Battery Gunnison/New Battery Peck Hoist #1 Restoration

Ft. Hancock, New Jersey

(Work completed 2002 through September 2021; outline remaining work)

In 2004 to 2005, the Army Ground Forces Association restored the shell hoist for Gun #2 (north emplacement). The basic hoist was intact; however, the moving parts were rusted in place. The hoist required cleaning, oiling, greasing and painting. Several inks were replaced in the chain and within six months the hoist was fully operational. The photo below is from the early 1980s and shows Gun #2 hoist in a much-neglected condition.

Scope of work to restore Hoist #1 includes the following:

A) Replace the two 7-inch I-beams and two 3-inch H-beams that were removed via torch cutting in the 1960s. This requires:

1) Grind and fit exposed beam stubs to accept new beams.
2) Cut new beams to proper size.
3) Weld in new beams using all the proper PPE.

B) Install the upper chain gear to the two new 3-inch H-beams. This will require drilling four holes in the H-beams and threading them to accept the securing bolts.

C) Fabricate the two chain track beams and mounting plates.

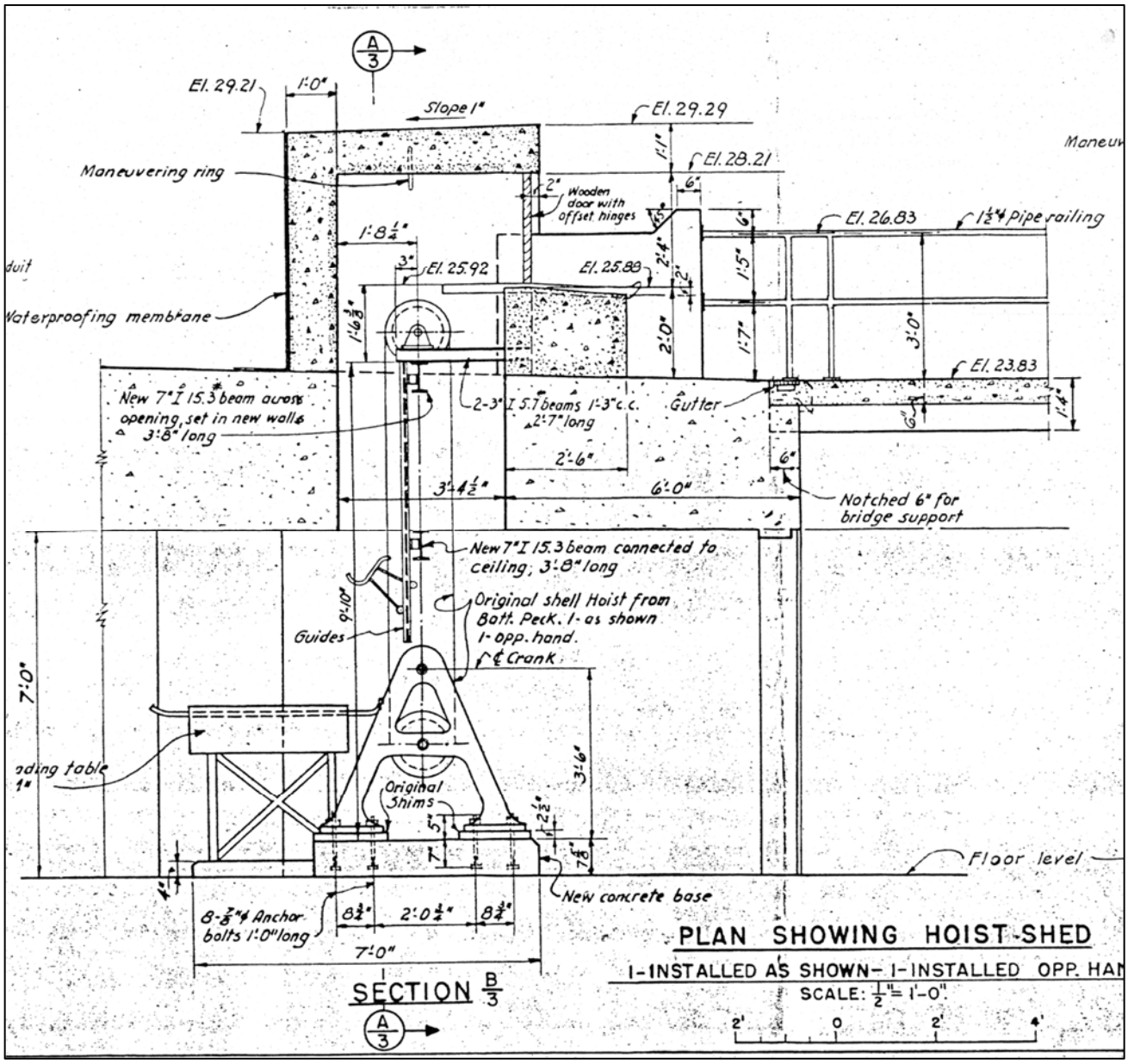
1) Weld and as required, bolt these pieces into place.
2) Free up all the shafts on the hoist crank.
3) Install the upper main shaft and its gear.
3) Disassemble, clean, prime and paint the entire crank & gear assembly.

D) Bolt the restored Frame assembly to the concrete pad. This requires removing the existing anchor bolts that were cut on the pads and installing new anchor bolts to secure the receiving table and hoist assemblies proper. This may not be required.

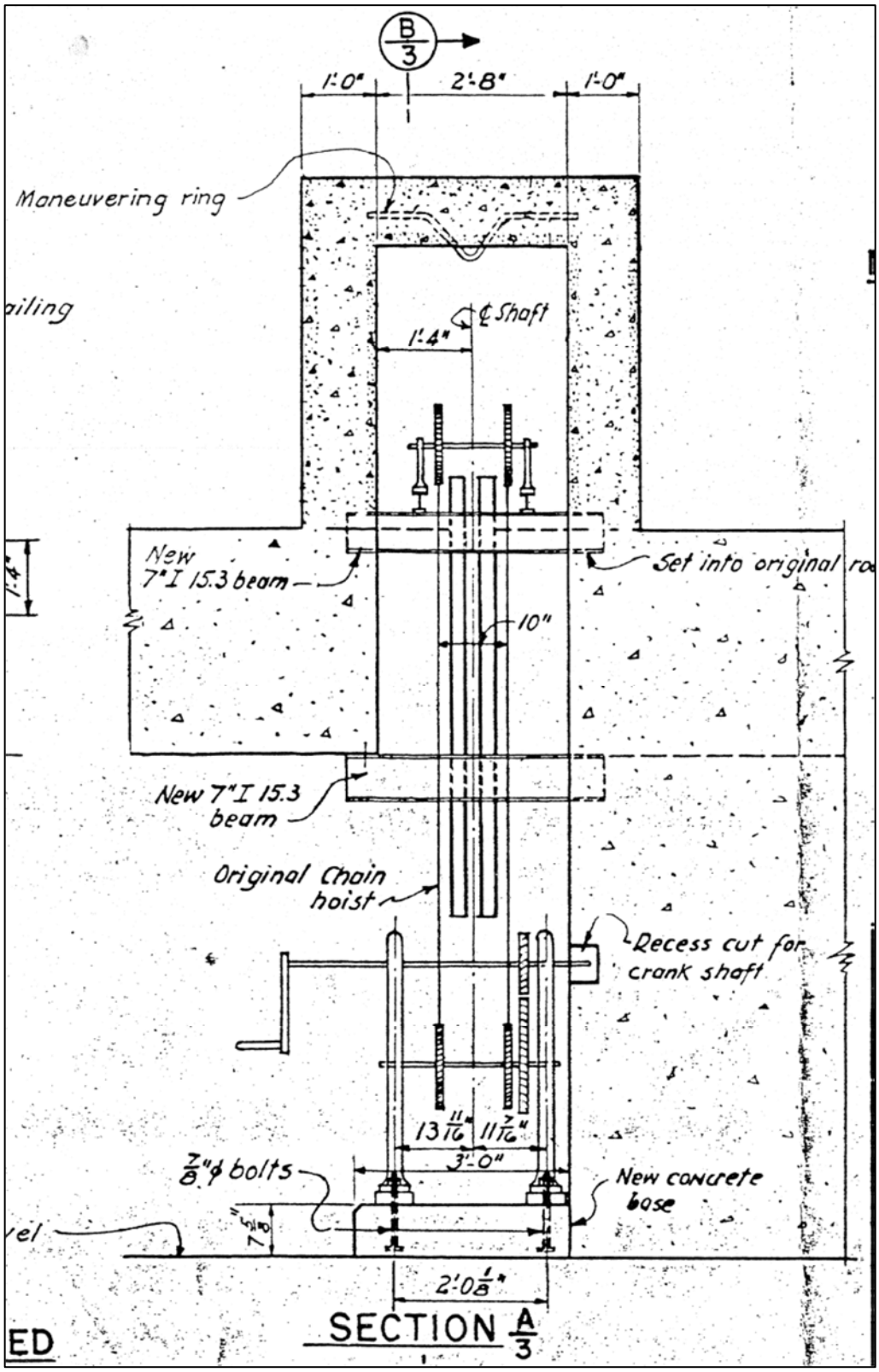
E) Clean, Prime, Paint and Lubricate the shell hoist once fully in place.

F) Design the required steel upper shell table by taking measurements from upper table for hoist #2. Remove failed concrete, frame the table, insert the metal table, and cement into place. This task will have to be coordinated closely with NPS maintenance personnel regarding appropriate materials and procedure especially in regards to concrete work required. A temporary wooden table will be used until the concrete and steel restoration work is completed.

Below is an extract from the 1943 Army Corps of Engineers "As Built" drawings showing the placement of the hoist as a cut view from the "side".



Below is an extract from the 1943 Army Corps of Engineers "As Built" drawings showing the placement of the hoist as a cut view from the looking into the magazine from the gun emplacement side of Gun #1.



The two photos below show Gun #2 hoist as restored and painted by 2007. AGFA found a crank handle to replace the one that was missing. The shell table was in generally good condition. The existing wood was heavily soaked in linseed oil.

The lower receiving table for Hoist #1 and #2 were actually in storage. In 2007 we moved the hoist table for Gun #2 from storage to Battery Gunnison/New Battery Peck where it was cleaned, rust removed, primed and painted. The shell table for Hoist #1 (right picture) was more problematic with most of its legs rusted away. In 2007 this table awaited a future restoration.

A view from the base of hoist #2 up the shaft is shown below. Notice inside the shaft is one large cross beam (7-inch web). The upper chain gear rests on the two smaller beams that are cast in the concrete and rest on top of the cross beam. The vertical beam is where the chain and hoist arm assemblies ride. Notice the basic fixtures are painted OD with a strong undercoat of rust reformer. The links are well greased.

The upper delivery table for Hoist #2 is shown below in a general view including the ammunition bridge (without railing, summer 2017). The doors were installed in the 2006 timeframe by NPS. Notice the crumbing nature of the receiving table concrete base. The concrete deterioration will have to be addressed in the future.

The photo below provides a close up view of Hoist #2 upper receiving table. While the rust will be removed and the metal painted, a more expansive project is required to address the concrete that is fracturing under freeze-thaw conditions of New Jersey's harsh winters. The table proper provides an excellent "as built" model for restoring the receiving table on Gun #1's hoist.

The Gun #2 receiving table below is shown in April 2018 with the railing for the ammunition bridge in place.

The photo below from April 2006 shows the hoist receiving is first full coat of OD Paint since probably 1945. This is after all moving parts were well greased. This is prior to the return of the Shell Table. Below 1st SGT Murray and PVT Minton clean the hoist.

The photo below shows a periodic session of greasing of the chain and gears being performed by PVT Minton and PVT Meiselman.

Work on Hoist #1 has been moving intermittently since about 2008. In April 2010 we received the reconstructed shot table for Hoist #1. In the photo below the contractor delivers the restored shell table. He performed the work under the direction of Dan Meharg and AGFA. Below 1st SGT Murray accepts the shell table.

Below the reconstructed shot table, complete with new legs and supports, is placed in its original position on its concrete pad. The work was quite well done. The gloss paint was soon covered by flat OD paint.

The photo below shows hoist #1 and its receiving table on their respective pads. Upon closer review, the primary shaft is missing from the hoist frame.

The primary shaft has been removed from the frame and has been polished.

The photo on the left shows the upper location for the primary shaft. The photo on the right shows the second shaft and the brass shaft bushing insert.

The photo on the left show restored hoist #2. The photo on the right shows the unrestored hoist #1 with the main shaft partially inserted into is location.

The photo below shows another view of Hoist #1 frame with the upper main shaft partially inserted into its position.

The photo below show the gear for the main shaft and the pawl catch gear (slanted teeth). Additionally, the two brass bushings to the left are for the main shaft.

The hoist chain is very likely to need additional links and link parts. The can below show what additional parts we have on hand.

The chain assembly is in storage inside the magazine. This chain and shell hoist arms and rollers will be disassembled, cleaned of rust, reassembled and greased using cosmoline.

The chain has been given a rudimentary cleaning and greasing for protection pending rehabilitation. In the photo below the chain is receiving its first cleaning about 2015 by CPL Meiselman.

The shaft for Hoist #2 was gutted of metal fixtures when the hoist was removed in the early 1960s by the Army and Smithsonian Institution. The 7-inch beam was cut out (left to right) and will be replaced by a section of the same dimensions.

Critical to the hoist restoration is the location of a 7-inch beam. No steel company in 2018 will produce a 7-inch beam. We were extremely fortunate to find one in relatively good condition. Two sections of beam are required. One will be welded inside the shaft (see photo above). The other will be welded to a stub on the wall and secured with a keeper on ceiling of the magazine. These beams hold the vertical travel beams shown on the next page.

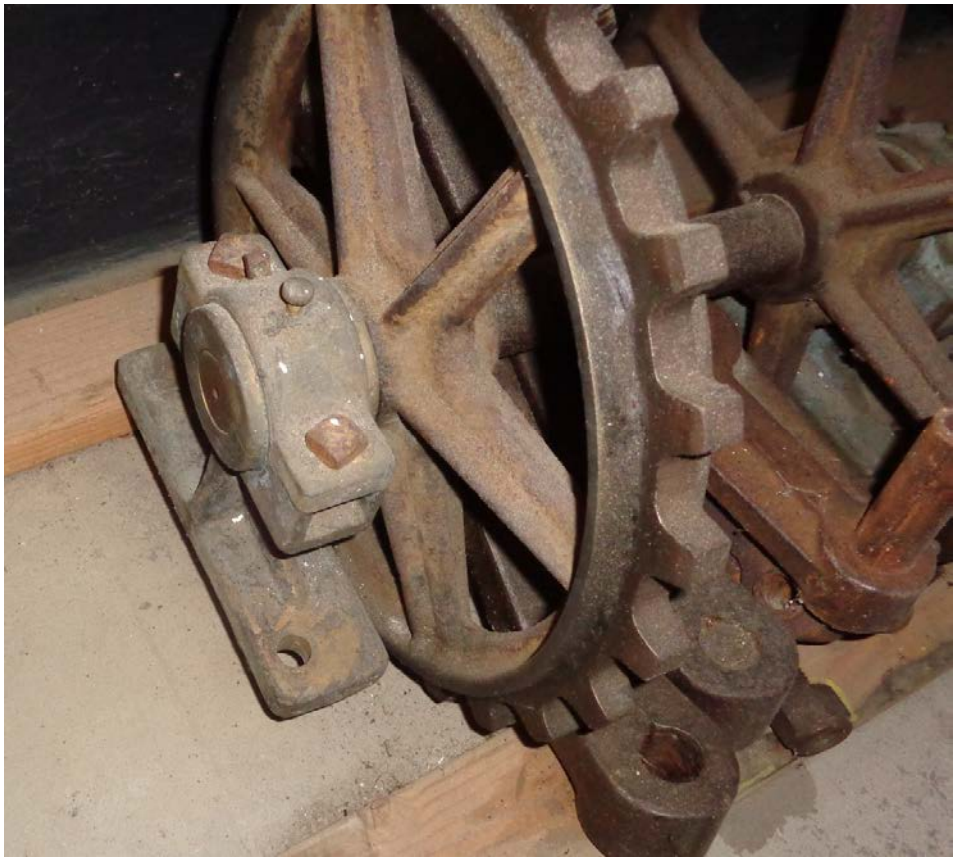
The photo below shows the Hoist #2 lower 7-inch I-beam in place. This beam will be welded back into the wall for Hoist #1 and secured to the ceiling of the magazine as shown below.

The photo below shows the remaining half inch stub in the wall for hoist #1's lower 7-inch I-beam. There is enough metal to work with to weld a new beam in place against this remaining stub.

The photo below shows the double H-beams (right side) upon which the chain travels. For Hoist #1, these two beams will be fabricated. The dimensions are standard so procurement is readily executable.

As noticeable in the photo below, the H-beams are 3-inches thick - a standard measurement.

Hoist #1 upper chain gears and trunnions are in good condition. They are stored in the magazine pending reinstallation. The view below shows a trunnion close up.



Another view of the upper chain gears and shaft shows the other trunnion. These trunnions are essentially complete with all parts to include oil caps and top covers. The trunnions for Hoist #2 are actually missing one of two trunnion covers and the other cover lacks the oil fill plug.

On 8 June 2020, T-4 King secured support of Chris Wisniewski (Blown Away Blasting, LLC) and removed the rust from all the hoist parts and the beams that were to be re-welded into the hoist shaft.

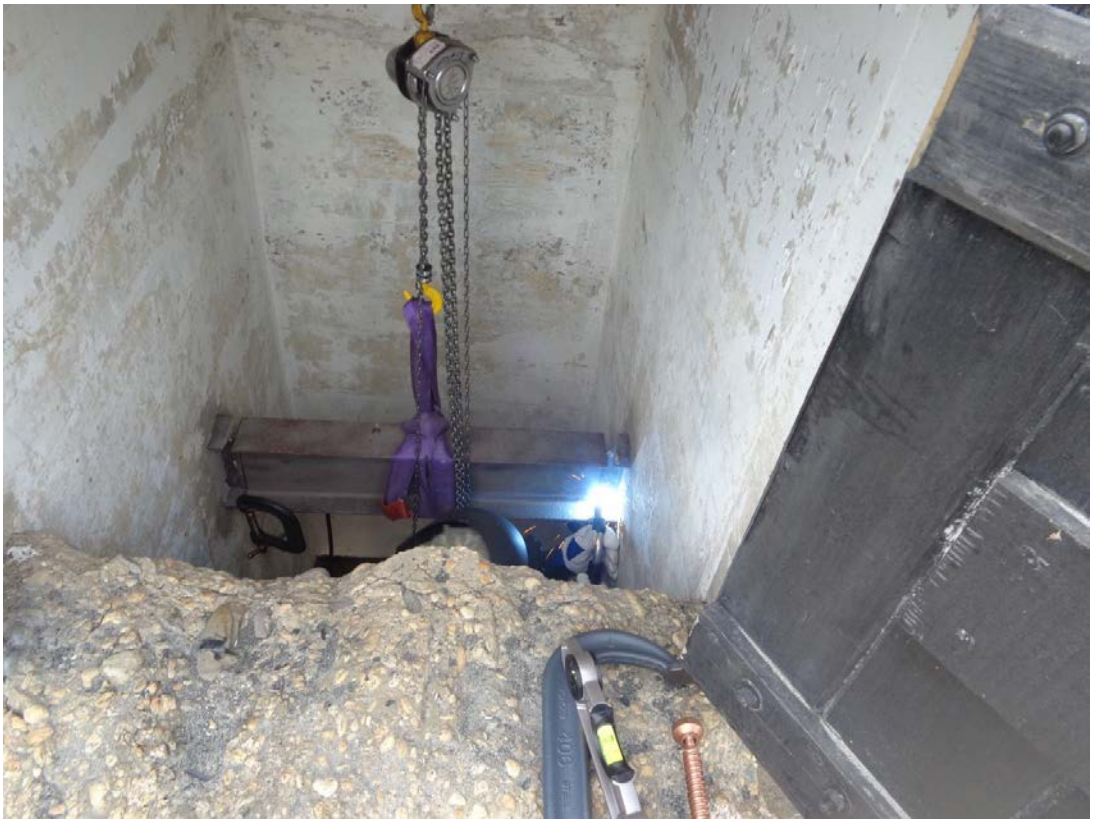
The photo on the left shows three beams. The short one on the left will be placed in the upper section of the hoist #1 shaft. The longer beam will be placed in the lower area. The photo to the right shows the torched beam stub where the longer beam will be attached by welding.

On 11 June 2020, the welding operation started. This is the Gun #1 shaft and the upper ring will be a connecting point for a pulley system to hold the beams into place for welding.

In the photo below T-4 Doug Ciemniecki and Mike Brennan place the upper 7-inch beam into place for welding.

Below Mike prepares to weld the first beam into place - the upper 7-inch beam.

Below Mike welds the beam into place.



In the photo below Mike just finished welding the 3-inch I beams into place.

The two 7-inch I beams require the welding of brackets to support two long H beams that support the hoist chain and rollers. Below the two brackets are placed with spacers and situated to be held directly against the beam to which they will be welded.

In the photo below Mike places the two brackets in preparation for welding.

In the photo below Mike is welding the upper two brackets into place on the upper 7-inch I beam.

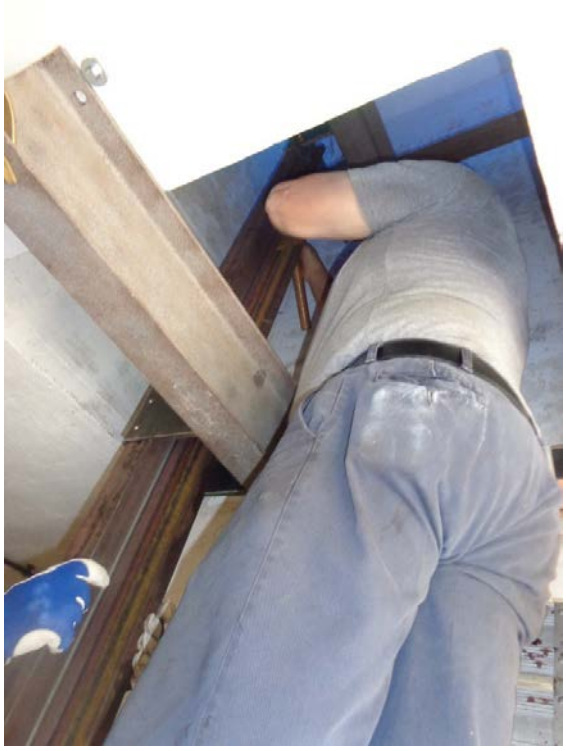
The photo below shows the two brackets welded into place.

Below T-4 Ciemniecki and Mike Brennan prepare the lower 7-inch I beam for welding into place.

Below shows the welding point for the lower 7-inch I beam. The red/aluminum object next to the beam is a ladder.

The view below shows the lower 7-inch I beam welded to the stub in the wall from the historic beam that was torched out in 1964.

Once the two 7-inch I-beams and their brackets were in place, Mike and T-4 Ciemniecki placed the two long H-beams into place to check the distances.



After the distances were confirmed, the two H-beams were removed and Mike made some welding adjustments to the lower 7-inch I-beam's brackets.

Below T-4 Ciemniecki confirms the level of the lower 7-inch I-beam.

Below is a view of the upper 7-inch I-beam showing the weld to the stub in the wall and the first applications of red zinc primer.

Finishing up on 11 June with the priming of the lower 7-inch I-beam shown below from the inside of the magazine side with the brackets.

The lower 7-inch I-Beam as seen from the entrance to the magazine.

The primed beams inside the shaft for Hoist #1 are shown below.

21 June 2020 we began the process of painting the interiors of both hoist shafts #1 and #2. In this photo is the top of shaft #1 before painting.

Below CPL Cusano is scraping the loose paint from the walls inside Hoist #1.

After he completed the scraping, CPL Cusano began using a roller to paint the interior of Hoist Shaft #1. Here is at the top of the shaft.

In this photo CPL Cusano is advancing down the inside of Hoist #1 shaft.

This view is looking up into Hoist #1 shaft as CPL Cusano completes the interior painting.

Below shows the completed paint job for the top of Hoist #1 on the left and Hoist #2 prior to painting on the right.

Below 2LT Gonzalez is painting the interior of the top of Hoist #2 shaft.

The photo below shows the inside of Hoist Shaft #2 after painting. This is the first time that AGFA has painted that shaft since the hoist was restored in 2005.

Below CPL Cusano prepares to continue the painting of the interior of Hoist Shaft #2 with a roller.

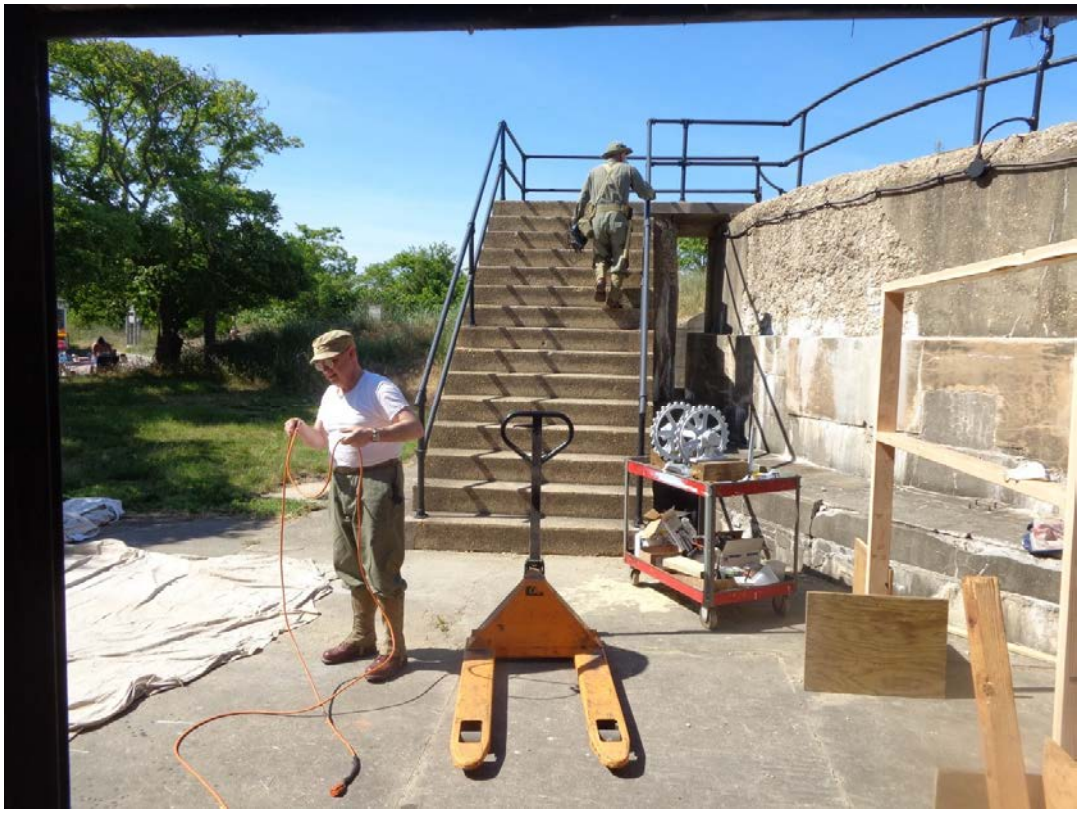
Below PFC Morrison uses a spray system to apply grey metal primer to the upper sprocket and trunnions for Hoist #1.

Below is a larger view of the area and hoist items that PFC Morrison was spray priming. He also primed the hoist #1 frame and the chain and shell tongs of the hoist.

Below PFC Morrison pauses in his priming of hoist materials. The spray machine is an excellent tool to apply the light grey primer.

This view is looking down on the priming area.

Later in the afternoon 2LT Gonzalez begins cleanup and PFC Morrison takes paint up to the gun platform to paint the platform light.



Below is the hoist assembly chain and shell tongs on a specially designed holder developed by T-4 King and T-4 Ciemniecki.

Once the priming work was done, the frame for Hoist #1 and the hoist chain and shell holders were returned to the magazine.

Below, CPL Cusano completes the interior painting of Hoist Shaft #1 as T-4 Ciemniecki looks on.

On 25 June 2020 we applied OD green paint to Hoist #1's metal I and H beams. This photo is from the top looking down into the shaft.

This view is looking from the roll-down door into the hoist area.

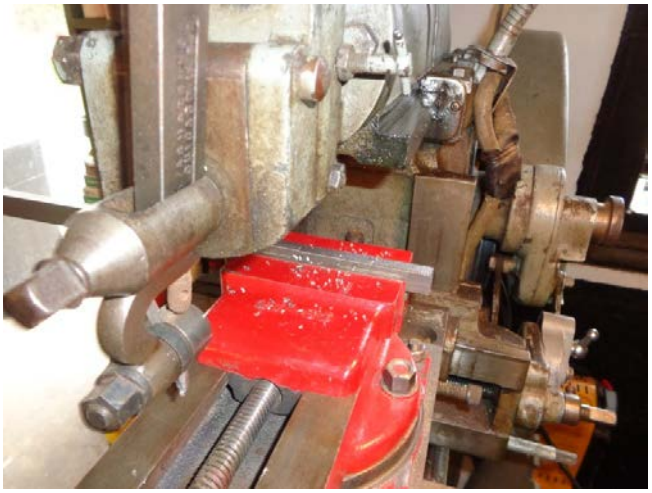
On 2 July 2020, TSG Weaver removed the rust from a group of hoist links. These links are fairly badly rusted and he removed all the rust and assembled the parts into usable links.

TSG Weaver assembled some of the loose parts into one link assembly. He will use one link assembly to find chain of the correct size to complete the hoist chain.

Beginning on 20 August 2020, T-5 Tunison and T-4 King began to work on un-freezing the shafts on the frame of Hoist #1. Below, T-5 Tunison uses a large pipe wrench to move the shafts.

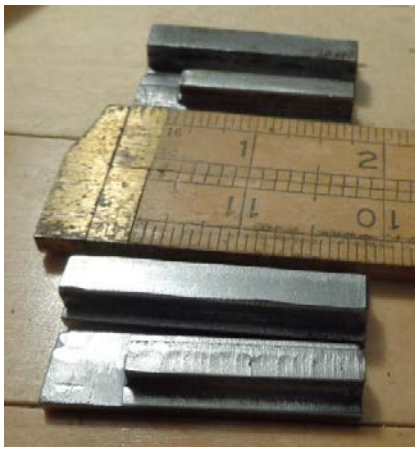
In this view T-5 Tunison is actually moving the shafts and gears for what is likely the first time in over 50 years.

In March, 2021, we began work on fabricating "keys" to hold the two hoist elevation crank handles in place. Hoist #2 has a non-standard crank handle that was obtained in the 2005 timeframe. While it fits the shaft, it was not secure on the shaft. A close examination showed that it lacked a properly fitting "key". Upon an examination of the crank handle that is on hand for Hoist #1, it was determined it too needed a special key fabricated. Four keys were fabricated using the Atlas shaping and end mill machines in the Battery machine shop. The Atlas Shaping machine is shown below cutting the keys from long barstock.

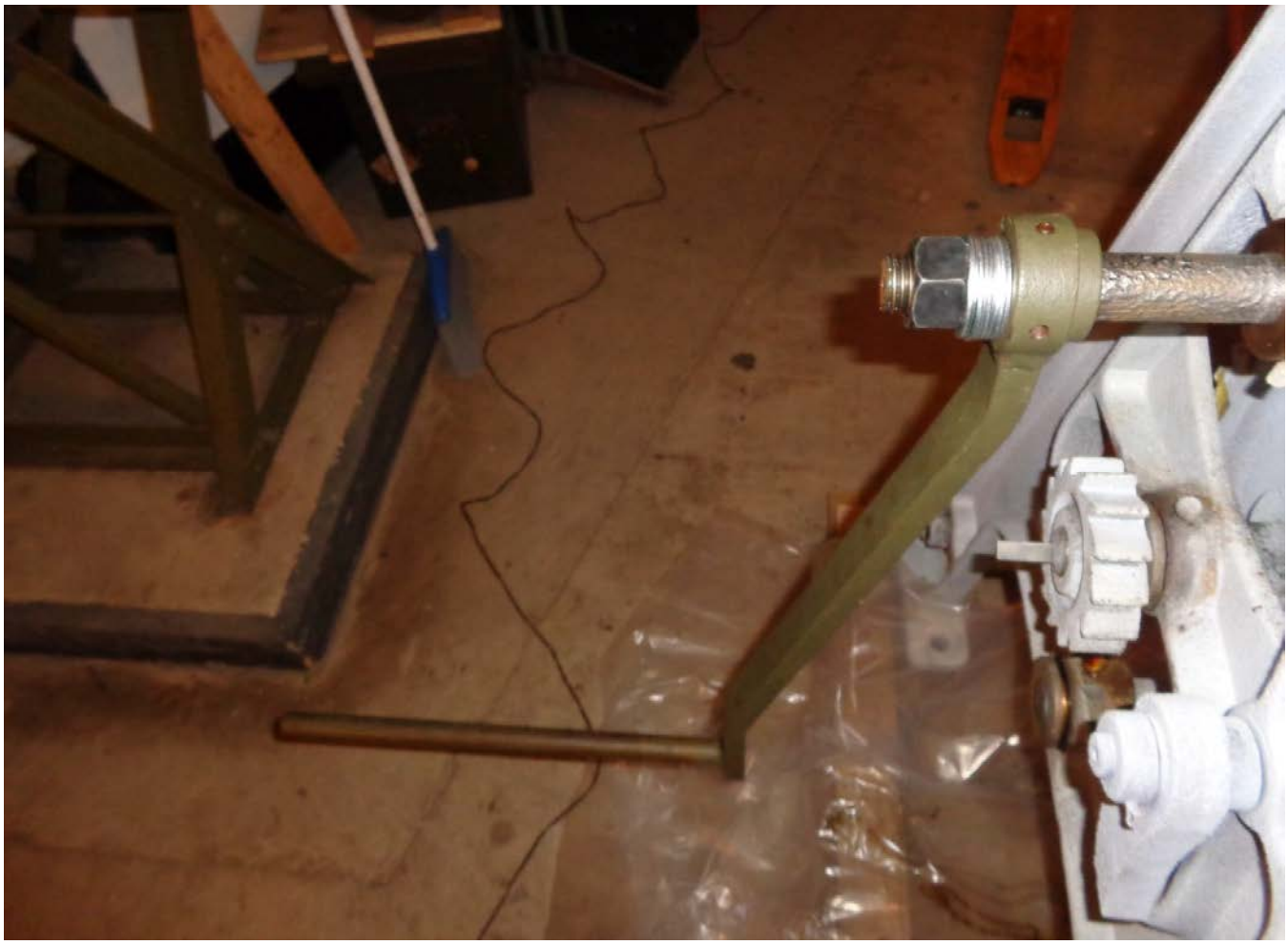


The photo below shows the Atlas End Mill machine cutting the leg of the "T" key. The two handles have different lengths and different key leg widths and depths. Each key was a custom cut.

The four keys as completed are shown below. Notice the differences. The key to the right in each pair has a thin "T" leg and the leg does not extend the length of the key. This key is for the Long Handle crank.



The long handle crank is shown below installed on Hoist #1. This handle is useful in its ability to generate torque for the hoist.



The two photos below show the fitting of the key for the long handle crank. The basic body of the crank handle that affixes to the shaft is thinner than the crank for Hoist #1. The photo to the left shows the long handle crank placed on the shaft with the key in place. However, the T leg of the key protrudes past the base of the shaft structure. The photo on the right shows that protruding leg cut flush to the face of the shaft handle. The "head" of the "T" key is in the slot on the shaft and locks the key in place.

The photo below shows the long handle crank with the T leg trimmed with washers in place to hold both the key body and the handle proper in place on the top shaft.

The shorter handle is shown in place on Hoist #2. A similar process of fabricating the keys occurred as with the long hoist crank handle. This handle is the correct handle as supplied with the hoists. It is shorter, so is less capable of delivering torque to the hoist. But it does have an advantage the long handle does not.

That advantage is shown in the photo below. The handle proper can be reversed and is not a "head knocker" when not in use.

The top shaft was rehabilitated by the AGFA team. The shaft is shown in place with the bearing surfaces showing deep pitting prior to using weld to fill in the rusted areas.

The restoration of the upper shaft involved three people. T-3 Brodzinski built up the rusted bearing surfaces with weld. Jim Wolf then used his large lathe to turn down the built up weld to make a smooth bearing surface. The top two photos are before and the bottom two are after welding buildup.

The photo below shows T-3 Brodzinski preparing the build-up the weld on the upper shaft. The shaft is on the table and ready to begin!

The photo below shows T-3 Brodzinski preparing the clean off some of the byproduct of the weld in order to continue building up the weld on the very badly rusted areas.

The photo below shows the shaft in place without the drive gear installed. The overcut of the collar shows well on the right. This is corrected with six washers.

The photo below shows the top shaft with the drive gear installed and key in place. The brass bushing is installed correctly on the left and the shaft collar supports the end of the bushing. This is installed as designed.

On the left side of the hoist (wall side when installed), the photo the he left shows clearly the over-cut of the seating collar of the shaft for the bushing. The photo to the right shows six "washers" in place to hold the shaft in the correct position. Both brass bushings are locked into place using the locking bolts on the underside of the frame. This work was completed on 11 June 2021.

Assembly of the hoist fixtures in the hoist shaft was initiated on 18 June 2021. The photos below show the Hoist #1 beams before drilling and fitting the trunnion assemblies. The right photo shows Hoist #2 upper chain sprocket assemblies as it is currently in place. The inside face of the trunnion blocks are approximately 15-1/2 inches from inside face of wall (top opening side) to face of trunnion block.

As part of the siting process for the trunnion assemblies and the two H Beams we confirmed all key dimensions for the two shafts and fixed metal beams.

The height of the shaft from the platform for the hoist frame to the roof of the shaft is 13 feet 4-3/4 inches for Shaft #1 and 13 feet 5-1/2 inches for Shaft #2. Measuring from the floor, to bottom beam (underside) is 5 feet, 3-1/2 inches (average - varies from 3/8 inches to 1/2 inches difference).

The next step for installing the top sprocket and trunnions is the drilling of holes for the bolts to secure the trunnion bases.

The left trunnion base is shown with a bolt in place.

In the photo below TSG Weaver looks up through the Hoist #1 shaft.

Below LTC Welch takes a pause in drilling the holes for the trunnion bases.

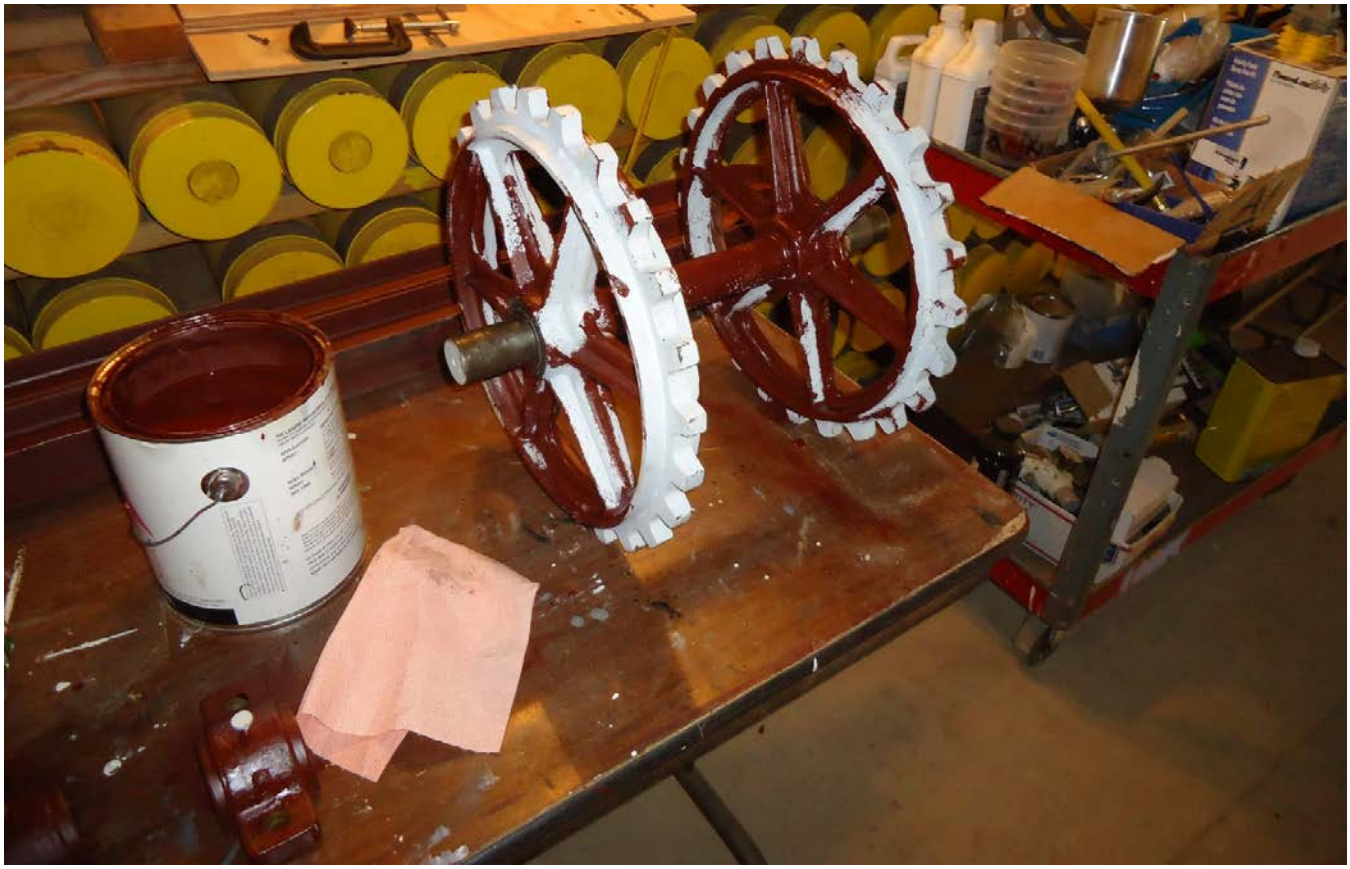
Below LTC Welch drills the left holes for the trunnion mounting bases.

The photo below shows the four new holes drilled in the I Beams for the Trunnion bases. The next step is to prime and paint the trunnion bases, upper sprocket and shaft. Once that is complete the entire grouping will be assembled and secured to the I-Beams shown below.

Below TSG Weaver checks the placement of the trunnion bases with the upper sprocket and shaft.

Below the upper sprocket and shaft is in place on the two trunnion mounts.

The next step taken on 24 June 2021 was priming the upper sprocket and trunnions. In the photo below the sprocket and trunnion tops (left) are primed.

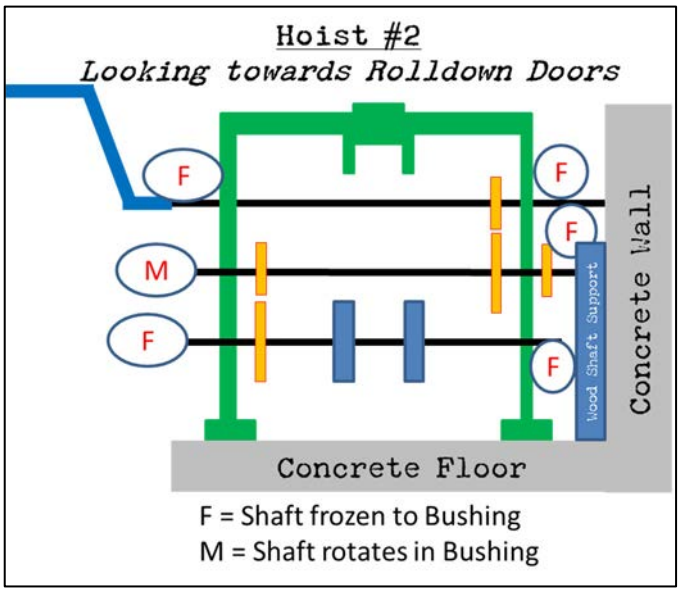


On 30 June both the trunnion mounts and the sprocket were painted OD.

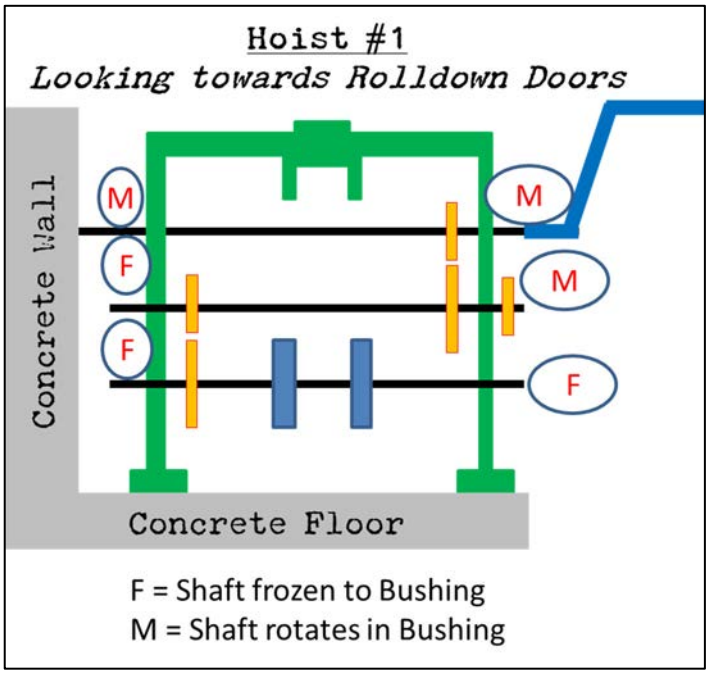
On 2 July work began on fitting the two vertical H-Beams into place and drilling the bolt holes required to secure them to the mounting plates on the I-Beams inside the shaft. The photo below shows a beam locked into place with C Clamps to center punch the holes.

The photo below shows LTC Welch using the drill press in the machine shop to drill the holes required in each H-Beam. This work continued through 23 July.

Another key issue was freeing the bronze bushings on Hoist #1 frame. The two drawings that follow show both Hoists #1 and #2. Hoist #2 was restored in the 2003 to 2005 timeframe by TSG Weaver and CPT Prostak. Of the six bronze bushings; only one allows the shaft to ride within the bushing. All the rest of the bushings are frozen to the shafts and the bushings proper ride within the frame. This does not degrade performance of the hoist. However the center shaft with the one movable bearing (left) allows the right bearing which is frozen to the shaft to back out towards the wall. In 2005 a 2x6 inch board was placed between the hoist and the wall to keep the shaft in place as the hoist is articulated.



The drawing of Hoist #1 below shows that three of the six the bronze bushings are frozen to their shafts. The frozen bushings move within the frame as opposed to the shaft riding within the bushing and the bushing locking stationary in the frame using the locking bolt on the frame. On 15 July 2021, work began to release the three remaining frozen bronze bushings from the shafts.



T-4 Tunison used a propane torch to heat up the bushings and then LTC Welch would move the crank with maximum force to break the shaft free of the bearing. Over a period of two hours all three bushings were freed from the shafts. Then a process of lubricating and moving the shafts within the bearings began which lasted for another two hours.

The photo below shows T-4 Tunison articulating the shaft gears to get the lubricant into the bearing bushings.

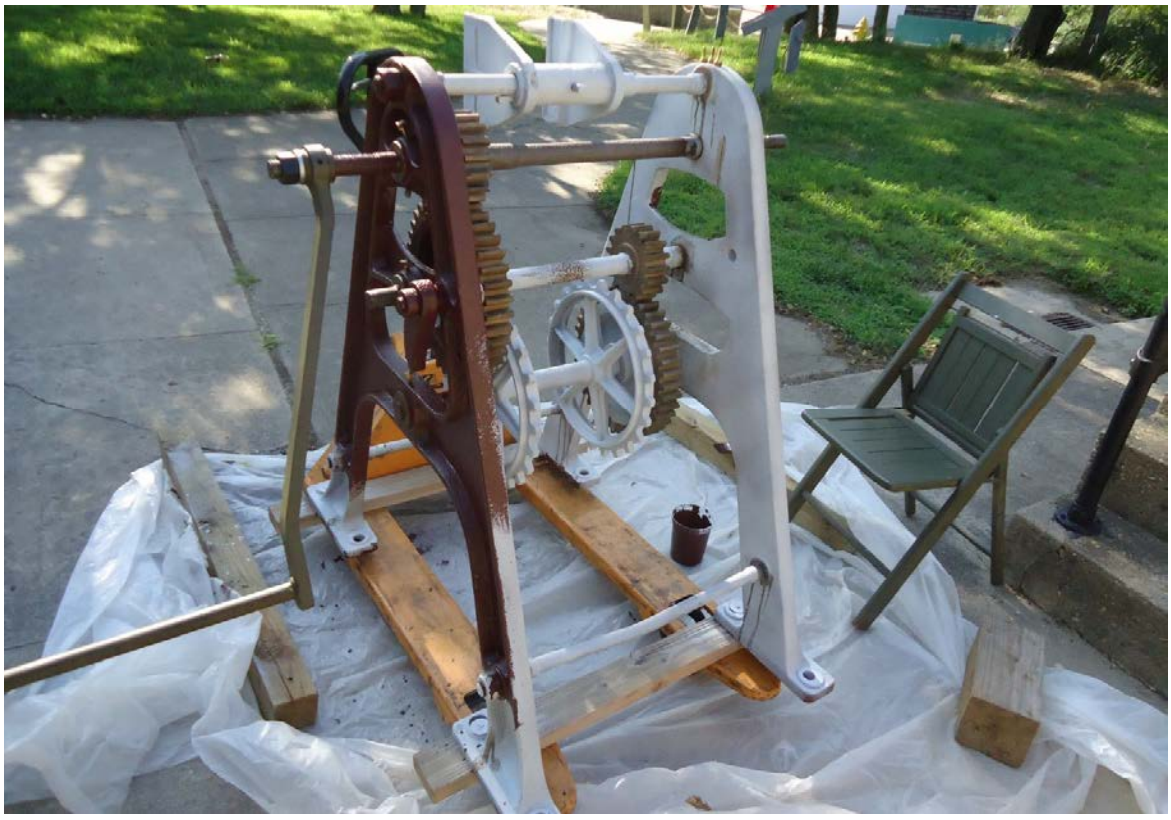
On 23 July, TSG Weaver and LTC Welch continued work on drilling and mounting the vertical H-Beams. In the photo below they drill the holes required for the beams.

The photo below shows the 1940s vintage drill next to the beam where the holes were drilled just a few moments before.

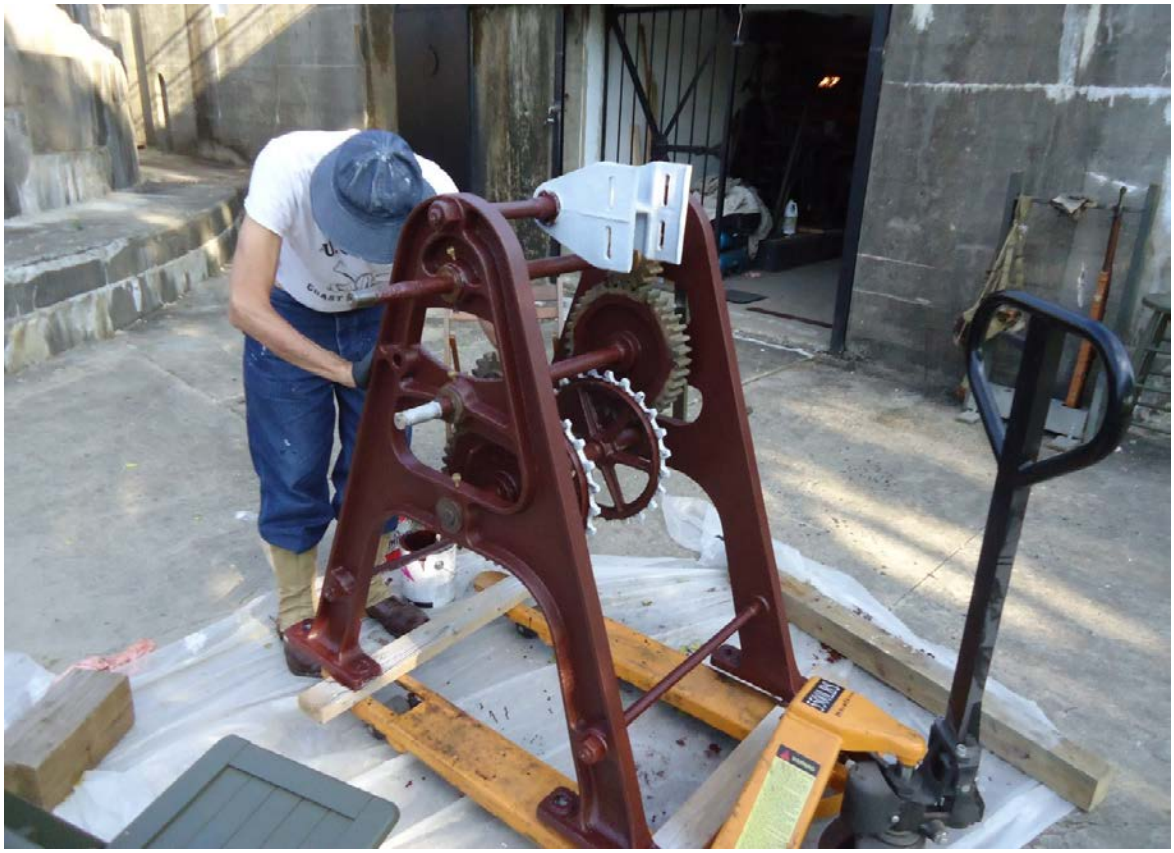
On 23 July it was discovered that the upper H-Beam mounting plates were too close together. The only option was to use some type of "jack" to pry them apart. The National Park Service assisted by providing a crash rescue spreader (jaws) with the requisite power to spread the plates. The photo below shows the Ranger having just used the jaws to open the plates and insert a wooden block.

The final placement of the block is shown below. The intent was to leave the block in place for at least a month to dampen the potential tendency for the metal to "spring" back into place. The jaws spread the plates to seven inches - about half an inch more than required to compensate for the return "spring" expected.

On 30 July 2021 we began the process to prime the hoist frame and the lifting arms and casters on the chain. The hoist was first cleaned to remove lubricants, and then primed with red zinc primer.



In the photo below CPL Cusano is priming the frame.



Below CPL Cusano is priming the shell lifting arms and casters on the hoist chain with red zinc enamel primer.

The photo below shows the completed priming on the hoist chain.

On 6 August 2021 painting the frame and chain Olive Drab (OD) began.

The photo below shows the shell arms and casters on the hoist chain are being painted OD (right).

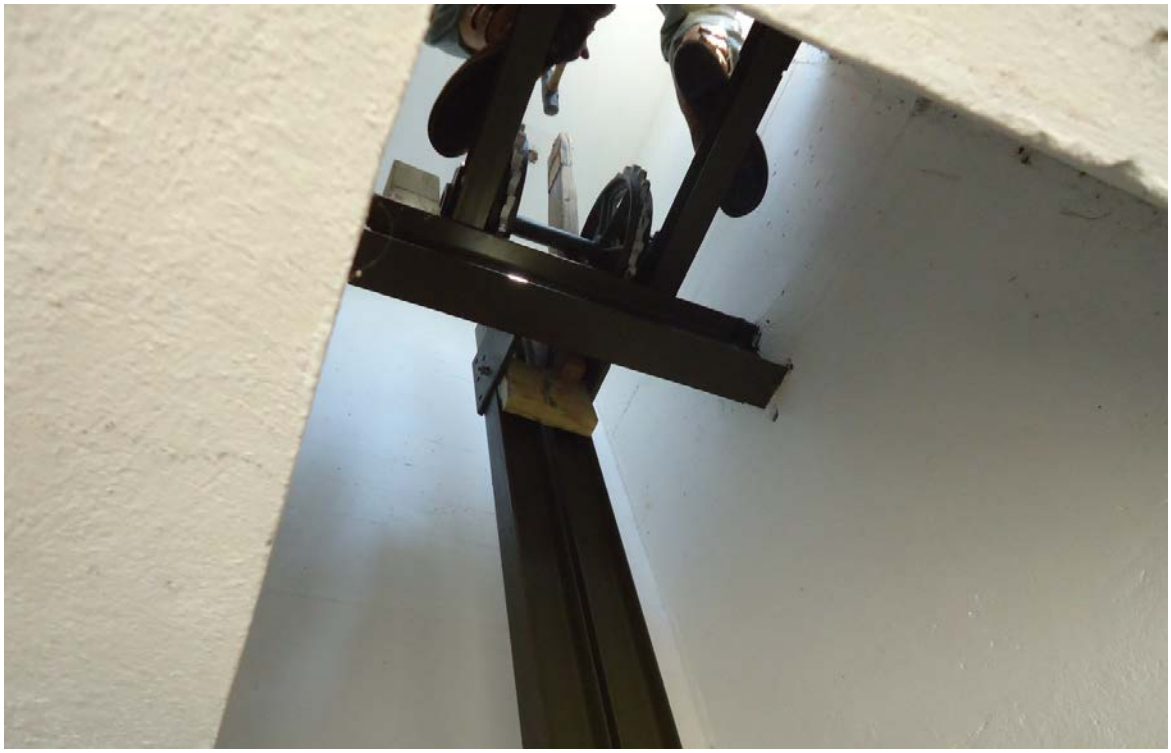
On 12 August, once all the OD paint had dried, work began on loosening and lubricating all the caster wheels on the hoist chain. Of twelve pairs, eleven were made operational and spun freely.

On 27 August 2021 the big day of assembling the hoist into its position began. This was a long day that started at 0930 in the morning. The team worked right through the day and completed the basic assembly at 1645. In the photo below PFC Bujdos, T-4 Tunison and T-5 Morrison use a pallet jack to site the frame onto its concrete pad.

Below T-5 Morrison and PFC Bujdos continue to maneuver the frame into place.

While the frame was being maneuvered into place, the newly painted upper sprocket and trunnion blocks were mounted into place.

Shortly after the frame was moved into place, PTC Bujdos removed the wooden block from between the two upper hoist H-beam plates.



As work continued, it was soon discovered the H-beams did not fit properly into the frame's mounting brackets. The bolts had to be removed and the H-beams ground to fit the recesses in the plates. Below 2LT Still and PFC Bujdos remove the bolts.

Below CPL Cusano uses a side grinding machine to remove metal from the H-Beams.

Another view shows PFC Bujdos completing the job.

Once the H-beams were determined to fit, LTC Welch began the process of reinstalling the bolts.

The bolts were then tightened on the top mounting plates.

The next step was to pull the chain up into the shaft. Below 2LT Still and T-4 Tunison maneuver the chain across the floor of the magazine and up into the shaft.

At the top of the shaft, PTC Bujdos and CPL Cusano use a rope to pull the assembly up the shaft and the H-beams. The entire chain assembly weighs about 400 pounds and requires care and focus during its installation.

The photo below shows the chain being fed up the shaft.

In the photo below, PFC Bujdos uses a pry-bar to hold the chain in place while the rope is reversed to pull the chain back down the inside of the shaft.

The team on the gun platform awaits a new rope which is being carried by T-4 Tunison as CPL Cusano and NPS Ranger Melton pause in their efforts. Notice the tight rope in the center - this is holding the chain in the shaft.

The team prepares to move the rope and begin pulling the chain back down the hoist inside the shaft.

The photo to the left shows the hoist chain moving upward within the shaft, and to the right shows the hoist chain coming back down the shaft.

Another view of shell hoist chain coming down the shaft.

The master links are both in place. One of the master link pins are shown on the left photo and the two connection points for the links are shown on the right. The link pin itself passes through a "spacer" that maintains the proper distance of the links on the chain. Each pin has this spacer. The master pin had to be removed from the spacer. Then both pin and spacer were cleaned and polished, and then the entire pion and spacer assembly was lubricated. Once this was completed, the chain was able to be connected.

Below the team prepares to pull the chain assembly together and affix the master link pins into place. The chain master link connecting points can be seen just below the shell hoist assembly to the right. PFC Bujdos is preparing the pin for insertion into the master links.

The photo below shows the full hoist in place and a clearly tired PFC Bujdos on the left. The handle on the shaft was painted yellow to enable easy visual detection. The handle is also able to be "reversed" away from the passage to create more room for traffic into the magazine. This feature of the handle is very helpful.

The photo below shows the hoist with the shell table mounted in place.

The photo below shows a drill shell (made out of wood with a steel weight inside) on the lifting forks of the shell hoist.

Another view of the drill shell on the hoist lift forks.

The next update to this report will include the temporary shell delivery table on the gun platform level and final anchoring of the frame to the concrete pad.

These two tasks will be the final major component of the hoist restoration/reinstallation prior to the full concrete stabilization project for Battery Gunnison/New Battery Peck. That project will likely begin in 2024 and will include restoration of the upper shell receiving table with its permanent steel rails embedded in concrete.

ASSESSMENT OF ACTIONS HAVING AN EFFECT ON HISTORIC PROPERTIES

A. DESCRIPTION OF UNDERTAKING

1. Park: Gateway National Recreation Area

2. Project Description:

Project Name: Reinstall shell hoist #2 Battery Gunnison /New Peck
Prepared by: Pete McCarthy **Date Prepared:** 06/01/2018 **Telephone:** 718 338-3625
PEPC Project Number: 81094
Locations:
County, State: Monmouth. NJ
Describe project:
Army Ground Forces Association will reinstall the shell hoist in Battery Gunnison in order to provide the visitor with an accurate representation of how the Battery working during the World War II Harbor Defense Era. The original was removed during the 1960's and will be reinstalled by the volunteers under supervision of the park. See attached document for details

Area of potential effects (as defined in 36 CFR 800.16[d])
Battery Gunnison - interior

3. Has the area of potential effects been surveyed to identify historic properties?

____ **No**
____ **Yes**

4. Potentially Affected Resource(s):

Archeological Resources Affected: No

Historical Structures/Resources Affected: Yes

Cultural Landscapes Affected: Yes

Ethnographic Resources Affected: No

5. The proposed action will: (check as many as apply)

No Destroy, remove, or alter features/elements from a historic structure
Yes Replace historic features/elements in kind
No Add non-historic features/elements to a historic structure
No Alter or remove features/elements of a historic setting or environment (inc. terrain)

No ___ Add non-historic features/elements (inc. visual, audible, or atmospheric) to a historic setting or cultural landscape

No Disturb, destroy, or make archeological resources inaccessible

No Disturb, destroy, or make ethnographic resources inaccessible>

No Potentially affect presently unidentified cultural resources

No ___ Begin or contribute to deterioration of historic features, terrain, setting, landscape elements, or archeological or ethnographic resources

No Involve a real property transaction (exchange, sale, or lease of land or structures)

___ Other (please specify): _____

6. Supporting Study Data:
(Attach if feasible; if action is in a plan, EA or EIS, give name and project or page number.)

B. REVIEWS BY CULTURAL RESOURCE SPECIALISTS

The park 106 coordinator requested review by the park's cultural resource specialist/advisors as indicated by check-off boxes or as follows:

[X] Curator
Name: Felice Ciccione
Date: 06/04/2018

Check if project does not involve ground disturbance **[ ]**
Assessment of Effect: __No Potential to Cause Effect __No Historic Properties Affected __X__No Adverse Effect __Adverse Effect __Streamlined Review
Recommendations for conditions or stipulations:

[X] Historical Architect
Name: Marilou Ehrler
Date: 06/01/2018
Comments: The project will restore Gun Hoist 1 - the hoist itself and the hoistway. The hoist which has been restored will be reinstalled in the restored hoistway. All efforts will be made to minimize the impact on the historic fabric.

Check if project does not involve ground disturbance **[ ]**
Assessment of Effect: __No Potential to Cause Effect __No Historic Properties Affected __X__No Adverse Effect __Adverse Effect __X__Streamlined Review
Recommendations for conditions or stipulations: If once the work begins it is found a significant amount of cutting of the historic concrete is required, work shall stop and the chief of cultural resources shall be notified immediately.

Doc Method: Streamlined Review (PA)
Streamlined Activity:
1. Preservation Maintenance and Repair of Historic Properties

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[X] Historical Landscape Architect
Name: David Uschold

Date: 06/04/2018
Comments: Repair project that will have no adverse effect to cultural landscape resources.

Check if project does not involve ground disturbance **[ ]**
Assessment of Effect: __No Potential to Cause Effect __No Historic Properties Affected __X__No Adverse Effect __Adverse Effect __X__Streamlined Review
Recommendations for conditions or stipulations:

Doc Method: Streamlined Review (PA)
Streamlined Activity:
1. Preservation Maintenance and Repair of Historic Properties

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No Reviews From: Archeologist, Historian, 106 Advisor, Other Advisor, Anthropologist

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C. PARK SECTION 106 COORDINATOR'S REVIEW AND RECOMMENDATIONS

1. Assessment of Effect:

_____ No Potential to Cause Effects
_____ No Historic Properties Affected
__X__ No Adverse Effect
_____ Adverse Effect

2. Documentation Method:

[ ] A. Standard 36 CFR Part 800 Consultation
Further consultation under 36 CFR Part 800 is needed.

[X] B. Streamlined Review Under the 2008 Servicewide Programmatic Agreement (PA)
The above action meets all conditions for a streamlined review under section III of the 2008 Servicewide PA for Section 106 compliance.

Applicable Streamlined Review Criteria
(Specify 1-16 of the list of streamlined review criteria.)

1. Preservation Maintenance and Repair of Historic Properties.

[ ] C. Undertaking Related to Park Specific or Another Agreement
The proposed undertaking is covered for Section 106 purposes under another document such as a park, region or statewide agreement established in accord with 36 CFR 800.7 or 36 CFR 800.14.

[ ] D. Combined NEPA/NHPA Process
Process and documentation required for the preparation of an EA/FONSI or an EIS/ROD to comply with Section 106 is in accord with 36 CFR 800.8.c.

[ ] E. Memo to Project File

3. Consultation Information

SHPO Required: No
SHPO Sent:
SHPO Received:

THPO Required: No
THPO Sent:
THPO Received:

SHPO/THPO Notes:

Advisory Council Participating: No
Advisory Council Notes:
Additional Consulting Parties: No

4. Stipulations and Conditions: Following are listed any stipulations or conditions necessary to ensure that the assessment of effect above is consistent with 36 CFR Part 800 criteria of effect or to avoid or reduce potential adverse effects.

If during the course of the work, it is found that a significant amount of cutting of the historic concrete is required, work shall stop and the chief of cultural resources shall be notified immediately

5. Mitigations/Treatment Measures: Measures to prevent or minimize loss or impairment of historic/prehistoric properties: (Remember that setting, location, and use may be relevant.)

No Assessment of Effect mitigations identified.

6. Assessment of Effect Notes:

D. RECOMMENDED BY PARK SECTION 106 COORDINATOR:

Compliance Specialist:
NHPA Specialist
Marilou Ehrler _____ **Date:** 6/4/18

E. SUPERINTENDENT'S APPROVAL

The proposed work conforms to the NPS *Management Policies* and *Cultural Resource Management Guideline*, and I have reviewed and approve the recommendations, stipulations, or conditions noted in Section C of this form.

Signature

Superintendent: _____ **Date:** 6/4/18
Jennifer T. Nersesian

AGFA Welding Operations Standards

Arc Welding produces magnetic fields that can affect a pacemaker.

PACEMAKER WEARERS WILL BE DIRECTED TO KEEP AWAY from ARC WELDING operations.

Required Safety Training: All AGFA personnel that will conduct welding operations are trained professional welders. They have reviewed the material below and agree with this approach.

Required Personal Protective Equipment: Welders Helmet, Insulated welding gloves, Welders Cap, protective clothing or apron, foot protection, and hearing protection as required.

Tools Needed: Clamps, hold downs.

Tasks	Hazards	Safety Procedures
Welding and Cutting during Repair and/or routine maintenance	1. Electric shock	1. Wear dry, hole free insulated gloves, and body protection. Insulate yourself from work and ground by using dry insulating mats or covers big enough to prevent any physical contact with the work or ground. Do not use AC output in damp areas if movement is confined or if there is a danger of falling. Properly install and ground the equipment. Always verify the supply ground-check and be sure that input power cord ground wire is properly connected to ground terminal in disconnect box or the cord plug is connected to a properly grounded receptacle outlet. When making input connection, attach proper grounding Conductor first and double check connections. Frequently inspect power cords for damaged or bare wiring. Replace immediately if damaged. Turn off all equipment when not in use. Clamp work cable with good metal to metal contact to work piece or work table as near to the weld as possible. Damage to lead within 6 feet of bolder requires the lead cable to be replaced.
	2. Hazardous fumes or gas	2. Keep your head out of the fumes, do not breath the fumes. Weld outside if possible. If inside, ventilate the area and/or use exhaust at the ARC to remove welding fumes and gases. If ventilation is poor, use an approved respirator. *Note - only those who have been medically cleared and fit-tested may wear a respirator. See Respiratory Protection SOP.

Task	Hazard	Safety procedures
	3. Arc rays	3. Wear a welding helmet fitted with proper shade filter to protect eyes and face. Wear only approved safety glasses with side shields under your helmet. Use protective screens or barriers to protect others from flash and glare; warn others not to watch the ARC.
	4. Fire and/ or explosion	4. Wear protective clothing made from durable flame resistant material (leather or wool) Protect yourself and others from flying sparks and hot metal. Do not weld near flammable material, Remove all flammable material at least 50 feet. From ARC if moving isn't practical, cover with approved covers. Watch for fire. Keep fire extinguisher nearby. Don't weld on closed containers, tanks, drums or pipes Unless they are properly prepared. Remove stick electrodes from holder or cut off welding wire at contact tip when not in use. Remove any combustible items such as butane lighters, or matches from your person before doing any welding.
	5. Flying metal	5. Wear approved safety glasses with side shields even under welding helmet.
	6. Buildup of gas	6. Shut off shielding gas supply when not in use. Always ventilate confined spaces or use approved air-supplied respirator.
	7. Hot parts	7. Do not touch hot parts bare handed. Allow cooling period before working on gun or torch.
	8. Noise	8. Wear approved ear protection if noise level is high.
	9. Cylinders can explode if damaged	9. Protect gas cylinders from excessive heat, mechanical shocks, slag, open flames, sparks and ARCS. Secure cylinder to stationary support or cylinder rack. Keep cylinders away from any welding or any other electrical circuits. Never drape a welding torch over a gas cylinder. Never allow welding electrode to touch any cylinder. Never weld on a pressurized cylinder. Turn face away when opening a cylinder valve.

	10. Shock or explosion	Keep protective cap in place except when cylinder is in use or connected for use. 10. Turn off all valves, unplug power cord, and use Lock out-Tag out procedure if necessary.

AGFA Risk Assessment Matrix

Catgory	Analysis and Observations (description of situation, risks and concerns for each category)	Risk Value
Supervision	Presence, accessibility and effectiveness of Qualified supervision for all teams and personnel. Focused on overall operation, not individual tasks. Clear chain of command. DESCRIPTION: Team supervisor is Doug Ciemniecki. His full time employment is plant facilities supervisor for the BelRay petroleum (www.belray.com). He has over 30 years of experience in this kind of work. Doug has been the lead for several projects including the Chemical Warfare system restoration at Battery Gunnison/New Battery Peck. Overall supervision is Shawn Welch, a retired senior Army Engineer officer and AGFA board member. Final say on all matters within AGFA rests with the Board. MITIGATION: None required - this is a strong team that is directly tied to the Board with a participating board member.	1
Planning	Information available, how much, how clear, adequate planning time and evaluation. Current SOP's, relevant procedures and standards. Team is trained accordingly DESCRIPTION: The team has a physical example of a restored and operable hoist (gun #2 hoist) and 1943 drawings of the hoist installation. Actions taken are measured and deliberate. Much review occurs before actual work is undertaken and the team documents all work with photographs before, during and after. MITIGATION: None required	1
Team Selection	Consider qualifications and experience level for specific event or task. Individuals may need to be replaced during the event/evolution; experience level of team members should be assessed. DESCRIPTION: Primary members of the team are Doug Ciemniecki, Wally Tunison, and Richard King. Additional members of the team include Gary Weaver, Chris Egan, Henry Komorowski and Shawn Welch. Doug Ciemniecki will directly supervise all welding operations. All of these personnel are professionals in their chosen fields with strong track records of critical thinking, safety awareness and temperament for difficult and complicated tasks.	1

	MITIGATION: None required	
Team Fitness	Physical and Mental state of Team. Including fatigue and morale. Consider amount and quality of rest fatigue becomes a factor after 18 hours of no rest. As exertion increases fatigue also increases. DESCRIPTION: All members of the team are physically fit for their age. One member has a pace maker and has been briefed on the associated risks regarding welding operations. MITIGATION: Because most of the team are over the age of 50, we do check on each other during our work. We ensure all are hydrating and that we don't work when visibly tired.	5
Communication	Infrastructure reliability (Radio, Phone, Chain of command), Established plan trained and rehearsed. Well briefed, trained and informed team. Clear goals and expectations. DESCRIPTION: The team communicates extensively using all modern means of communication (voice telephone, text and email). During operations the team has the ability to communicate directly with NPS personnel on any of these means of communication. MITIGATION: As a safety and emergency precaution, we have ensured all team members have the Ranger Station phone number (732) 872-5900 in their telephone address books. We have confirmed that each member's cell phone can connect to the Ranger Station. The biggest communications issue is cell phone reception at Fort Hancock, but it appears that all of our phones but one has reception at the Battery.	2
Contingency Resources	Local cooperators MOU and planning in place. Shared Communications and contact information? Preplans, ability to activate and response time considerations. DESCRIPTION: The interpretive agreement with NPS covers the restoration and preservation work undertaken by AGFA. As volunteers, the work is conducted as personnel schedules allow. All work is conducted with at least two people on site. Coordination is extensive during the preparation for each work period. MITIGATION: As a safety and emergency precaution, we have ensured all team members have the Ranger Station phone number (732) 872-5900 in their telephone address books. We have confirmed that each member's cell phone can connect to the Ranger Station. The ability to get work support from NPS team in the evenings is non-existent. If work becomes complex to the point where NPS support is required and it is unavailable, the request for support will be submitted on the next business day for a mutually agreeable time.	5
Environment	Conditions affecting personnel, asset or resource performance. Time of day, temperature, humidity, precipitation, wind, aerial/navigational hazards and other exposures (e.g., oxygen deficiency, toxic chemicals, and/or injury from falls and sharp objects).	5

	DESCRIPTION: Most of the work is out of the weather and inside the Gun Battery. Some work will be conducted outside when only during favorable weather conditions. The welding inside the hoist shaft is a confined space and requires special precautions. The welding and machine operations contain the most significant risks and severity of injury. Special attention is paid to these processes and only our most expert personnel undertake these tasks. MITIGATION: Welding inside the shaft will be closely monitored by team members. Rehearsal of the welding operation will be conducted and the welder will ensure he is able to operate in the space before welding begins.	
Incident Complexity	Consider time, exposure # of shifts/divisions/teams, longer/greater exposure = greater risk, each circumstance is unique. Proficiency vs. productivity vs. safety, complacency vs experience, experience level of the team, how long the will environmental conditions will remain stable, complexity of the work. DESCRIPTION: Most of this work is relatively straight forward and done at the members pace. The level of complexity is generally low with the exception of machining and welding. MITIGATION: None required	5

Overall Rating: 25 (Green)

GAR Operational Risk Management Assessment	
Rate 1-10 → Any category rated > 5 should receive specific mitigation	
1. Supervision	*Qualified, effective, accessible? Clear chain of command? Appropriate span of control ratio?*
2. Planning	*Information available & clear, adequate time to plan? SOPs & JHAs? Team briefed & input solicited?*
3. Team Selection	*Level of training and experience? Cohesiveness & attitude? Prone to skill error, complacency error?*
4. Team Fitness	*Physical & mental state of the team? Consider rest, fatigue, morale, outside distractions.*
5. Communication	*Communications equipment, infrastructure & dispatch? Interpersonal communications of team?*
6. Contingency Resources	*MOU's and pre-plans in place? Shared communications plan? Response time?*
7. Environment	*Time of day, weather, topography, approach & access, fuel load, urban challenges, chemicals?*
8. Incident Complexity	*Exposure time, environment stable? Potential for taxing staff? Multiple tasks? Sense of urgency?*
Green (8-35)	**Amber (36-60)** **Red (61-80)**

SEVERITY × PROBABILITY × EXPOSURE SPE		
SEVERITY	***PROBABILITY***	***EXPOSURE***
1. Insignificant 2. Minor 3. Moderate 4. Major 5. Catastrophic	1. Rare 2. Unlikely 3. Possible 4. Likely to occur 5. Frequent, very likely to happen	1. Below average 2. Average 3. Above average 4. Great

VALUES	***RISK LEVEL***	***ACTION***
80-100	Very High	Discontinue / Stop
60-79	High	Immediate Correction
40-59	Substantial	Correction Required
20-39	Possible	Attention Needed / Proceed w Caution
1-19	Slight	Proceed / Possibly Acceptable