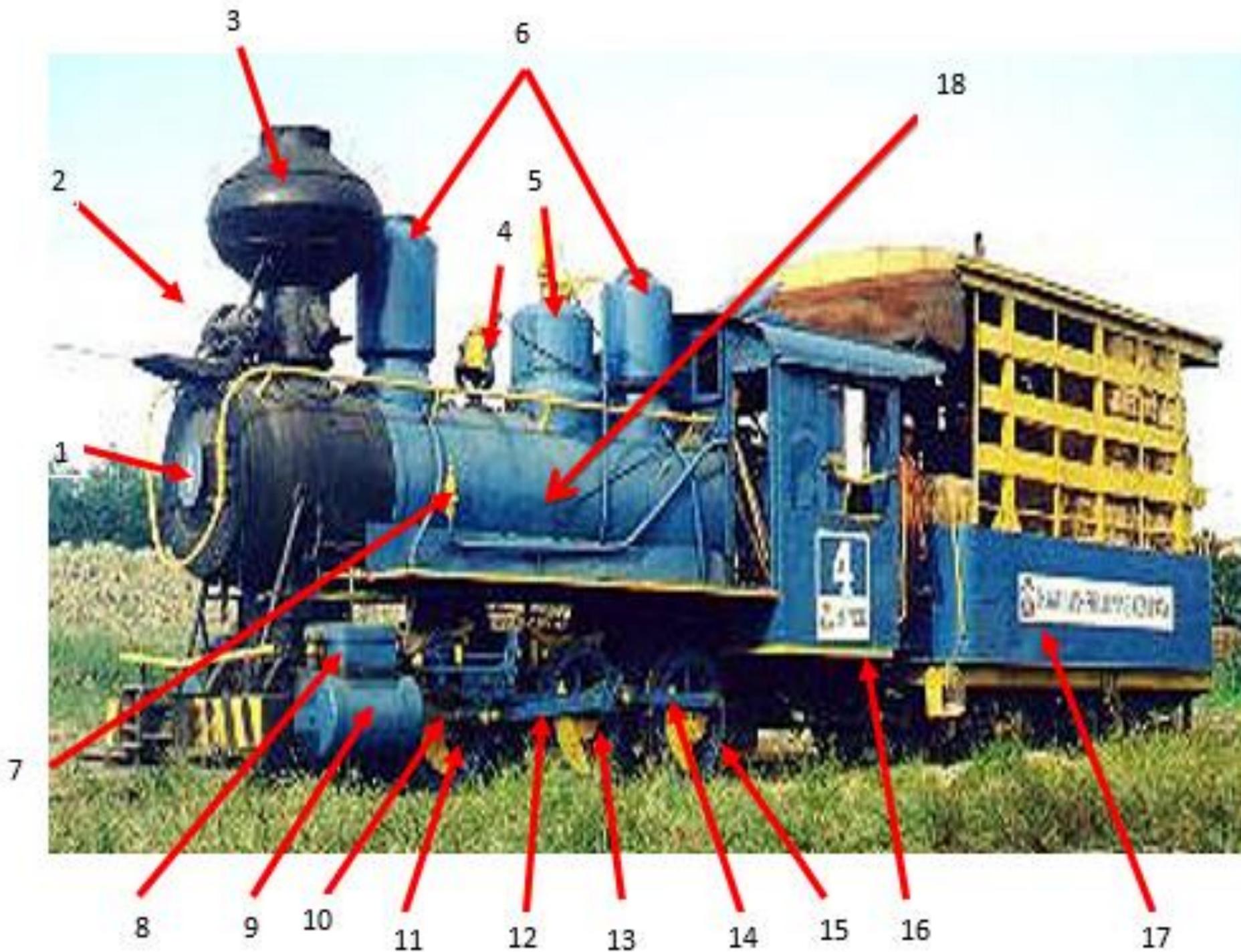
1. Dropping the Fire. The boiler should not be blown down until the pressure has dropped to 40 psig or less. Next, remove the pressure regulator handle. Leave the blower on for a short time, to purge any fuel that may be left in the firebox after the fire goes out, and then turn it off. When it is cleared, put the train on the yard. From the yard, back down the main line and onto the roundhouse departure track stopping short of the turntable. Open the tender drain at this point. (Optional)

SHUTDOWN

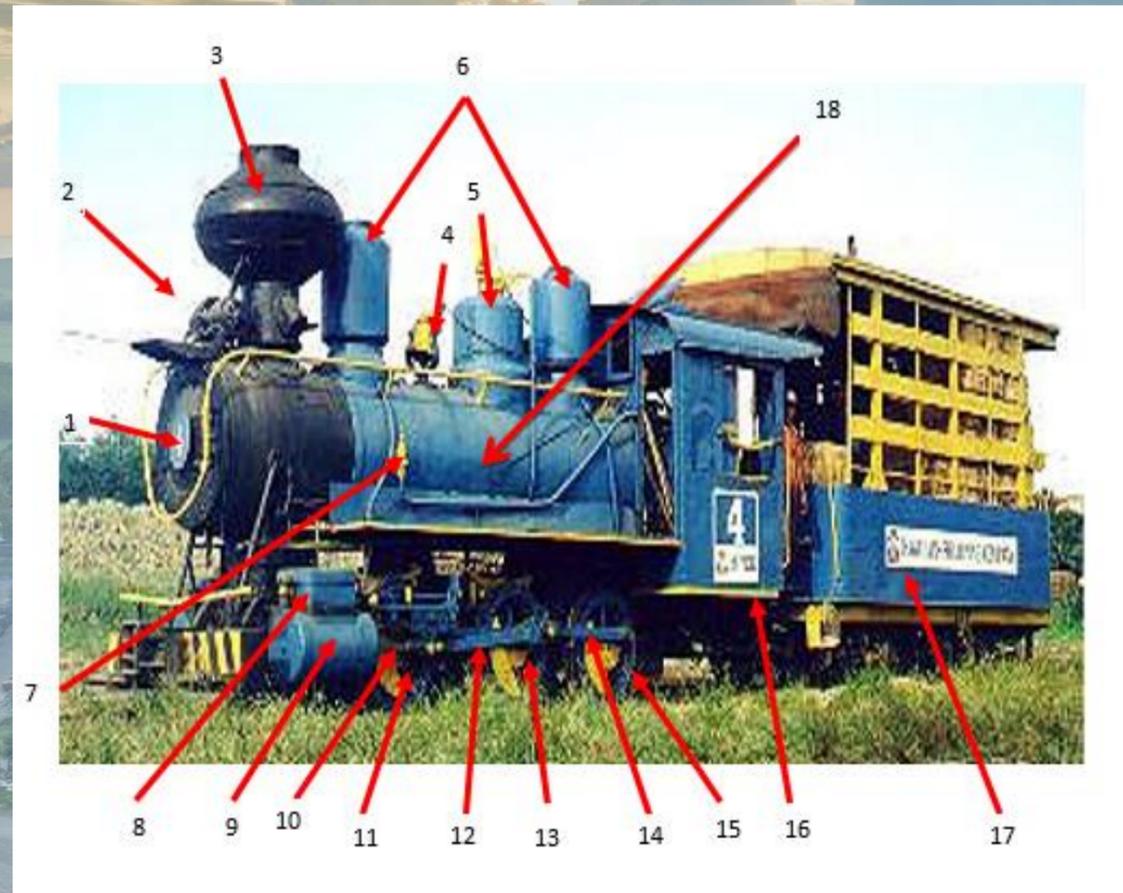
2. Blow Down. When the boiler pressure reaches 40 psig or less, the blow off cocks can be opened to start the blow down. If not, wait for the pressure to drop or run the engine back and forth on the departure track until the gauge drops to 40 psig. As a courtesy to others, do not allow the water from the blow off to spray other people or equipment.

3. Clean up. Start wiping down the engine, tender, and tank car. There should be a can of end dust in the train masters locker for that purpose. As you clean, inspect the consist for any loose, damaged, or leaking parts. Report any discrepancies to the train master. If you find any condition that you feel may be unsafe and should be inspected before the engine goes out again, fill out a bad order card and place it on the engineer's seat. Again, be sure to notify the train master as soon as you can.

Parts and Functions of Steam Locomotive



Parts and Functions of Steam Locomotive



1. Smokebox- the leading section of a steam locomotive boiler, the smokebox houses the main steam pipes to the cylinders, the blast pipe, the smoke stack and the ends of the firetubes.

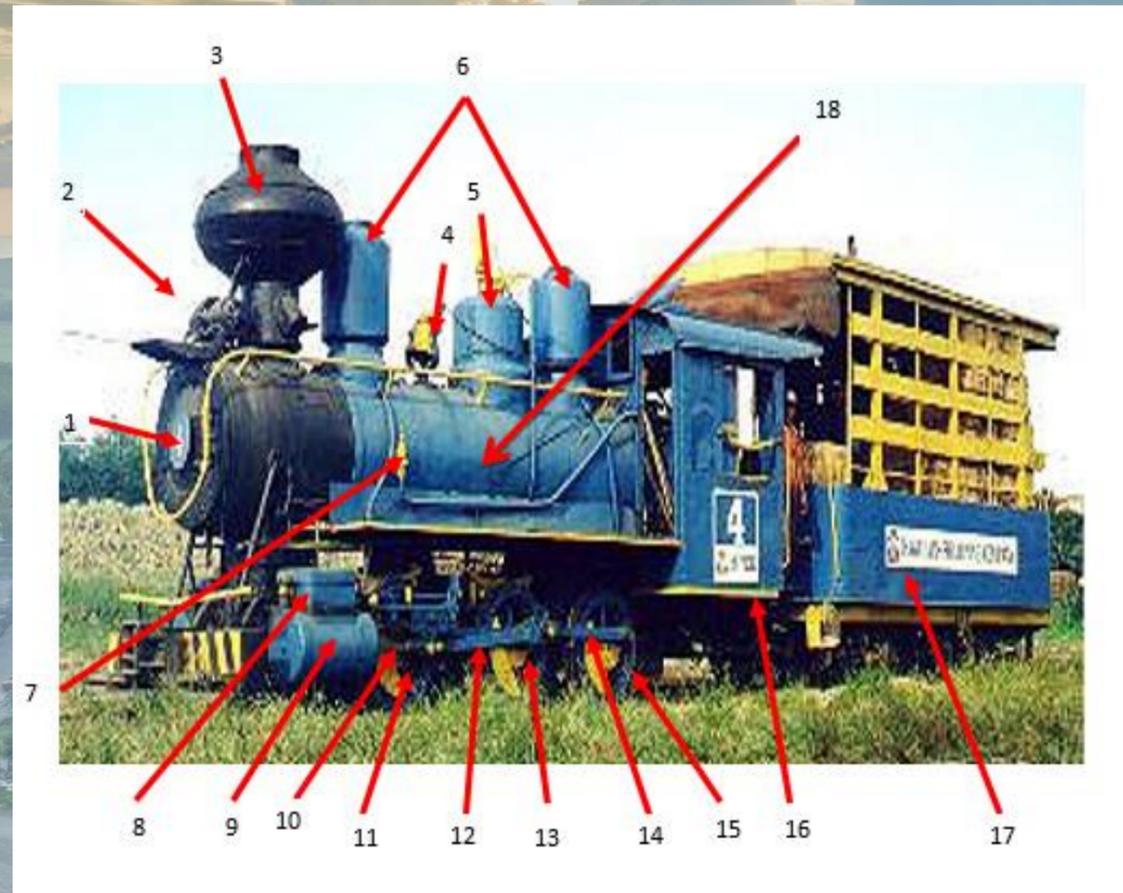
2. Headlight- lamp on front of the smoke box to provide forward visibility.

3. Smokestack- is the part of a [steam locomotive](#) through which [smoke](#) leaves the [boiler](#). [Steam locomotive exhaust systems](#) typically vent cylinder exhaust through the smokestack to enhance draught through the boiler.

4. Bell- the purpose was to make noise, alerting people and animals of an oncoming train. Steam locomotive bells were usually made of cast bronze or brass.

5. Steam Dome- in a steam locomotive, steam generated is usually directed to the cylinders from the highest point in the boiler. The dome is a chamber on top of the boiler barrel where the steam collects. In addition, it often houses the regulator (or throttle) valves that control the steam flow.

Parts and Functions of Steam Locomotive



6. Sanders/Sandbox- sand is used between the wheel types of locomotives and the rails to increase grip, or adhesion, and prevent wheel slip, especially in wet weather.

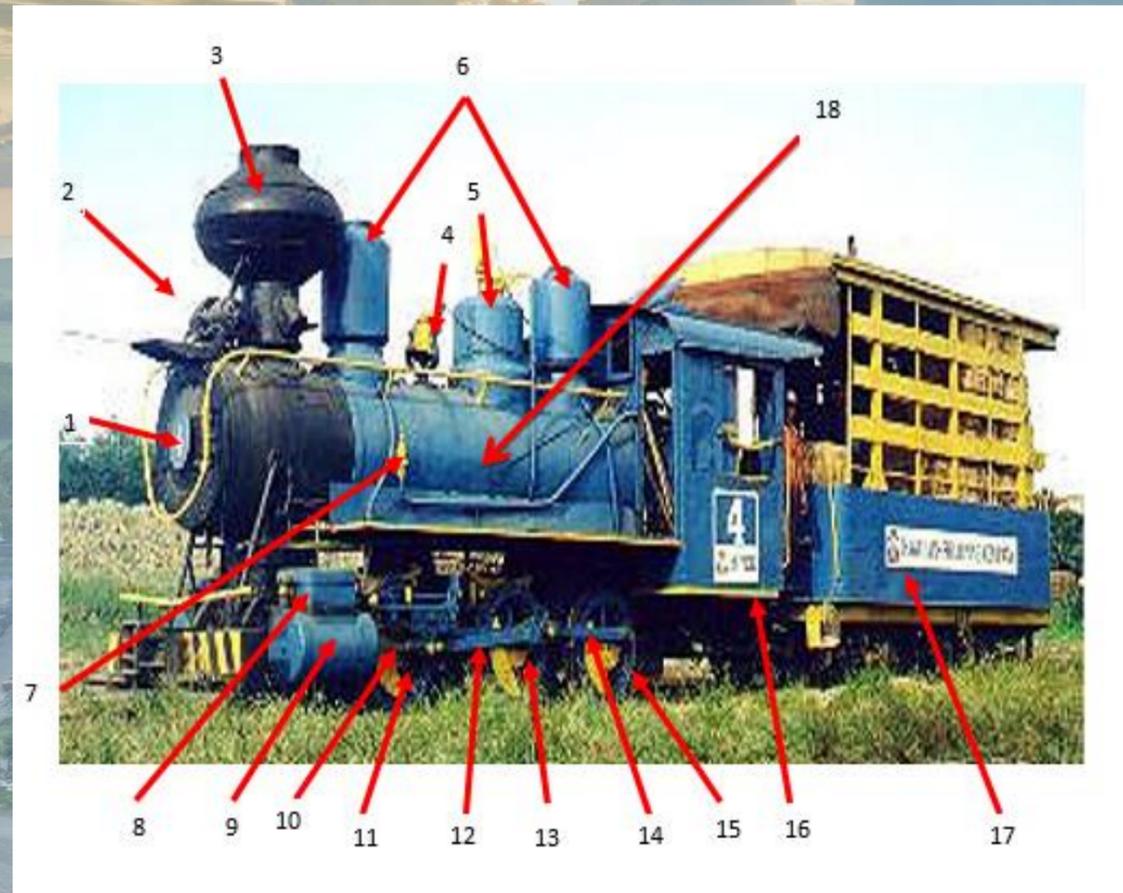
7. Feedwater Valve- is a specific type of [pump](#) used to pump [feedwater](#) into a [steam boiler](#).

8. Piston Valve- universally used in preference to the slide valve after around 1880, piston valves resemble a pair of smaller pistons. Located at the end of the upper spindle seen entering the cylinder assembly, their job is to control the admission and exhaustion of steam from the cylinder proper.

9. Piston Cylinder- in a steam locomotive, heat and pressure energy in the steam is converted to mechanical force in the cylinders. Each cylinder contains a piston which is forced backwards and forwards by the admission of steam alternately on each side.

10. Piston Rod- the rod that links the piston in a steam locomotive cylinder with the crosshead and, through that the connecting and coupling rods.

Parts and Functions of Steam Locomotive



11. Guiding Wheel- the wheel in front of the driving wheel, its purpose is to guide the driving wheel toward the rails.

12. Connecting Rod- in a steam locomotive, this connects the piston rods to the crankpins of the driving wheels.

13. Driving Wheel- is a powered wheel (center wheel) which is driven by the locomotive's pistons.

14. Coupling Rod- connects the crankpins of the driving wheels along one side of a locomotive and spreads its tractive effort over the coupled wheelbase.

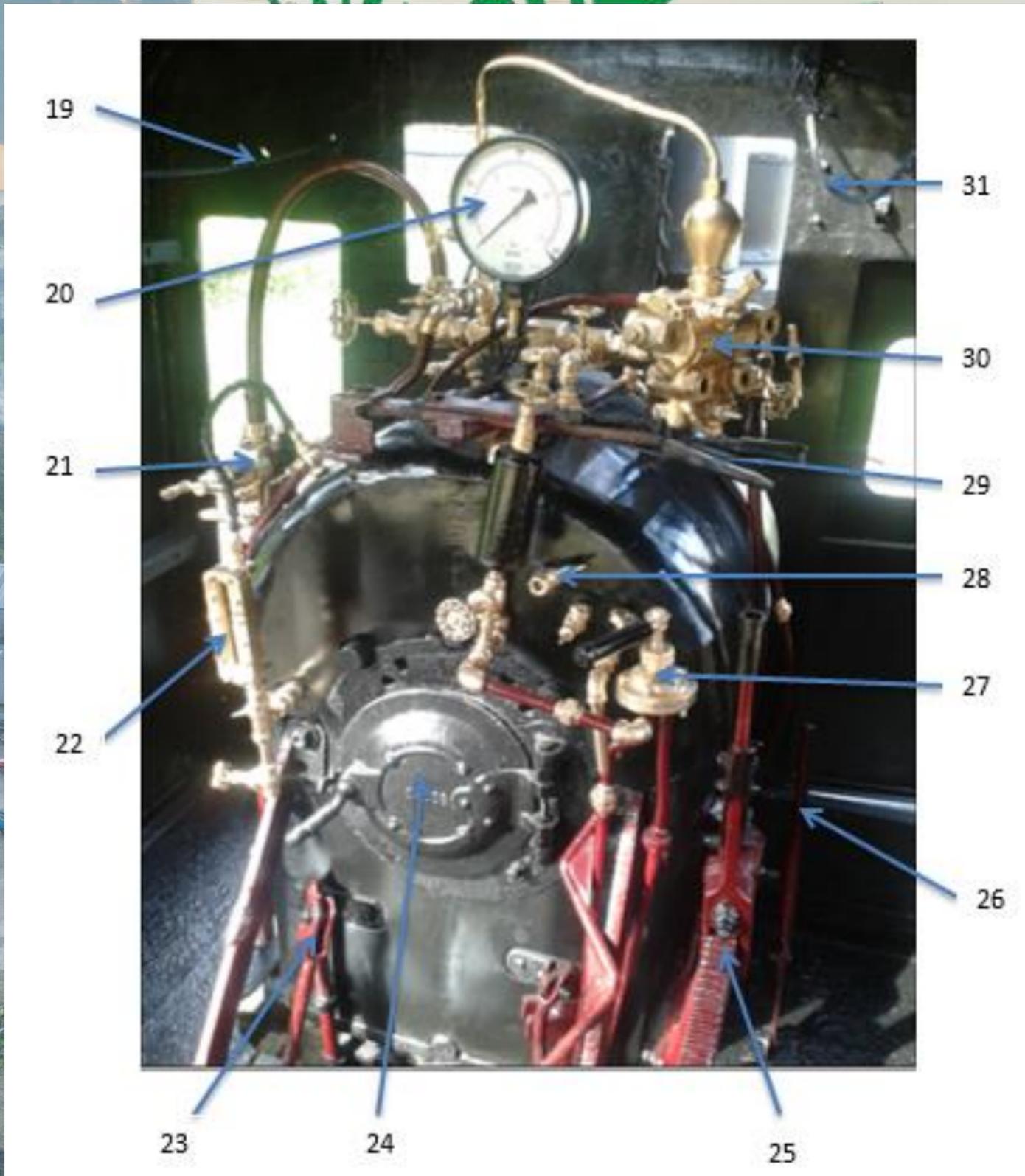
15. Following Wheel- located at the rear of the driving wheel. It follows the direction of guiding wheel and driving wheel.

16. Backhead- the vertical plate at the rear of the firebox/front of the footplate on which the regulator, steam brake, pressure gauge, water gauge glass and host of other controls are mounted.

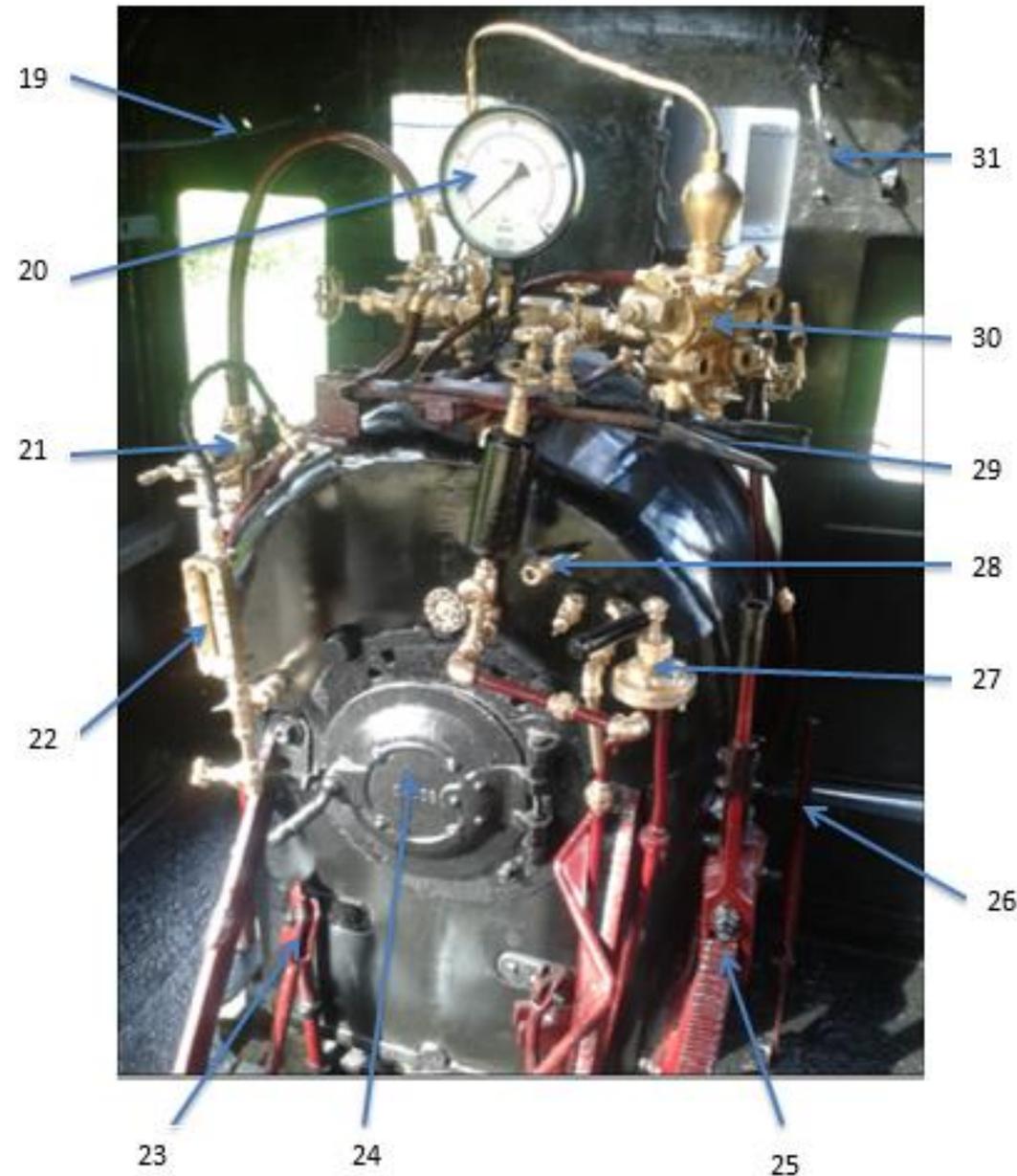
17. Tender- Container holding both water for the boiler and combustible fuel such as wood, coal or oil for the fire box.

18. Boiler- a horizontal cylinder, the part of a locomotive where steam is produced.

Parts and Functions of Steam Locomotive



Parts and Functions of Steam Locomotive



19. Bell Rope- used to pull the bell.

20. Pressure Gauge- indicates the pressure of steam inside the boiler.

21. Injector- a device that feeds water into the boiler of a steam locomotive against the pressure of steam in that boiler.

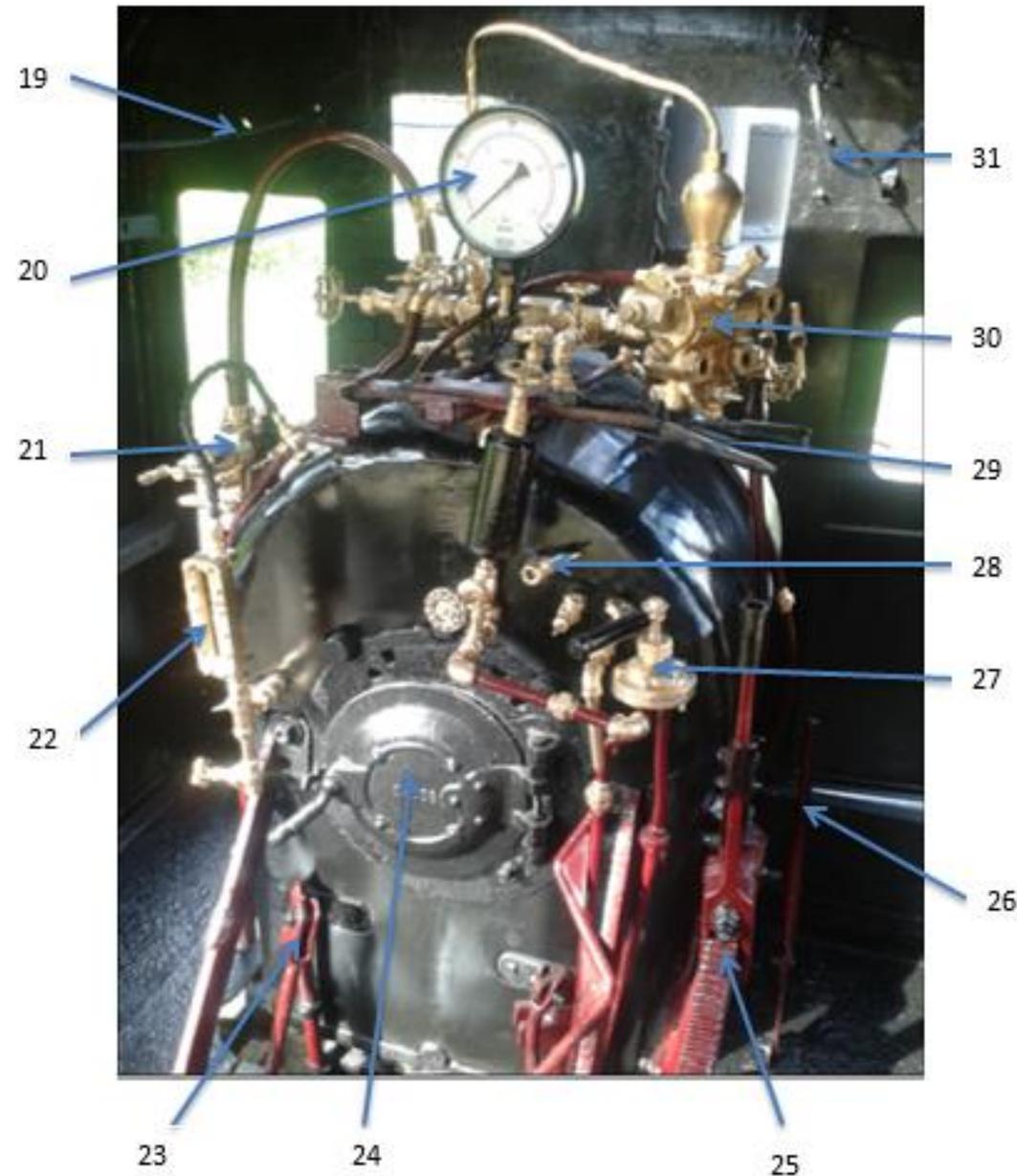
22. Water Level Sight Glass- this is the vertical glass tube that indicates the water level in the boiler and firebox.

23. Grate Lever- used to open/close the grate (Forms the bottom of a steam locomotive firebox. It is here that the fire burns.)

24. Firebox Manhole- an oval access door into the boiler shell, used for maintenance and cleaning. Manholes are sealed with a removable door from the inside. As they are oval, this door may be turned and lifted out through the hole. Doors are clamped in place from the outside with one or two bridge clamps spanning the hole and tightened down with a nut on a stud.

25. Forward/Reverse Lever- a lever which moves the engine between forward and reverse motion. The reverser also alters the cut-off point of the valve gear controlling the sequence of admission and expulsion of steam in the cylinders.

Parts and Functions of Steam Locomotive



26. Release Valve Lever- controls the release valve that automatically releases a substance from a **boiler**, **pressure vessel**, or other **system**, when the pressure or temperature exceeds preset limits.

27. Brake- locomotives are usually equipped with a hand brake and a form of power brake. Power brakes can be actuated by compressed air, steam or vacuum.

28. Water Inlet Valve- where water hose is connected to in order to supply water inside the boiler.

29. Throttle- the regulator or throttle is employed by the driver of a steam locomotive to control the supply of steam to the cylinders.

30. Lubricator- is a device fitted to a **steam locomotive** to supply **lubricating oil** to the **cylinders** and, sometimes, the **bearings** and **axle box** mountings as well.

31. Whistle Rope- used to pull the whistle on making a signal or warning.

An aerial photograph of a large industrial facility, likely a sugar mill, with numerous buildings and a complex network of pipes and structures. The sky is filled with large, white clouds, and the background shows a vast landscape of green fields under a sunset sky. A large, vibrant green plant with long, pointed leaves is superimposed over the center of the image. A dark green banner with the text 'THANK YOU!' in white, bold, sans-serif font is positioned across the middle of the plant. A blue, stylized logo is also visible in the lower center, partially overlapping the plant and the banner. The overall scene conveys a message of gratitude in an industrial and agricultural context.

THANK YOU!