April 29, 2015

Mr. Dinh Vo  
Remediation Project Manager  
NASA/John F. Kennedy Space Center  
Mail Code: TA-A4B  
Kennedy Space Center, Florida 32899  

Subject: Final Report - Artesian Well Abandonment at Launch Complex 39A  
John F. Kennedy Space Center, Florida  
Contract No. NNK12CA14B-NNK14CA26T

Dear Mr. Vo:

Jacobs Engineering Group, Inc. and CORE Engineering & Construction, Inc. (Jacobs-CORE) are pleased to submit this letter report documenting well abandonment activities at one site located at John F. Kennedy Space Center (KSC), Florida. The well abandonment activities documented in this report were conducted at Launch Complex 39A.

1.0 BACKGROUND

On September 25, 2014, the National Aeronautics and Space Administration (NASA) Remediation Project Manager (RPM) requested that Jacobs-CORE complete abandonment of an artesian well under Contract No. NNK12CA14B, Task Order No. 06. The site and task were:

- Launch Complex 39A: Abandon the artesian well located on the liquid oxygen (LOX) side of site, as the well is no longer utilized.

Project expectations and site-specific assignment details, including site access and notification requirements, were discussed between the NASA RPM and Jacobs-CORE personnel during a kick-off meeting held on October 30, 2014 at KSC. Logistics, schedules, and safety were also key topics discussed during the meeting. The abandonment method for the artesian well was communicated by the NASA RPM to be “abandon-in-place”, in the same manner as was done for the artesian well previously abandoned on the liquid hydrogen (LH2) side of the site in December 2012.

An addendum (Addendum No. 5) to the Site-Specific Safety and Health Plan (SSSHP) for Contract No. NNK12CA14B was issued by Jacobs-CORE in November 2014 to address work to be performed under Task Order No. 06. The SSSHP addendum was coordinated with the NASA RPM and was accepted by NASA Safety and Environmental Health in November 2014.

2.0 LAUNCH COMPLEX 39A

Launch Complex 39A is located east of the Vertical Assembly Building (VAB) area at KSC, adjacent to the Atlantic Ocean (Figure 1). The launch complex dates back to the 1960s and has been used for NASA’s Apollo and Space Shuttle programs. The launch complex is currently being leased to SpaceX where it is being modified to support future launches. Under environmental
regulation, Launch Complex 39A is designated as Solid Waste Management Unit (SWMU) 008, and is being managed for residual soil and groundwater contamination.

The artesian well tasked for abandonment was located on the LOX side (northwest area) of the launch complex (Figure 2). The exact date of well installation is unknown. The well was no longer in use at the time of the abandonment request, but was previously utilized under St. Johns River Water Management District (SJRWMD) consumptive use permit (No. 50054) for the Floridan Aquifer. The exact construction details of the LOX artesian well were also unknown; however, a similar-type artesian well was previously located on the LH2 side of the site, which was abandoned in 2012. Based on discussions with the NASA RPM and review of the LH2 artesian well abandonment completion report, the LH2 artesian well was reported to be an 8-inch diameter, 330-foot deep well. The NASA RPM communicated that the LOX artesian well was likely to be an 8-inch diameter, 380-foot deep well. This information was used for scoping, and was subsequently confirmed to be substantially accurate. No additional information could be found for the LOX artesian well using the NASA Remediation Information System (RIS).

The following sub-sections detail abandonment activities completed for the LOX artesian well located at Launch Complex 39A.

2.1 Pre-Abandonment Activities

Several activities were completed prior to initiating abandonment. The following sections outline these activities.

2.1.1 Permits

Various permits were obtained in preparation of well abandonment activities, which included:

- **Well Abandonment Permit**: A well abandonment permit was issued by SJRWMD in November 2014 (Permit No. 140159-1). Environmental Drilling Service, Inc. (EDS; Florida Water Well Contractor License Number 2406), which was subcontracted to perform the abandonment, applied for and obtained the permit.

- **Dig Permit**: A KSC excavation permit request (EPR) was submitted through the EPR Administrator on November 11, 2014. The request (No. 17195) was approved on November 12, 2014. The excavation permit inspector (EPI) was contacted prior to field work to mark utilities and obtain final signature on the permit. Environmental review comments regarding soil and groundwater constraints at the site were communicated with the point of contact (POC) designated on the permit prior to initiating field work. Correspondence was obtained from the POC that contaminated soil adjacent to the well had been excavated since the comment was made on the dig permit; therefore, no additional guidance was necessary.

- **Hot Work Permit**: A hot work permit was issued by the KSC Fire Inspector on December 8, 2014 (Permit No. 127775; renewed under Permit Nos. 128279 and 128915). The purpose of the hot work permit was to account for torching and grinding necessary to disassemble the well’s aboveground piping.
2.1.2 Electrical Switchbox Removal

In November 2014, the NASA RPM coordinated for power to be disconnected and for the associated electrical switchbox to be removed from the LOX artesian well. This was coordinated through an on-base engineering support request. Confirmation that power was disconnected and that the electrical switchbox was removed, was received via email by the NASA RPM on January 15, 2015. This was also confirmed during a site visit prior to mobilizing for the abandonment.

2.1.3 Water Controls Measures

Water control measures became an integral part of the planning process to adjust to changing site conditions. In November 2014, the NASA RPM and Jacobs-CORE personnel visited the site to locate the artesian well and inspect the area for access. At the time of the site visit, only the transformer and supporting concrete pad were present in the area of the well. During a subsequent site visit in early January 2015, Jacobs-CORE noted additional work on-going in the area of the well, which included trenching new utility lines, excavation of contaminated soil, and installation of an air sparge groundwater remediation trailer. To account for these new activities, further coordination efforts were completed between Jacobs-CORE, the NASA RPM and the RPM for the remediation project, and stakeholders performing work in that area. Additional on-site visits were completed in late January 2015 with Jacobs-CORE personnel, air sparge trailer stakeholders, and a representative from the drilling company subcontracted to perform the abandonment. These visits were used to discuss and finalize access limitations, field work logistics, and water control/management options to protect surrounding infrastructure from potential accumulation of water during the abandonment process.

The recommended water control plan consisted of the use of hay bales to direct water away from the transformer and air sparge trailer, and towards the drainage ditch south of the well. Stakes would secure the hay bales. Sediment control measures were not deemed necessary for within the drainage ditch (in the event that water reached the ditch), as it was confirmed that a filter sock was already installed within the drainage ditch for other work that was being completed in that area. The recommended water control plan received concurrence from the NASA RPM. The plan was finalized in a document that was disseminated on February 2, 2015 to the NASA RPM, air sparge trailer stakeholders, and Jacobs-CORE personnel that would be overseeing the field work.

2.1.4 Start Date Coordination

Start dates for field work were coordinated with the NASA RPM, the SpaceX facility manager, and air sparge trailer stakeholders. The dates were also populated on the NASA RIS calendar.

2.2 Abandonment Activities

Abandonment of the LOX artesian well at Launch Complex 39A was completed between February 3-5, 2015. The abandonment was completed by EDS with field oversight and quality control (QC) performed by Jacobs-CORE. The well was abandoned-in-place with grout via tremie-method, and all aboveground completions were removed to below grade with exception of a portion of the discharge pipe. This pipe was left in place in the event that it might need to be reconnected to the LOX operations for a future use. Final site cleanup and restoration activities were completed by Jacobs-CORE on February 6 and 11, 2015.
The following sub-sections detail the stages of abandonment activities.

2.2.1 Field Work

Prior to each day of field work, daily “tailgate meetings” were held to discuss the day’s activities, review health and safety concerns and protocol, and confirm communication procedures. The dig status and the day’s forecasted weather and weather warning protocols were also discussed during these meetings. All applicable project and site-specific documentation (permits, SSSHP, maps, etc.) was kept on-site throughout the duration of abandonment activities.

Initial field activities involved set-up of planned water control measures, and staging of materials and equipment for the abandonment process. Two of the bollards located aside the well were also removed to obtain clear access for the equipment necessary to complete the abandonment. After set-up and staging were complete, a portion of the aboveground piping was dismantled to gain access to remove the well’s pump and riser. Extra attention was given to the method of disassembly, given the proximity of surrounding infrastructure and hay bale placement. Once the piping was dismantled, the drill rig was used to hoist the pump out of the well, which was found to be positioned approximately 35-feet below top of casing. A multi-purpose manifold was subsequently connected onto the wellhead as a junction to pump grout into the well, to direct return water flow, and to close-off the artesian flow in order to allow grout to set properly.

Once the manifold was connected, an initial batch of grout was pumped into the well to halt artesian flow. The grout was mixed on-site and consisted of water, neat cement, and a percentage of bentonite additive. A senior, registered professional geologist from Jacobs-CORE was on-site to oversee the formulation and ensure appropriate densities were achieved. The grout mixture was then pumped into the well through a tremie pipe that was positioned near the bottom of the well. Approximately 400 gallons of grout was pumped into the well at that time; nearly half of the calculated volume for an 8-inch, 380-foot well. After this grout mixture was added, the tremie pipe was retracted and the valve on the manifold was closed off to allow the grout to set overnight.

Following the overnight set-up period, clear artesian water flow was still encountered when the valve was opened. The flow was significantly reduced from the pre-abandonment flows; however, the continued flow of water indicated that either the grout did not fully set, or that the open interval within the aquifer was not fully covered by the grout that did set. The tremie pipe was re-installed into the well to tag the grout, and discovered that the grout was set below 250-feet. The tremie pipe was re-set to an appropriate depth in the well in order to pump in additional grout. This second stage of grouting halted artesian flow. The shut-off valve was closed again, and the grout was allowed to set overnight.

No artesian flow was encountered after the second overnight set-up period, and the grout was tagged at 150-feet. The tremie pipe was re-set in the well and a final stage of grouting was performed to bring the seal to grade. Once this was complete, the manifold was detached and the remainder of the wellhead piping was removed to below grade. The supporting concrete pad was also removed during this process. The area was then re-graded to match existing conditions and the site area was appropriately cleaned up and restored. A total of 130 bags of neat cement were documented to have been used for the abandonment process, which aligns with amounts needed for a 380-foot well.
Final field work activities included removing all the hay bales from the site, installing a blind flange on the portion of the discharge pipe remaining aboveground, and mending a copper grounding wire that was inadvertently damaged during the abandonment process. The blind flange was placed over the discharge pipe to prevent access to the pipe until such time as it may be necessary. These activities were completed by Jacobs-CORE personnel on February 6 and 11, 2015. The decision to leave a portion of the discharge pipe aboveground was communicated to, and was concurred by the NASA RPM.

A photo log and field notes from well abandonment activities are provided in Appendix A. A copy of the water control plan (discussed in Section 2.1.3) is included in Appendix B. Copies of the dig and hot work permits are also provided in Appendix B.

2.2.2 Disposal

Initial material disposal was completed on February 3, 2015 for the aboveground piping that was first dismantled to begin the abandonment. This material was initially taken to the Reutilization, Recycling and Marketing Facility located on Ransom Road; however, facility personnel directed the scrap material to be taken to a commercial facility. The material was subsequently transported to Dominion Metals in Cocoa Beach, Florida for recycling. The material recycled was registered as 1,000 pounds of tin. Copies of the disposal receipt is provided in Appendix C. All other material from the abandonment process was taken off-site by EDS following abandonment activities for proper disposal.

2.2.3 Well Completion Report

A well completion report was submitted back to SJRWMD on February 23, 2015 for the issued permit. The completion report was completed and relinquished by EDS. A copy of the well completion report, with associated permit, is provided in Appendix D.

3.0 SUMMARY

In February 2015, the LOX artesian well at Launch Complex 39A was properly abandoned-in-place with grout via tremie-method. The artesian well was 8-inches in diameter and approximately 380-feet deep. All aboveground completions were removed to below grade, with exception of a portion of the discharge pipe. A blind flange was placed over the discharge pipe that remained aboveground. Water control measures implemented at the site were effective in protecting surrounding infrastructure. Following abandonment, the area was re-graded to match existing surroundings and the site was cleaned up and restored appropriately. All materials (concrete pad, well pump, aboveground well piping, etc.) were disposed of accordingly.

If you have any questions or need additional information, please feel free to contact us.

Sincerely,

Deda Johansen     Lindsay Morgan, E.I.
Program Manager     Project Manager

cc: John Armstrong, FDEP
Figure 1 - Site Location
Launch Complex 39A

Well Abandonment Letter Report
John F. Kennedy Space Center, Florida
March 2015
Figure 2 - Well Abandonment Location
Launch Complex 39A

Legend
- Artesian Well Abandoned-in-Place

Artesian Well Information

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<tr>
<th>Depth</th>
<th>380-feet</th>
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<tr>
<td>Diameter</td>
<td>8-inches</td>
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Coordinates

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<th>Easting</th>
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<tbody>
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<td>1554753.374</td>
<td>761878.092</td>
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</table>

Note: Coordinates in State Plane Florida - East, feet

Pre-abandonment Photo (November 2014)
November 2014: Pre-abandonment site conditions.

November 2014: Pre-abandonment site conditions.
November 2014: Well tag identifying permit and use.

January 2015: The well’s electrical junction box was removed prior to well abandonment. Note utility line trenching and soil removal activities also completed in this timeframe.
January 2015: Soil removal activities were completed adjacent to the well prior to abandonment. These activities were not associated with the abandonment process.

January 2015: A groundwater remediation air sparge trailer was also installed adjacent to the well prior to abandonment.
29 January 2015: Hay bales were placed around the well as a water control to protect surrounding infrastructure and direct water towards the drainage ditch south of the well.

03 February 2015: Prior to the abandonment, the hay bales were secured using stakes.
03 February 2015: After a portion of the aboveground piping was removed, the drill rig was set up in preparation to remove the pump and riser.

03 February 2015: The pump and riser are hoisted out the well. The pump was positioned approximately 35 feet below the well casing.
03 February 2015: The hay bales were an effective water control measure.

04 February 2015: After the pump was removed, a manifold was connected onto the wellhead. Tremie pipe was installed to pump grout into the well.
04 February 2015: Grout was mixed on-site.

04 February 2015: Grout was pumped into the well via tremie-method.
05 February 2015: Once artesian flow was stopped, the manifold and remaining wellhead was removed and the grout seal was brought to grade.

05 February 2015: Once grouting was complete, the concrete pad was removed and the remaining wellhead piping was removed to below grade. The site was re-graded to match existing surroundings and the area was restored.
06 February 2015: A blind flange was placed on the remaining discharge pipe left above grade.

11 February 2015: A copper grounding wire inadvertently damaged during the abandonment process was fixed by Cad-welding.
2-3-15 394 well Abandonment NASA

0700 Arrive K&L Bidding Gate 1 0730 meet Tom
Task: 1x-394 Well Abandonment
Weather: upper 40's/low 50's, wind NW 5-10, mostly cloudy, skies
H/S: Held on site

Topics: go over H/S plan, ATTA's, Act work permit, Dig permit, restrictions, Emergency plans, ATTA's, site housekeeping

Personnel: signed in on Daily site access log.

Well Abandonment Volumes 8' x 380' = 2,680 x 380 = 980,000 gallons
Abandonment Procedure: Pressure Grouting by Calculated Volume

0730 EDS personnel arrive Gate 1

0750 Arrive on site, held for update H/S meeting

0830 EDS crew begin preparation for well
Abandonment of well P/D & set up re-fuel blankets

0850 EDS crew off load 3 & 4 trucks
Remove Blankets from around well

Chris Newman on site W/T

Prepare upper trailer is fueled to Warden
Frame making it difficult to remove
Replace per Chris Newman request is
tout door carpet & will get water when
Rain occurs do not need to remove

Chris Newman (412) 862-7756

1100 Break for Lunch Before Reaming Final

1200 Return from Lunch, Begin Reaming

1330 Pump Remover only hanging in well
3' - 3' 6" TOC

1445 Speak with Andy Speno 864 supervisor
About use of plenum vs. stair vs.
Scaffolding for gravity

1615 Trim pipe I adjusted begin mixing Grout
To seal off cement flow

Mix 200 gallon of Portland Type III cement
w/ 5% Bentonite added

1700 400 gallons of 300 psi @ Bentonite pumped into well
Wait or return showing signs of grant beginning

411 Arrived off site for E.O.D
0700 Arrive on site 6-39A 0730 meet time

Tasks:
- Artesian Well Abandonment, Site Restoration
- Weather: upper 50's/low 60's, high (low 70's), mostly cloudy
- Wind: WNW, Gently

H&S Held on site personnel topics on Daily
- tailgate H&S Log.

Personal: signed in on Daily Site Access Log

0714 Arrive ATU

0735 EDS Crew arrive on site

0740 Held tailgate H&S meeting
- Additional topics: Great Dust, General Process
- Importance of site Restoration, Reinstalling Benches.

0746 Drop in trim pipe to 250' did not stop
- Bottom well still flowing clear water

0750 Begin mixing Portland cement for Abandonment
- of well

0835 400 gallons pumped pull trim pipe to
- 200' as to new look in hole if Grant is actually
- filling in Hole. Clear Flow still coming out
- of return line

0840 Trim pipe locked in Hole Proving Grant is
- above 250' BLS

0910 Reversed all 250' trim pipe
- Reinstall trim pipe to 180' to continue
- Grouting

0935 Flow, Return Flow stopped after additional
- 50 Gallons pumped, Pump Remaining mix
- of 100 gallons at site sealed off until
- Grant sets. Then check for flow prior to
- continuation of Grouting.

1030 EDS Crew departs Site to check out at hotel. Will return to
- office to pick up Chap's and equipment

1120 Arrive back onsite waiting for EDS Crew to return

1145 EDS Crew back onsite. Will send down Trim pipe to check
- Grant level.

1155 Grant is around 240' BLS, will bring pipe up to 180' BLS and
- begin to grout again.
2/4/15  LC-39A  Test oil

1200 Crew test informal on that flow has returned.

1215 Plan to pump more mix into well.

1225 Plce 700 gals of grout with no return. Pull up 20'lbs.
Will mix another batch 12lbs of grout.

1230 Mix 7 lungs of grout with 150 gals of water wth 5% bentonite
in mix.

1240 Dth Va. on site. Crew fills up water.

1315 Crew returns with water. Mix up 700 gals of water + grout + lobs
plus 5% bentonite in mix. Depth is 150'lbs.

1330 Finish pumping but no return of grout or water. Crew will
clean up well area. We will head back to shop for
more grout plus jet hammer/generator to break up concrete
ground well.

1340 Dth. Drill Site. Contents will be clean up.

1400 Tower down the drill platform.

1515 Crew has picked up all channeled around Site. See Photos. They
will go fill up on water. Will head over to see R. Robinson
at Wilson Corner.

1630 Send photos and videos to L. Morgan (Core).
2/5/18  | LE-374  | Test 2011
Personal | Rick Allen (C)  Glen Pennsylvania  Mitchell Pennsylvania  Shively (EDS)
Task     | Continue with weld abandonment at LE-374.
Weather | Rain, overcast. Visibility is reduced to about 1/2 mile. Winds 30 MPH. Pressure 29.85. Humidity 90%. Rain 1/2" in 1 hr. 15% chance of rain.
0630 | Arvin at LE-374. Check over site since heavy rain last night.
0725 | EPS crew arrives onsite.
0730 | Hold morning site meeting. See sign in for techs.
0735 | Will start out very trim pipe to try to fix gasket issue.
0750 | Crew to begin 120' x 120' lines with no wax return. Called Raymond Robinson to let him know to text L. Morgan also. Crew will begin to mix up grout batch to seal down.
0815 | Dumped in 200 gal of water/gray mix to bugs at package. Hall return water came back cloudy.
0840 | Mix 150 gal of Crystallite with 5 lbs of grout. Pump 75 gal with gray wax return. Crew moves stair platform out of way. They will disconnect the T connection.
0920 | Disconnect existing well tie section. Trim pipe is placed into new well on new gasket/strainer mix is pumped into gray to surface.
0930 | Begin to use electric jack hammer to break concrete around well.
1030 | As crew begins in well well pipe below ground. Crew saw cuts pipe. There will be 3 in. Use cutting torch.
1055 | Begins to weld. Crew stops operations till it passes.
1110 | Continue with welding with plow.
1140 | Having problems with cutting torch. Crew is closing up site.
1155 | Raymond Robinson goes onsite to help show EDS crew how to use torch.
1300 | Disk up arrive onsite.
1305 | Disk up pumps.
1350 | Raymond discusses site.
1420 | Crew is pick up. Site has been restored. Will send photo to L. Morgan.
1430 | End of day.
# JOB SAFETY PLANNING MEETING

<table>
<thead>
<tr>
<th>Facility:</th>
<th>KSC</th>
<th>Specific Location:</th>
<th>LC-39A (LOX side)</th>
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<tbody>
<tr>
<td>Job Number:</td>
<td>JERT011</td>
<td>Date:</td>
<td>2-3-15</td>
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<tr>
<td>Time:</td>
<td>0750</td>
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## Tasks to be performed:
- Remove bollard to clear access to well (if necessary).
- Set up planned water controls, as needed.
- Disassemble aboveground piping and remove well pump and riser.
- Abandon well in place with grout. Cap effluent pipe.
- Restore site to existing conditions.

## Chemicals Used:

## Dig Status:
(Dig Day or No Dig Day)

## SAFETY TOPICS PRESENTED

### Protective Clothing/Equipment:
Level D+ Safety glasses, gloves, hard-hats, steel-toe boots, and ear plugs.

### Chemical Hazards:
LC-39A has land use controls for soil and groundwater contamination. See environmental comments on dig permit regarding environmental contamination concerns at this site.

### Safety Plan to Avoid Chemicals/Hazards:
Use Proper PPE. Wash hands before eating, drinking, smoking, and/or chewing.

## Physical Hazards

### Insects and wildlife
Watch where you place your hands and feet. Use repellent. Check yourself for ticks. Aware of alligator around waterways.

### Slip, trip, falls
Awareness of potential hazards such as stick ups, uneven surfaces, etc. Use good housekeeping methods. Keep hoses, tools, tubing; etc. in an orderly fashion.

### Pinch points
Recognize and avoid potential pinch points. Watch hand and body positioning. Never place hands, arms, legs, or body between two items being joined, a movable and an immovable object, or inside running equipment. Use proper PPE. Objects that may shift.

### Muscle strains
Use proper bending/lifting techniques. Let equipment do as much lifting as possible. Use Buddy system. Get assistance with heavy lifts.

### Noise
Use hearing protection when you must raise your voice to be heard and in designated areas. Hearing protection required whenever drill rig is in operation. Always watch out for pedestrians. Stop work if local tenants are in the area.

### Hand and power tools
Proper training on tool use. Proper PPE. Awareness. Proper maintenance of equipment. If generator is required, use of GFCI is required. Ensure that guards are in place and functional.

### Cuts and Scrapes
Recognize and avoid. Awareness. Proper PPE.

### Equipment Operations
Operators beware of pedestrians and surroundings. Make eye contact with operator prior entering work zones. Proper maintenance and inspections. Including those adjacent operations.

### Vehicular traffic
Seatbelts use mandatory. Obey all speed limits and traffic control devices. Cell phone use prohibited while driving.

### Heat stress
Take break as needed. Drink plenty of fluids. Cool down periods.

### Underground utilities
Utilities locates have been obtained. Prior to installation of tooling, all sampling locations will be hand augered or post-holed to 5 ft. bgs.

### Fueling Equipment
Use only fuel cans with spark arrestors. Shut-off equipment prior to fueling. No hot fueling equipment.

### Pedestrians/Site Workers
During drilling operations ensure that other site workers are outside exclusion zones. Stop work if other personnel are near work area.

### Changed Conditions
Since Last Shift

Emergency Procedures: Call (321) 867-7911. Stabilize victim(s) and await medical assistance.

Hospital/Clinic: Occupational Health Facility at KSC

Hospital Address: Southwest corner of “C” Avenue and 2nd Street

Special Equipment: Cutting torch, skid steer loader

Other: Rain/Lightning Chance: % a.m. 20 % p.m.

Meeting conducted by
Signature:

Signature Site Manager:

Location: LC-39A

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
<th>Signature</th>
<th>Sign In</th>
<th>Sign Out</th>
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<tbody>
<tr>
<td>Raymond Robinson</td>
<td>CORE</td>
<td></td>
<td>0700</td>
<td>1730</td>
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<tr>
<td>Chen Raminoff</td>
<td>EDS</td>
<td></td>
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<td>Michael Raminoff</td>
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<td>Shawn Cripe</td>
<td>E.D.S.</td>
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<tr>
<td>Dinh Vu</td>
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<td>Mark Petruceillo</td>
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<td>03:30</td>
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</tr>
<tr>
<td>Mike Deliz</td>
<td>NASA</td>
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Date: 2-3-15
# JOB SAFETY PLANNING MEETING

**City:** KSC  
**Specific Location:** Flight Crew Rescue Training Area  
**Date:** 02/04/15  
**Time:** 07:40

**Tasks to be performed:**  
- Abandon wells: grout-in-place.  
- Cut aboveground finishings below grade.  
- Remove concrete pads.  
- Restore surface to match existing surroundings.

### SAFETY TOPICS PRESENTED

**Protective Clothing/Equipment:** Level D+ Safety glasses, gloves, hard-hats, steel-toe boots, and ear plugs.

**Chemical Hazards:** Flight Crew Rescue Training Area site has been approved for No Further Action – no known contamination remains above regulatory cleanup criteria.

**Safety Plan to Avoid Chemicals/Hazards:** Use Proper PPE. Wash hands before eating, drinking, smoking, and/or chewing.

### Biological Hazards

<table>
<thead>
<tr>
<th>Biological Hazards</th>
<th>Plan for Safe Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Insects and wildlife</strong></td>
<td>Watch where you place your hands and feet. Use repellent. Check yourself for ticks. Aware of alligator around waterways.</td>
</tr>
<tr>
<td><strong>Slip, trip, falls</strong></td>
<td>Awareness of potential hazards such as stick ups, uneven surfaces, etc. Use good housekeeping methods. Keep hoses, tools, tubing, etc. in an orderly fashion.</td>
</tr>
<tr>
<td><strong>Pinch points</strong></td>
<td>Recognize and avoid potential pinch points. Watch hand and body positioning. Never place hands, arms, legs, or body between two items being joined, a movable and an immovable object, or inside running equipment. Use proper PPE. Objects that may shift.</td>
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<td><strong>Muscle strains</strong></td>
<td>Use proper bending/lifting techniques. Let equipment do as much lifting as possible. Use Buddy system. Get assistance with heavy lifts.</td>
</tr>
<tr>
<td><strong>Noise</strong></td>
<td>Use hearing protection when you must raise your voice to be heard and in designated areas. Hearing protection required whenever drill rig is in operation. Always watch out for pedestrians. Stop work if local tenants are in the area.</td>
</tr>
<tr>
<td><strong>Hand and power tools</strong></td>
<td>Proper training on tool use. Proper PPE. Awareness. Proper maintenance of equipment. If generator is required, use of GFCI is required. Ensure that guards are in place and functional.</td>
</tr>
<tr>
<td><strong>Cuts and Scrapes</strong></td>
<td>Recognize and avoid. Awareness. Proper PPE.</td>
</tr>
<tr>
<td><strong>Equipment Operations</strong></td>
<td>Operators beware of pedestrians and surroundings. Make eye contact with operator prior entering work zones. Proper maintenance and inspections. Including those adjacent operations.</td>
</tr>
<tr>
<td><strong>Vehicular traffic</strong></td>
<td>Seatbelts use mandatory. Obey all speed limits and traffic control devices. Cell phone use prohibited while driving.</td>
</tr>
<tr>
<td><strong>Heat stress</strong></td>
<td>Take break as needed. Drink plenty of fluids. Cool down periods.</td>
</tr>
<tr>
<td><strong>Underground utilities</strong></td>
<td>Utilities locates have been obtained. Prior to installation of tooling, all sampling locations will be hand augured or post-holed to 5 ft. bgs.</td>
</tr>
<tr>
<td><strong>Drilling Equipment</strong></td>
<td>Use only fuel cans with spark arrestors. Shut-off equipment prior to fueling. No hot fueling equipment.</td>
</tr>
<tr>
<td><strong>Pedestrians/Site Workers</strong></td>
<td>During drilling operations ensure that other site workers are outside exclusion zones. Stop work if other personnel are near work area.</td>
</tr>
<tr>
<td><strong>Changed Conditions Since Last Shift</strong></td>
<td></td>
</tr>
</tbody>
</table>
**Emergency Procedures:**
Call (321) 867-7911. Stabilize victim(s) and await medical assistance.

**Hospital/Clinic:**
Occupational Health Facility at KSC

**Hospital Address:**
Southwest corner of “C” Avenue and 2nd Street

**Special Equipment:**

<table>
<thead>
<tr>
<th>Other: Rain/Lightning Chance:</th>
<th>% a.m.</th>
<th>% p.m.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>20</td>
</tr>
</tbody>
</table>

**Meeting conducted by Signature:**
Raymond Robinson

**Signature Site Manager:**
Raymond Robinson

**Location:** LC-39A

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
<th>Signature</th>
<th>Sign In</th>
<th>Sign Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raymond Robinson</td>
<td>CORE</td>
<td>Raymond Robinson</td>
<td>07:00</td>
<td>10:30</td>
</tr>
<tr>
<td>Rex Allen</td>
<td>Core</td>
<td></td>
<td>11:20</td>
<td>15:15</td>
</tr>
<tr>
<td>Steven Romann</td>
<td>EDS</td>
<td></td>
<td>07:30</td>
<td>10:30</td>
</tr>
<tr>
<td>Michael Jenkins</td>
<td>EDS</td>
<td>Michael Jenkins</td>
<td>09:45</td>
<td>15:15</td>
</tr>
<tr>
<td>Shawn Cripe</td>
<td>EDS</td>
<td>Shawn Cripe</td>
<td>07:30</td>
<td>10:20</td>
</tr>
<tr>
<td>Romae Queen</td>
<td>NASA EHS</td>
<td>Romae Queen</td>
<td>08:35</td>
<td>09:15</td>
</tr>
<tr>
<td>Tony Ryan</td>
<td>IHA</td>
<td></td>
<td>05:45</td>
<td>10:30</td>
</tr>
<tr>
<td>Dinh Vo</td>
<td>NCAT</td>
<td>Dinh Vo</td>
<td>12:00</td>
<td>13:40</td>
</tr>
</tbody>
</table>
### JOB SAFETY PLANNING MEETING

**Facility:** KSC  
**Specific Location:** LC-39A (LOX side)  
**Job Number:** JERT011  
**Date:** 2/5/15  
**Time:**

**Tasks to be performed:**
- Remove bollard to clear access to well (if necessary).
- Set up planned water controls, as needed.
- Disassemble aboveground piping and remove well pump and riser.
- Abandon well in place with grout. Cap effluent pipe.
- Restore site to existing conditions.

**Chemicals Used:**

**Dig Status:** (Dig Day or No Dig Day)

### SAFETY TOPICS PRESENTED

**Protective Clothing/Equipment:** Level D+ Safety glasses, gloves, hard-hats, steel-toe boots, and ear plugs.

**Chemical Hazards:** LC-39A has land use controls for soil and groundwater contamination. See environmental comments on dig permit regarding environmental contamination concerns at this site.

**Safety Plan to Avoid Chemicals/Hazards:** Use Proper PPE. Wash hands before eating, drinking, smoking, and/or chewing.

### Physical Hazards

<table>
<thead>
<tr>
<th>Physical Hazards</th>
<th>Plan for Safe Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insects and wildlife</td>
<td>Watch where you place your hands and feet. Use repellent. Check yourself for ticks. Aware of alligator around waterways.</td>
</tr>
<tr>
<td>Slip, trip, falls</td>
<td>Awareness of potential hazards such as stick ups, uneven surfaces, etc. Use good housekeeping methods. Keep hoses, tools, tubing; etc. in an orderly fashion.</td>
</tr>
<tr>
<td>Pinch points</td>
<td>Recognize and avoid potential pinch points. Watch hand and body positioning. Never place hands, arms, legs, or body between two items being joined, a movable and an immovable object, or inside running equipment. Use proper PPE. Objects that may shift.</td>
</tr>
<tr>
<td>Muscle strains</td>
<td>Use proper bending/lifting techniques. Let equipment do as much lifting as possible. Use Buddy system. Get assistance with heavy lifts.</td>
</tr>
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</tr>
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</tr>
<tr>
<td>Changed Conditions</td>
<td></td>
</tr>
</tbody>
</table>
Since Last Shift

Emergency Procedures: Call (321) 867-7911. Stabilize victim(s) and await medical assistance.

Hospital/Clinic: Occupational Health Facility at KSC
Hospital Address: Southwest corner of "C" Avenue and 2nd Street

Special Equipment: Electric Trencher, To break up concrete around well head.

Other: Rain/Lightning Chance: 69% 55% % a.m. 50% % p.m. 15%

Meeting conducted by Signature:

Signature Site Manager:

<table>
<thead>
<tr>
<th>Location:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Organization</td>
</tr>
<tr>
<td>Rick Allen</td>
<td>CoA</td>
</tr>
<tr>
<td>Matthew Lanning</td>
<td>EDS</td>
</tr>
<tr>
<td>Glen Perier</td>
<td>EDS</td>
</tr>
<tr>
<td>Steve Cripe</td>
<td>E.D.S.</td>
</tr>
<tr>
<td>Romeo Enriquez</td>
<td>NASA</td>
</tr>
<tr>
<td>Raymond Geb Een</td>
<td>NASA</td>
</tr>
</tbody>
</table>


Planned Water Controls – LC-39A Artesian Well Abandonment

Field Work Start: 03 February 2015 (Tuesday)

Estimated Duration: 3-4 days

Well Location: LC-39A (LOX side)

Anticipated Field Events:
1. If necessary, remove bollard south of well to obtain clear access.
2. Set up planned water controls (see below for details).
3. Disassemble aboveground well piping and remove well pump and riser.
4. Install flange, reducer, and valve to well head and pump grout into well.
5. After allowing time for grout to set, open valve and check for flow. If no flow, remove well head and top off to surface with grout. Cap effluent pipe. If flowing, continue grouting until no flow conditions exist.
6. Restore site to existing conditions.

Logistics/Coordination:
- The artesian well is located in an area where other environmental remediation work is being completed and where an active transformer is situated. An air sparge trailer has just been installed adjacent to the well.
- The amount of water that will be discharged will be dependent on pressure within the well/water level heads. Water will be discharged when the aboveground assembly is dismantled and during pump/riser removal. Based on discussions with the driller, it is estimated that the well may flow for up to 2 hours. This is a very conservative estimate, as the driller indicated as it may only be ½-hour. The grouting process will halt artesian flow.
- Jacobs/CORE personnel met with Tetra Tech personnel on 22 January 2015 (Thursday) to discuss site remediation activities in the area and air sparge trailer installation/start-up. Tetra Tech is aware of the start date and anticipated flow of water.
- An on-site meeting was held on 28 January 2015 (Wednesday) to discuss field logistics and water control options. Survey measurements were also collected to identify natural drainage pathways in this area. Although the area is relatively flat in the area of the well, the collected measurements indicate that water would flow towards the drainage ditch south of the well if enough accumulates. However, it is understood that there is infrastructure in the area of the well in which we do not want water to accumulate near. A water control plan, by use of hay bales, was therefore proposed and agreed upon with the NASA RPM (see plan below).

Planned Water Controls:
1. Hay bales will be used for water control. The hay bales will be placed around/in the area of the artesian well to direct water away from the transformer and air sparge trailer and toward the drainage ditch south of the well. Stakes will be used to secure the hay bales.
2. A filter sock is already located in the drainage ditch for other work being completed in this area. It has been confirmed that this filter sock will still be in place during the time when abandonment activities are being completed. No additional controls are needed within the drainage ditch.
3. Best management practices will be employed to ensure that existing infrastructure is not compromised and the area is restored to existing conditions.

4. Site contacts will be notified if any problems are encountered during abandonment activities. Contacts included:
   - NASA RPM: Dinh Vo, Chris Pike, or Chris Neumann
   - Tetra Tech: Chris Hook, Chris Pike, or Chris Neumann
   - SpaceX Facility Manager: Todd Ziegler

Hay Bales set up to control/divert water
Permit Request: 17195 (Status: Approved)

You must schedule an Excavation Permit Inspector (EPI) to meet with you on site for the utility locate and to obtain the required signature on this permit.

**IMPORTANT:** Please call at least 72 hours prior to digging. The Excavator shall maintain an approved copy of this permit, signed by the EPI, on site at all times.

Excavation Permit Inspectors (EPI):

Jeff McDowell Phone: (321) 861-6869 Cell: (321) 749-4840
Ryan Ostarly Phone: (321) 861-6946 Cell: (321) 289-2372 FAX: (321) 861-6558

**IMPORTANT INFORMATION:**
- Excavation Permit Requests will be **immediately cancelled** should digging begin prior to approval from the EPI.
- Orange color paint is assigned to EPIs only unless maintaining the original paint markings.
- Utility Locate/Excavation Permit Requests will be **immediately cancelled** if original EPI paint markings are not maintained.
- You must **hand dig within 24 inches** in either direction of all EPI paint markings.
- **Do not remove or disturb thrust blocks.** A thrust block is a configured piece of concrete located underground at water and sewer utility piping to prevent movement from line pressure fluctuations. When excavating soil at location known to contain buried water or sewer lines, **do not remove any buried concrete without prior approval.**
- Maximum duration of time an EPR can remain in the approval status is one year. All work expecting to extend longer than one year must be re-submitted as a new request, including an updated map and scope of work.
- If the scope of work for the original Utility Locate/Excavation Permit Request is changed or the completion date needs to be extended, you are required to call 867-2406.
- When the job is complete, you are required to call 867-2406. **This permit will be closed upon expiration unless an extension is requested.**
- Accidental Utility line damage, excluding Gas main damage, shall call the ISC Duty Office at 861-5050.
- Accidental Gas Main damage shall call 911, evacuate the area and then call the ISC Duty Office.
- Category Code V Permits must call the ISC Duty office daily and observe all Critical-Days as directed by the ISC Duty Office.

**EPR Administrator:**

If you have any questions regarding your Utility Locate/Excavation Permit Request, please contact the EPR administrator at the following:

Phone: (321) 867-2406
Fax: (321) 867-1175
Email: KSC-ISC-DIGPERMIT@mail.nasa.gov
## Permit Request: 17195 (Status: Approved)

### Submitter's Information

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submitter First Name</td>
<td>Lindsay</td>
</tr>
<tr>
<td>Submitter Last Name</td>
<td>Morgan</td>
</tr>
<tr>
<td>Submitter Email Address</td>
<td><a href="mailto:lmorgan@core-encon.com">lmorgan@core-encon.com</a></td>
</tr>
<tr>
<td>Submitter Company Name</td>
<td>Core Engineering &amp; Construction</td>
</tr>
<tr>
<td>Submitter Phone</td>
<td>407.622.2673</td>
</tr>
<tr>
<td>Submitter Fax</td>
<td>407.622.2674</td>
</tr>
</tbody>
</table>

### Technical Contact Information

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Contact First Name</td>
<td>Harlan</td>
</tr>
<tr>
<td>Technical Contact Last Name</td>
<td>Faircloth</td>
</tr>
<tr>
<td>Technical Contact Email Address</td>
<td><a href="mailto:hfaircloth@core-encon.com">hfaircloth@core-encon.com</a></td>
</tr>
<tr>
<td>Technical Contact Phone</td>
<td>407.622.2673</td>
</tr>
<tr>
<td>Technical Contact Fax</td>
<td>407.622.2674</td>
</tr>
</tbody>
</table>

### NASA COTR Contact Information

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>NASA COTR First Name</td>
<td>Dinh</td>
</tr>
<tr>
<td>NASA COTR Last Name</td>
<td>Vo</td>
</tr>
<tr>
<td>NASA COTR Email Address</td>
<td><a href="mailto:dinh.x.vo@nasa.gov">dinh.x.vo@nasa.gov</a></td>
</tr>
<tr>
<td>NASA COTR Phone</td>
<td>321.867.5964</td>
</tr>
</tbody>
</table>

### Permit Request Info

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
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<tbody>
<tr>
<td>Permit Type</td>
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<tr>
<td>Permit Status</td>
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<tr>
<td>Permit Start Date</td>
<td>11/17/2014</td>
</tr>
<tr>
<td>Permit End Date</td>
<td>11/17/2015</td>
</tr>
<tr>
<td>Estimated Completion Date</td>
<td>11/17/2015</td>
</tr>
<tr>
<td>Scope of Work/Justification</td>
<td>Per contract with NASA KSC Remediation Program, the identified artesian well is to be abandoned in place with above ground surface completions cut to grade and well pad removed.</td>
</tr>
</tbody>
</table>

### Facility Info
<table>
<thead>
<tr>
<th>Facility</th>
<th>J8-1553</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid</td>
<td>J8</td>
</tr>
</tbody>
</table>

### Additional Forms and Identifying Numbers
- **Secondary Location**: Work will be completed south of identified facility in earthen area.
- **Environmental Check List Completed**: No

### Category Codes
- 1
- III

### Related Documents
- No files uploaded

### Reviews

<table>
<thead>
<tr>
<th>Reviewed By</th>
<th>Date:</th>
<th>Results:</th>
<th>Comments:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locator</td>
<td>11/12/2014 11:33:07 AM</td>
<td>Agree</td>
<td>RO</td>
</tr>
<tr>
<td>Environmental</td>
<td>11/12/2014 12:02:35 PM</td>
<td>Agree</td>
<td>This project takes place in SWMU # 8 &quot;Launch Complex 39A&quot; with constraints against soil and groundwater usage, which may also affect the disposal options for the well pad. Abandoning and subsequent removal of this well MUST be coordinated with SpaceX prior to any earth or equipment disturbing activities within the confines of the LC39A pad perimeter fence. Contact Dihn Vo (NASA TA-A4B, 321-867-5964) to facilitate coordination. Prior to ANY soil disturbing activities in the area including removal of the well pad, contact NASA Project Remediation Manager Mike Delli (TA-A4B, 321-867-6971) for specific guidance regarding handling of soil and/or groundwater from this location which will/may affect PPE and pad/material disposal options. All workers involved in subsurface work must be notified (HAZCOM) of the potential for contamination to be present and it is recommended that an Industrial Hygienist be consulted for determination of required personal protective equipment (PPE). For MESC contracts, contact MESC Industrial Hygiene (IH) for recommendations on personal protective equipment (PPE). MESC IH can be contacted at 321-867-2400 or at KSC-DL-EnvHealth/ (<a href="mailto:KSC-DL-EnvHealth@mail.nasa.gov">KSC-DL-EnvHealth@mail.nasa.gov</a>). If an animal burrow is observed under the well casing pad or within 25 feet of the well, please contact Becky Bolt (IHA-200, 321-867-7330) at least 14 days in advance of this planned abandonment/pad removal so that the burrow may be evaluated and tortoises relocated (if necessary). All disturbed soil must stay on site.</td>
</tr>
<tr>
<td>Master Planner</td>
<td>11/12/2014 7:49:24 AM</td>
<td>Agree</td>
<td>HF</td>
</tr>
<tr>
<td>Final</td>
<td>11/12/2014 12:45:32 PM</td>
<td>Agree</td>
<td>HF</td>
</tr>
<tr>
<td>Map associated with this request</td>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Permit Request: 17195 (Status: Approved)

Approved by: Jeff McDowell

Approved by: Ryan Ostarly 12-8-14

Approved by:  

Approved by:

Notes:


LOCATED AREA TO BE HAND EXCAVATED ONLY!

Locator's Signature: 

Reason for Hand Excavation: 

CONFLICTS
EXCAVATION PERMIT CATEGORIES:
If you have questions about assigned category codes contact the Excavation Permit Inspectors at 321-289-7829 or 321-749-4840. Remember - for permits with more than one category code, the most restrictive category code applies.

LAUNCH
For the latest launch, landing or test schedule, contact the ISC Duty Office at 321-861-5050.

Category I *
Seventy-two (72) prior to launch, test or landing, excavation will stop at, around or involving the following KSC facilities:

<table>
<thead>
<tr>
<th>Launch Control Center - LCC (K6-0900)</th>
<th>Old MILA Area</th>
<th>Communication Distribution and Switching Center - CD&amp;SC (M6-0138)</th>
<th>Operations &amp; Checkout O&amp;C (M6-0355)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC 39 A &amp; B (all areas and buildings inside the fence) &amp; all 6 Repeater Stations.</td>
<td>Press Site (all buildings, roads, parking areas in and around the area.)</td>
<td>Payload Facility Supporting Launch (M7-0777, &amp; M7-0360) 2</td>
<td>Central Instrumentation Facility (M6-0342)</td>
</tr>
<tr>
<td>VAB Repeater - VABR (K7-1193)</td>
<td>Banana River Repeater Station (M7-0531)</td>
<td>CCF - Converter Compressor Facility (K7-0468)</td>
<td>Shuttle Landing Facility - SLF (runway and all associated buildings and infrastructure)</td>
</tr>
<tr>
<td>C-5 Substation (K6-1141)</td>
<td>Tel IV &amp; South Repeater Station (N6-1118)</td>
<td>VAB (K6-0848) and VAB Utility Annex (K6-0947)</td>
<td></td>
</tr>
</tbody>
</table>

1 - Facilities (J7-0986, J7-1736, J8-2204, K6-1193, K7-0089, K7-0422, K7-0709, M7-0531, & N6-1118).
2 - Mission Specific - Including but not limited to these facilities: (M7-0777 - Transporter/Canister Facility, and M7-0360 - Space Station Processing Facility (SSPF)).

Excavation may resume at facilities 1-15 four hours after launch. Excavation will not occur at the SLF (16) until after landing.

Category II
LC-39 Active Pads - All excavation (except emergencies) will stop when the launch vehicle rolls out to the Pad. Excavation may resume following Pad safing and washdown after launch.

Category III
LC-39 Deactive Pads - Excavation will cease 2 hours before sunset on Launch -1 day, or 12 hours prior to Launch from Active Pad, whichever is earlier. Excavation may resume 4 hours after launch from the active pad.

Category IV
Excavation may proceed in all areas and times not covered by Categories I, II or III.

Category V
You must call the ISC Duty Office at 321-861-5050 DAILY prior to digging.

Air Force Launch Operations - Excavation and switching of critical power will cease on launch critical days (L-1, launch count to include launch day, and program specific test days) at the following KSC facilities and utilities:

<table>
<thead>
<tr>
<th>Kennedy Parkway, NASA Parkway &amp; Saturn Causeway utility corridors</th>
<th>Tel IV &amp; South Repeater Station (N6-1118)</th>
<th>Banana River Repeater Station (M7-0531)</th>
<th>Utility Corridors East of Orsino Substation serving CCAFS</th>
<th>Area south from LC-39B along Phillips Parkway.</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Camera, Radar &amp; Weather Sites</td>
<td>Shuttle Landing Facility</td>
<td>KARS Park</td>
<td>Pump Station 7 (K8-1740)</td>
<td>Old MILA Area</td>
</tr>
</tbody>
</table>
### LANDING

For the latest launch, test or landing schedule, contact the ISC Duty Office at 321-861-5050.

---

**Category VI**

Except for the SLF, excavation may proceed in all areas up to 2 hours prior to sunset on landing -1 day, or 12 hours prior to landing, whichever is earlier. Excavation may proceed at all facilities, except for the SLF, 1 hour after a successful landing. Excavation will stop at, around and/or involving the SLF and involved facilities, at the start of Launch Countdown. Excavation may proceed in this area after Landing, AND with approval from the SLF Operations at 867-2100.
**HOT WORK PERMIT**

**Permit Shall Not Exceed 30 Days**

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Permit Number</th>
<th>Date/Time Permit Issued</th>
<th>Date Permit Expires</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Engineering</td>
<td>127715</td>
<td>12/8/14</td>
<td>1/8/15</td>
</tr>
</tbody>
</table>

**Facility Number/Area**: J18-178A/RADA "North West Corner" @ artisan well

**Supervisor/Operator's Name**: Rick Allen  
**Phone Number**: 721-704-3880

**Permit Authorizing Individual**: Tiffany L. Andrews  
**Name and Phone Number**: 704-587-9954

---

**On-site inspection required by Permit Authorizing Individual before issuing permit.**

1. Operator affirms they are properly trained to operate hot work equipment.  
2. Operator affirms hot work equipment has been inspected and is in safe operating condition.  
3. Operator shall maintain good housekeeping practices throughout operation.  
4. Fire Extinguishers shall comply with NFPA 10. Extinguishers shall be inspected daily prior to hot work, located within 20 feet of hot work site, and their use is understood.  
   - Type:  10 lbs. ABC, 2 1/2 gal. water, 15 lbs. CO₂, other  
5. Flammable liquids and gases shall be relocated a minimum distance 50 feet from hot work.  
   - If impractical to relocate, ensure they are safely protected or do not perform hot work.  
6. Combustible materials shall be relocated a minimum distance of 35 feet from hot work.  
   - If impractical to relocate, ensure they are safely protected or do not perform hot work.  
7. Operator shall ensure all hazardous dust, lint, and oily deposits are removed.  
8. Operator shall visually inspect and ensure that all enclosures, chases, ducts, walls, floor openings, and adjacent areas have been safely protected.  
9. Operator shall ensure all equipment, containers, pipes, hoses have liquids drained, pressure released, vapors purged, gas valves shut off, etc.  
10. Operator shall provide the appropriate safety barriers and warning signs as required.  
11. Operator shall ensure detection systems (including HVAC) are safeguarded, covered, or protected before hot work begins; and systems shall be restored to service daily.  
12. Fire suppression systems shall remain operational (unless otherwise permitted).  
13. No hot work in explosive or oxygen enriched atmospheres. Perform air sampling as required.  
14. All fire watch personnel shall read and understand the requirements of this permit. Fire watch personnel shall be present throughout the hot work operation and 30 minutes after completion.  
   - If evacuation is required, report hot work operations to Fire Incident Commander.  
15. All Hot Work shall stop 24 hrs before scheduled launch and not resume until 8 hrs after launch.  
16. **For New Construction or Demolition**: A pre-task briefing shall be conducted at the beginning of any hot work task. Hot work operators and fire watches shall be present and the contents of this permit and potential hazards shall be addressed.
   - **In the event of FIRE OR EMERGENCY** call 911 or cell phone - 321-867-7911.  
   - For permit renewal call the Duty Office at 861-5050.

---

**Additional Comments**: Please cover grass in work area or have water supply on-hand while computing work.

---

**Note #1**: If Operator cannot complete work, all new operators shall read and initial next to appropriate boxes and sign this checklist below, indicating full understanding of safety procedures and requirements.

---

**Alternate Operator Signature**:  
**Date**:  
**Alternate Operator Signature**:  
**Date**:  

---


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KSC FORM 2-271V2 (REV. 09/12) PREVIOUS EDITIONS ARE OBSOLETE
HOT WORK PERMIT
Permit Shall Not Exceed 30 Days

Company Name: LONE ENG. Permit Number: 128279
Facility/Area: PAO 39 A @ ARTESION WELL

Date/Time Permit Issued: 1-8-15 Date Permit Expires: 2-8-15

Supervisor/Operator's Name (See Note #1): Raymond Robinson
Phone Number: 407-467-7477

[] Welding [X] Grinding [] Torch [ ] CAD
Yes [X] N/A

On-site inspection required by Permit Authorizing Individual before issuing permit.

1. Operator affirms they are properly trained to operate hot work equipment.
2. Operator affirms hot work equipment has been inspected and is in safe operating condition.
3. Operator shall maintain good housekeeping practices throughout operation.
4. Fire Extinguishers shall comply with NFPA 10. Extinguishers shall be inspected daily prior to hot work.
   Located within 20 feet of hot work site, and their use is understood.
   Type: [X] 10 lbs. ABC [ ] 2 1/2 gal. water [ ] 15 lbs. CO2 [ ] other
5. Flammable liquids and gases shall be relocated a minimum distance 50 feet from hot work.
   If impractical to relocate, ensure they are safely protected or do not perform hot work.
6. Combustible materials shall be relocated a minimum distance of 35 feet from hot work.
   If impractical to relocate, ensure they are safely protected or do not perform hot work.
7. Operator shall ensure all hazardous dust, lint, and oily deposits are removed.
8. Operator shall visually inspect and ensure that all enclosures, chases, ducts, walls, floor openings and adjacent areas have been safely protected.
9. Operator shall ensure all equipment, containers, pipes, hoses have liquids drained, pressure released, vapors purged, gas valves shut off, etc.
10. Operator shall provide the appropriate safety barriers and warning signs as required.
11. Operator shall ensure detection systems (including HVAC) are safed, covered, or protected before hot work begins; and systems shall be restored to service daily.
12. Fire suppression systems shall remain operational (unless otherwise permitted).
13. No hot work in explosive or oxygen enriched atmospheres. Perform air sampling as required.
14. All fire watch personnel shall read and understand the requirements of this permit. Fire watch personnel shall be present throughout the hot work operation and 30 minutes after completion. If evacuation is required, report hot work operations to Fire Incident Commander.
15. All Hot Work shall stop 24 hrs before scheduled launch and not resume until 8 hrs after launch.
16. For New Construction or Demolition: A pre-task briefing shall be conducted at the beginning of any hot work task. Hot work operators and fire watches shall be present and the contents of this permit and potential hazards shall be addressed.

In the event of FIRE OR EMERGENCY call 911 or cell phone - 321-867-7911.
For permit renewal call the Duty Office at 861-5050.

Additional Comments:

(Note #1): If Operator cannot complete work, all new operators shall read and initial next to appropriate boxes and sign this checklist below, indicating full understanding of safety procedures and requirements.

Alternate Operator Signature: [ ] Date: [ ] Alternate Operator Signature: [ ] Date: [ ]


KSC FORM 2-271V2 (REV. 09/12) PREVIOUS EDITIONS ARE OBSOLETE
HOT WORK PERMIT
Permit Shall Not Exceed 30 Days

Company Name: [Redacted]
Permit Number: 128915
Date/Time Permit Issued: 2-9-15
Date Permit Expires: 3-9-15

Facility Number/Area: [Redacted]
Supervisor/Operator's Name (See Note #1): [Redacted]
Phone Number: 321-704-3880

☐ Welding ☐ Grinding ☐ Torch ☐ CAD
☐ Other (Specify):

Supervisor/Operator's Signature: [Redacted]
Permit Authorizing Individual Name and Phone Number: [Redacted]

On-site inspection required by Permit Authorizing Individual before issuing permit.

1. Operator affirms they are properly trained to operate hot work equipment. [YES □ N/A □]
2. Operator affirms hot work equipment has been inspected and is in safe operating condition. [□ □]
3. Operator shall maintain good housekeeping practices throughout operation. [□ □]
4. Fire Extinguishers shall comply with NFPA 10. Extinguishers shall be inspected daily prior to hot work, located within 20 feet of hot work site, and their use is understood: Type: [☐ 10 lbs. ABC ☐ 2 1/2 gal. water ☐ 15 lbs. CO2 ☐ other 2 type ABC].
5. Flammable liquids and gases shall be relocated a minimum distance 50 feet from hot work. [□ □]
   If impractical to relocate, ensure they are safely protected or do not perform hot work. [□ □]
6. Combustible materials shall be relocated a minimum distance of 35 feet from hot work. [□ □]
   If impractical to relocate, ensure they are safely protected or do not perform hot work. [□ □]
7. Operator shall ensure all hazardous dust, lint, and oily deposits are removed. [□ □]
8. Operator shall visually inspect and ensure that all enclosures, chases, ducts, walls, floor openings and adjacent areas have been safely protected. [□ □]
9. Operator shall ensure all equipment, containers, pipes, hoses have liquids drained, pressures released, vapors purged, gas valves shut off, etc. [□ □]
10. Operator shall provide the appropriate safety barriers and warning signs as required. [□ □]
11. Operator shall ensure detection systems (including HVAC) are safed, covered, or protected before hot work begins; and systems shall be restored to service daily. [□ □]
12. Fire suppression systems shall remain operational (unless otherwise permitted). [□ □]
13. No hot work in explosive or oxygen enriched atmospheres. Perform air sampling as required. [□ □]
14. All fire watch personnel shall read and understand the requirements of this permit. Fire watch personnel shall be present throughout the hot work operation and 30 minutes after completion. If evacuation is required, report hot work operations to Fire Incident Commander. [□ □]
15. All Hot Work shall stop 24 hrs before scheduled launch and not resume until 8 hrs after launch. [□ □]
16. For New Construction or Demolition: A pre-task briefing shall be conducted at the beginning of any hot work task. Hot work operators and fire watches shall be present and the contents of this permit and potential hazards shall be addressed.

In the event of FIRE OR EMERGENCY call 911 or cell phone - 321-867-7911.
For permit renewal call the Duty Office at 861-5050.

Additional Comments: [Handwritten: HE CAD welded etc.]

(Note #1): If Operator cannot complete work, all new operators shall read and initial next to appropriate boxes and sign this checklist below, indicating full understanding of safety procedures and requirements.

Alternate Operator Signature: [Redacted]
Date: [Redacted]
Alternate Operator Signature: [Redacted]
Date: [Redacted]


KSC FORM 2-271V2 (REV. 09/12) PREVIOUS EDITIONS ARE OBSOLETE
# Payment Receipt

**Dominion Metals Cocoa**  
445 Canaveral Groves Blvd  
Cocoa Beach, FL 32926  
321-735-4040

---

**Receipt:** 0219693  
**Date:** 02/03/2015  
**Customer:** 12672  
**Time:** 14:35  
**CORE ENGINEERING**  
**MARK PETRIZZELLO**  
210 COVE LOOP DRIVE  
MERRITT ISLAND, FL 32953  
**Driver's License:** P362-560-73-211-0  
**FL**

---

**Ticket:** 258897  
**Weigh In:** 02/03/2015 14:22  
**Operator:** 2  
**Weigh Out:** 02/03/2015 14:31  
**Description:** Truck 1 person

---

All weights in pounds. M indicates manual weight.

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Gross</th>
<th>Tare</th>
<th>Net</th>
<th>Price</th>
<th>TOTAL $</th>
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<tr>
<td>Tin</td>
<td>6320</td>
<td>5320</td>
<td>1000</td>
<td>5.00/CW</td>
<td>$50.00</td>
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</table>

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**Ticket Total:** $50.00

---

**# of Tickets:** 1  
**Paid by:** CHECK 7386  
**Total Paid:** $50.00

---

Note: This receipt is for a 2015 sale of tin. Any errors or discrepancies in the weight or description should be brought to the attention of the weighing operator. All weights are in pounds. The final weight is subject to review and may be adjusted. The total amount paid is $50.00. The signature of the weighing operator is required for acknowledgment. The date of weighing is 02/03/2015.
STATE OF FLORIDA WELL COMPLETION REPORT

Southwest
Northwest
St. Johns River
South Florida
Suwannee River
DEP
Delegated Authority (If Applicable)

1. Permit Number 140159-1
   CUP/WUP Number 2-009-50054-2
   *DID Number 35273
   62-524 Delineation No.

2. Number of permitted wells constructed, repaired, or abandoned 1
   *Number of permitted wells not constructed, repaired, or abandoned 0

3. Owner's Name NASA
   4. *Completion Date 2/5/15
   5. Florida Unique ID __________

6. *Well Location - Address, Road Name or Number, City, ZIP
   LC39A, KENNEDY SPACE CENTER, FL

7. *County BREVARD
   *Section 3
   Land Grant
   *Township 225
   *Range 37E

8. Latitude 283637.512144
   Longitude 803630.04776
9. Datum: NAD 27
   X NAD 83
   WGS 84

10. *Type of Work: [ ] Construction [ ] Repair [ ] Modification [ ] Abandonment [ ] Other

11. Specify Intended Use(s) of Well(s)
   [ ] Domestic
   [ ] Landscape Irrigation
   [ ] Agricultural Irrigation
   [ ] Livestock
   [ ] Neighborhood Irrigation
   [ ] Commercial/Industrial
   [ ] Golf Course Irrigation
   [ ] Earth-Coupled Geothermal
   [ ] HVAC Supply
   [ ] HVAC Return
   [ ] Site Investigations
   [ ] Monitoring
   [ ] Test
   [ ] Other: _______________________

12. *Drill Method: [ ] Auger [ ] Cable Tool [ ] Rotary [ ] Combination (Two or More Methods)
    [ ] Jetted [ ] Sonic
    [ ] Horizontal Drilling [ ] Hydraulic Point (Direct Push)
    [ ] Other: _______________________


14. *Measuring Point Describe: Which is ft. Above Below Land Surface *Flowing Yes No

15. *Casing Material: [ ] Black Steel [ ] Galvanized [ ] PVC [ ] Stainless Steel [ ] Not Cased
    [ ] Other: _______________________


17. *Abandonment: [ ] Other (Explain) NO LONGER IN USE

18. *Surface Casing Diameter and Depth:
    Dia in. From ft. To ft. No. of Bags Seal Material (Check One): [ ] Neat Cement [ ] Bentonite
    Dia in. From ft. To ft. No. of Bags Seal Material (Check One): [ ] Neat Cement [ ] Bentonite

19. *Primary Casing Diameter and Depth:
    Dia in. From ft. To ft. No. of Bags Seal Material (Check One): [ ] Neat Cement [ ] Bentonite
    Dia in. From ft. To ft. No. of Bags Seal Material (Check One): [ ] Neat Cement [ ] Bentonite

20. *Liner Casing Diameter and Depth:
    Dia in. From ft. To ft. No. of Bags Seal Material (Check One): [ ] Neat Cement [ ] Bentonite
    Dia in. From ft. To ft. No. of Bags Seal Material (Check One): [ ] Neat Cement [ ] Bentonite

21. *Telescope Casing Diameter and Depth:
    Dia in. From ft. To ft. No. of Bags Seal Material (Check One): [ ] Neat Cement [ ] Bentonite
    Dia in. From ft. To ft. No. of Bags Seal Material (Check One): [ ] Neat Cement [ ] Bentonite

22. Pump Type (If Known):
    [ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine

23. Chemical Analysis (When Required):
    Iron _______ ppm Sulfate _______ ppm Chloride _______ ppm

24. Water Well Contractor:
    *Contractor Name DOUGLAS A. LEONHARDT
    *License Number 2406
    E-mail Address lisa@edsienvironmental.com

*Contractor's Signature _______________________

Driller's Name (Print or Type) GLEN PENNINGTON

DEP Form 62-532.900(2) Incorporated in 62-532.410, F.A.C. Effective Date: October 7, 2010
<table>
<thead>
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<th>From</th>
<th>To</th>
<th>ft.</th>
<th>Color</th>
<th>Grain Size (F, M, C)</th>
<th>Material</th>
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Comments: ***** SITE MAP ATTACHED *****

*[Detailed Site Map of Well Location]*
STATE OF FLORIDA PERMIT APPLICATION. TO CONSTRUCT, REPAIR, MODIFY, OR ABANDON A WELL

☐ Southest
☐ Northwest
☐ St. Johns River
☐ South Florida
☐ Suwannee River
☐ DEP
☐ Delegated Authority (If Applicable)

"Denotes Required Fields Where Applicable"

The water well contractor is responsible for completing this form and forwarding the permit application to the appropriate delegated authority where applicable.

1. NASA
Mail Code TA-A4B
Orlando, FL
32899-0001
3218673845

2. LC39A, KENNEDY SPACE CENTER, FL
Well Location – Address, Road Name or Number, City

3. None, US Govt Owned
Parcel ID No. (PIN) or Alternate Key (Circle One)

4. 3
Section or Land Grant
 Township
Range
County

5. Douglas A. Leonard
Water Well Contractor
License Number
4072953532

6. 4712 Old Winter Garden Rd
Water Well Contractor's Address
Orlando, FL
32811-1740

7. Type of Work: Construction Repair Modification Abandonment

8. Number of Proposed Wells 1

9. Specify Intended Use(s) of Well(s):

- Domestic (Note: Not all types of wells are permitted by a given permitting authority)
- Agricultural Irrigation
- Recreation Area Irrigation
- Commercial/Industrial Irrigation
- Public Water Supply (Limited Use/DH)
- Public Water Supply (Community or Non-Community/DEP)
- Class I Injection
- Class V Injection
- Other (Describe)

- Bottled Water Supply
- Water Treatment Plant
- Earth-Coupled Geothermal
- Gulf Course Irrigation
- HVAC Supply
- HVAC Return
- Recharge
- Commercial/Industrial Disposal
- Aquifer Storage and Recovery
- Drainage

10. Distance from Septic System if 200 ft

11. Facility Description SHUTTLE LAUNCH COMPLEX

12. Estimated Start Date 12/08/2014

13. Estimated Well Depth 380 ft

14. Estimated Screen Interval: From ft To ft

15. Primary Casing Material: X Black Steel

- Galvanized
- PVC
- Stainless Steel

- Not Cased
- Other

16. Secondary Casing: Telescope Casing

- Liner
- Surface Casing Diameter in

17. Secondary Casing Material: Black Steel

- Galvanized
- PVC
- Stainless Steel
- Other

18. Method of Construction, Repair, or Abandonment: Auger

- Cable Tool
- Jetted
- Rotary
- Other (Describe)

19. Proposed Grouting Interval for the Primary, Secondary, and Additional Casing:

From To 380 ft

- Seal Material (X)
- Bentonite
- Neral Cement
- Other

From To Seal Material (X)

- Bentonite
- Neral Cement
- Other

From To Seal Material (X)

- Bentonite
- Neral Cement
- Other

20. Indicate total number of existing wells on site

List number of existing unused wells on site

21. Is this well or any existing well or water withdrawal on the owner's contiguous property covered under a Consumptive/Water Use Permit (CUP/WUP) or CUP/WUP Application? X Yes No
If Yes, complete the following: CUP/WUP No. 209-900504-2

22. Latitude 283637.512144
Longitude 803630.04776

23. Data Obtained From: GPS X Map Survey

Datum: NAD 27 X NAD 83 WGS 84

I hereby certify that I will comply with the applicable rules of Title 40, Florida Administrative Code, and that a water use permit or artificial recharge permit, if needed, has been or will be obtained prior to commencement of well construction. I further certify that information provided in this application is accurate and that I will obtain necessary approval from other federal, state, or local governments, if applicable. I agree to provide a well completion report to the District within 30 days after completion of the construction, repair, modification, or abandonment authorized by this permit, or the permit expiration, whichever occurs first.

Douglas A. Leonard
Signature of Contractor

License No. 2406

NASA
Signature of Owner or Agent

Date 11/20/2014

Approval Granted By

Issue Date 11/25/2014
Expiration Date 11/25/2015

Hydrologist Approval

DEP Form: 62-532.900(1) Incorporation in 62-532.400(1), F.A.C. Effective Date: October 7, 2010
General Site Map of Proposed Well Location

Identify known roads and landmarks. Give distances from all reference points or structures, septic systems, sanitary hazards, and contamination sources, if applicable.

DEP Form 62-532.900(1) Incorporated in 62-532.400(1), F.A.C. Effective Date: October 7, 2010
"EXHIBIT A"
CONDITIONS FOR ISSUANCE OF PERMIT NUMBER 140159-1
NASA
DATE ISSUED: November 25, 2014

1. The well contractor shall notify the District no less than 24 hours prior to initiating construction, repair, abandonment, or grouting operations. The District representative for this permit is:

   Jason Sirois
   (321) 409-2122 - work
   (321) 689-7914 - cell
   jsirois@sjwmd.com

2. The well contractor shall remove all obstructions from the well casing and borehole and pressure inject Portland cement grout from the bottom to the top of the well using the tremie method. Changes to this abandonment plan are not authorized unless approved in advance by the District.

3. The well contractor shall clearly label all compliance submittals required as a condition of this permit with the well permit number, District well ID number, and CUP number (if applicable).

4. The well contractor shall post a copy of this permit on-site during all phases of well construction, repair, or abandonment.

5. The well contractor shall implement all control measures necessary to prevent off-site movement of drilling fluids that violate water quality standards set forth in Chapter 62-302, F.A.C.

6. The well contractor shall submit to the District a Well Completion Report in a District-approved format within 30 days of the completion of the construction, repair, or abandonment authorized by this permit.

7. The well owner shall provide District staff access to the well site during all phases of well construction, repair, or abandonment.

8. Issuance of this permit does not relieve the well owner of obtaining any necessary federal, state, local or special District permits or authorizations.

9. The well owner shall obtain District approval of grouting prior to cutting off and burying the plugged well casing.