May 7, 2014

Mr. Jeffrey Dyber, PE
Environmental Engineer 2
New York State Department of Environmental Conservation
Remedial Bureau A
625 Broadway
Albany, New York 12233-7015

Re: Former Supply Well Abandonment (Plugging) Work Plan
Pall Corporation
30 Sea Cliff Avenue
Glen Cove, New York

Dear Mr. Dyber,

Pall Corporation (Pall) has retained Tyll Engineering and Consulting PC (TEC) to prepare this Water Supply Well Abandonment Work Plan for the above referenced Pall-owned property. Pall formerly operated a research and development and manufacturing facility at the property.

Background

During the pre-demolition work at the property, a water supply well was identified in a room in the southwestern corner of the building (Figure 1). A records review indicates that the well is registered as N-2316 and is a 4 and 6 inch diameter well installed to 123'6" below land surface (Well registration attached). Records report that the pump was replaced (due to malfunction) in 1995 with a 250 GPM, 15 HP Goulds submersible pump. This well system is reported to have been used for process cooling water.

In addition, two shallow wells were discovered in the vicinity of the three 1,000 gallon underground storage tanks that were removed to the west of the former building in April 2014. The well closest to the tank pad had a standard manhole casting, an inner casing that is approximately 9" in diameter and an outer casing that is approximately 12" in diameter. The depth to water was measured by TEC and determined to be 30" below ground surface (bgs). The well depth (refusal) was measured at at 6'2" bgs. The second well, located in the driveway, has a smaller manhole casting and has a similar casing size, but we were unable to determine if it was double cased. The depth of water at this second well location was determined to be 32" bgs and the well depth (refusal) was determined to be 22' bgs.

Pall proposes to plug the three supply wells that have been identified.

Well Abandonment/Plugging Procedure

The abandonment/plugging work will be performed by a New York State Department of Environmental Conservation (NYSDEC) licensed well driller in accordance with the procedures set forth in NYSDEC's CP-43: Groundwater Monitoring Well Decommissioning Policy (dated November 2009) because this policy also applies to the three Pall wells because they are non-potable, small diameter water wells. Pall Corporation and/or TEC will provide a Qualified Environmental Professional to observe and document the well abandonment procedure at the property. Photographs will be taken to document key activities. The well abandonment procedure will include:

Well in Southwestern Portion of the Building (N-2316)

- The distribution piping for the well will be cut and set aside.
- Flowing artesian conditions are known to exist in the area. If flowing artesian conditions are encountered during well plugging, the water will be pumped directly into a vacuum truck. We do not expect flowing artesian conditions, but the groundwater level is near the bottom of the vault and thus, we have planned for this contingency.
- A truck-mounted drill rig will be used to pull the pump and riser pipe.
- The well casing will be grouted from the bottom to the top of casing with a neat cement/bentonite grout pumped into the well via tremi pipe. Water displaced from the well will be pumped from the well vault into a vacuum truck.
- The well riser will be cut to a level approximately 2 to 3 feet below grade level. Any remaining void in the well casing will be filled with neat cement/bentonite grout.
- The well vault will be backfilled to approximately 4-inches below grade with clean sand brought from a certified clean fill supplier approved by the NYSDEC prior to backfilling activities.
- The well will be capped with a bolt down blind flange. A cement cap will be installed over the well vault along with a ferrous marker.
- The well pump, drop pipe and other debris generated during the well abandonment activities will be decontaminated on-site and recycled or disposed as construction debris.
- All groundwater generated during the well abandonment procedures will be collected using a vacuum truck. The well water will undergo waste characterization sampling as per NYSDEC requirements prior to the abandonment work so that the collected water does not need to be temporarily stored on-site pending receipt of analytical results.

- The driller will complete a Well Decommissioning Record and submit the report to the NYSDEC. The report will include the Well Decommissioning Record, the driller's license number, and a Site Plan.

Two Shallow Wells in Former Tank Area

- The well casing will be grouted from the bottom to the top of casing with a neat cement/bentonite grout pumped into the well via tremi pipe. Water displaced from the well will be pumped from the well into a vacuum truck.
- The well riser will be cut to a level approximately 2 to 3 feet below grade level. Any remaining void in the well casing will be filled with neat cement/bentonite grout.
- All groundwater generated during the well abandonment procedures will be collected using a vacuum truck. The well water will undergo waste characterization sampling as per NYSDEC requirements prior to the abandonment work so that the collected water does not need to be temporarily stored on-site pending receipt of analytical results.
- The driller will complete a Well Decommissioning Record and submit the report to the NYSDEC. The report will include the Well Decommissioning Record, the driller's license number, and a Site Plan.

Due to the presence of a small creek in the vicinity of the well abandonment area, the contractor will have a spill contingency kit on site as a protective measure. The kit will consist of absorbent booms and pads that can be used to contain any spilled fluids.

Waste Characterization and Disposal

TEC will collect groundwater samples from all three wells and submit them for waste characterization analysis prior to starting the abandonment work to allow the water to be transported off site for disposal after it is vacuumed during abandonment activities. The samples will be submitted to a NYS ELAP Certified laboratory for analysis of the waste characterization parameters required by the receiving disposal facility. Typical parameters include: Total Petroleum Hydrocarbons (TPH) (8015M), VOCs (8260B), SVOCs (8270D), TOTAL Metals RCRA (6010), TCLP Metals RCRA (1311/6010), RCRA Characteristics: Ignitability, Corrosivity (pH), Reactivity – Sulfide and Cyanide, and PCBs (8082A), but they vary dependent on the disposal facility requirements.

After the disposal facility has approved the waste water for disposal, we will schedule the well abandonment work. The waste waters will be transported under manifest/bill of lading to the disposal facility. Copies of the signed manifests/bills of lading and disposal documentation will be provided to

TEC. Results of the sampling will be compared with New York State Groundwater Standards specified in the NYSDEC TOGS 1.1.1 guidance document (June 1998 more recent updates).

Schedule

Pall Corporation will perform the well abandonment activities after receipt of NYSDEC approval of this work plan. NYSDEC and the Nassau County Department of Health will be notified of the well abandonment activities at least 10 calendar days before the expected start date.

If you have any questions or need further information, please do not hesitate to contact me.

Thank you for your consideration in this matter.

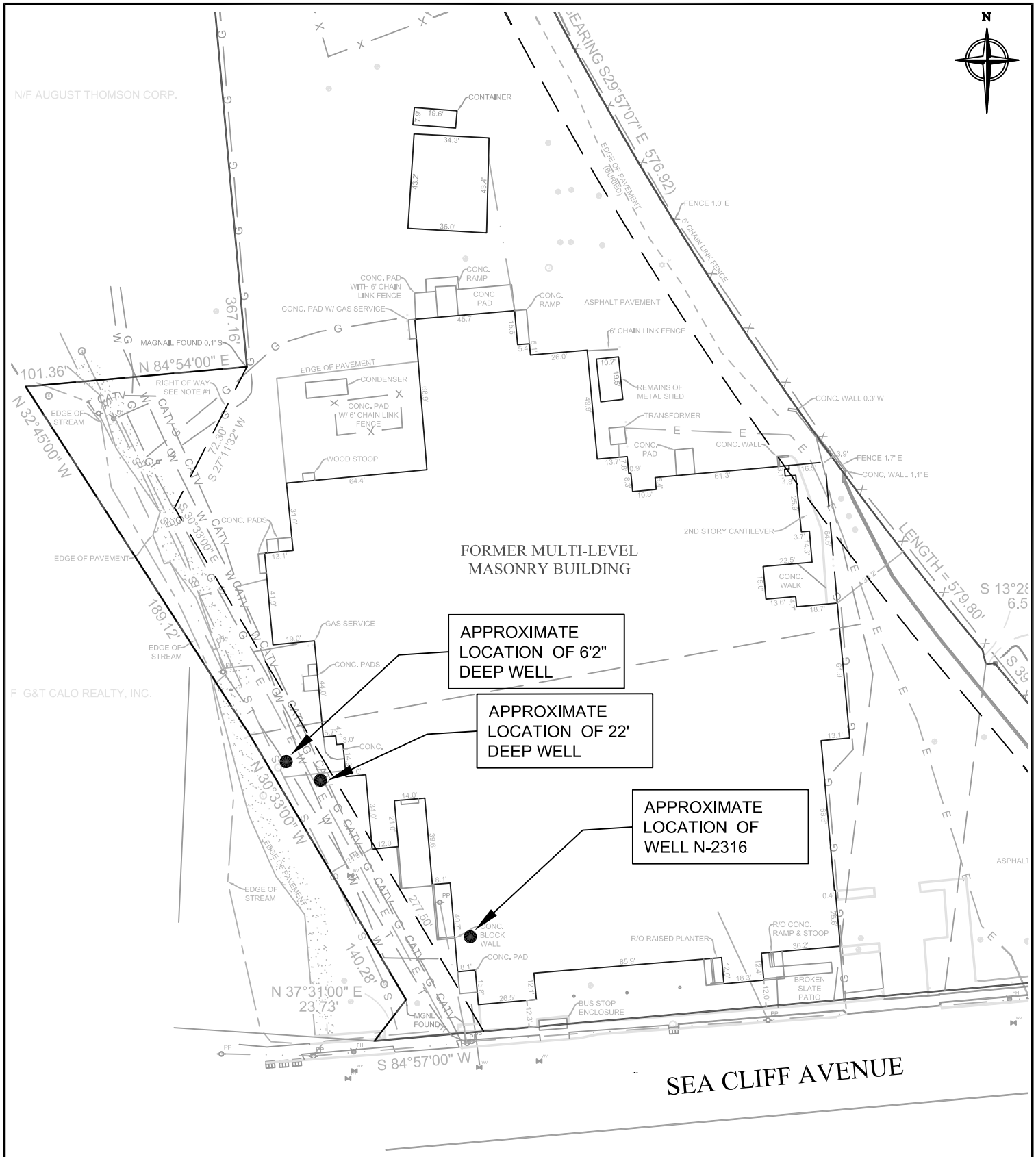
Sincerely,
TYLL ENGINEERING AND CONSULTING PC

Karen G. Tyll, PE
President

cc: Farsad Fotouhi, Pall Corporation
Jim Brode, Fleis & Vandenbrink Engineering, Inc
Robin Putnam, Nassau County Department of Health
Virginia C. Robbins, Esq, Bond, Schoeneck, and King

Attachments (Figure and Well registration form)

FIGURE



Note: Site survey/basemap completed by Hawkins, Webb, and Jaeger, PC for the Pall Corporation October 18, 2012.

PREPARED BY:	TITLE:				
TYLL ENGINEERING & CONSULTING PC 169 Commack Road, Suite H173, Commack, NY 11725 PHONE: (631) 629-5373 Info@tyllenglneerlng.com	**WELL LOCATION MAP** PALL CORPORATION 30 SEA CLIFF AVENUE GLEN COVE, NEW YORK	DWN: KT	SCALE: 1"=60'	DATE: 04-30-2014	PROJECT NO.: PALL1301
		CHKD: KT	APPD: KT	REV.: -	NOTES: -
		FIGURE NO.: 1			

TYLL ENGINEERING & CONSULTING PC

NYSDEC
COMPLETION REPORT –LONG ISLAND WELL
WELL # N-2316

NYS Certified WBE

169 Commack Road, Suite H173 • Commack, NY 11725 • 631-629-5373 • www.tyllengineering.com

1841

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

County Nassau

Well Number N-2316

COMPLETION REPORT—LONG ISLAND WELL

OWNER
Pall Corp.

ADDRESS
2200 Northern Blvd., East Hills, NY

LOCATION OF WELL
30 Sea Cliff Avenue, Glen Cove, NY

DEPTH OF WELL BELOW SURFACE
123' 5"

DEPTH TO GROUNDWATER FROM SURFACE
8' 4"

*LOG
Ground Surface
EL. N/A ft. above sea
_____ ft.

TOP OF WELL
N/A

CASINGS

DIAMETER	6 in.	4 in.	in. / in.
LENGTH	to 89' 4" ft.	to 123' 5" ft.	ft. / ft.

SEALING
N/A

CASINGS REMOVED

SCREENS

MAKE
N/A

OPENINGS

DIAMETER	3 in.	in.	in. / in.
LENGTH	N/A ft.	ft.	ft. / ft.

DEPTH TO TOP FROM TOP OF CASING
N/A

PUMPING TEST

DATE
N/A

TEST OR PERMANENT PUMP?

DURATION OF TEST
days | hours

MAXIMUM DISCHARGE
gallons per min.

STATIC LEVEL PRIOR TO TEST
ft. | in. below top of casing

LEVEL DURING MAXIMUM PUMPING
in. below top of casing

MAXIMUM DRAWDOWN
ft.

Approximate time of return to normal level after cessation of pumping
hours | min.

PUMP INSTALLED

TYPE	MAKE	MODEL NUMBER
Submersible	Goulds	225H15
MOTIVE POWER	MAKE	H.P.
Elec Submersible	Franklin	15

CAPACITY
250 g.p.m. against _____ ft. of discharge head

NUMBER OF BOWLS OR STAGES
172 ft. of total head

DROP LINE	SUCTION LINE
DIAMETER 3 in.	DIAMETER N/A in.
LENGTH 60 ft.	LENGTH N/A ft.
METHOD OF DRILLING ☐ rotary ☐ cable tool ☒ other Pump Repair	USE OF WATER Cooling
WORK STARTED 10/10/95	COMPLETED 10/31/95

DATE	DRILLER	REGISTRATION NO.
01/17/96	Delta Well & Pump Co., Inc.	1299

* **NOTE:** Show log of well materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job. See instructions as to Well Driller's Registration and Reports.

ORIGINAL—Environmental Conservation Copy

* REMOVE DEFECTIVE PUMP AND INSTALL NEW ONE

County Nassau

W 1993

ORIGINAL—TO COMMISSION

State of New York
Department of Conservation
Division of Water Power and Control
COMPLETION REPORT—LONG ISLAND WELL

Well No. N-7153D
(on preliminary report)

LOG

Ground Surf., El.....ft. above sea

^
.....ft.
v
Top of Well

Owner Pall Corporation

Address 30 Sea Cliff Avenue, Sea Cliff, Long Island

Location of well same

Depth of well below surface 41'11" feet

Depth to ground water from surface 5'7" feet

CASINGS:

Diameter	6 in.	in.	in.	in.
Length	32 ft.	ft.	ft.	ft.
Sealing	lead packer			
Casings removed	none			

SCREENS: Make Johnson SRB Openings 50 slot

Diameter	6 in.	in.	in.	in.
Length	10'11" ft.	ft.	ft.	ft.
Depth to top from top of casing	32 ft.			

PUMPING TEST: Date..... Test or permanent pump?.....

Duration of Test.....days.....hours

Maximum Discharge.....gallons per minute

Static level prior to test.....ft.....in. below top of casing

Level during Max. Pumping.....ft.....in. below top of casing

Maximum Drawdown.....ft.

Approx. time of return to normal level after cessation of pumping.....hours.....minutes

PUMP INSTALLED:

Type.....Make.....Model No.....

Motive power.....Make.....H.P.....

Capacity.....g.p.m. against } .....ft. of discharge head

No. bowls or stages..... } .....ft. of total head

DROP LINE: SUCTION LINE:

Diameter .....in. .....in

Length .....ft. .....ft

Use of water Diff. No. 1 for N-2216

Work started 7/16/61 Completed 7/19/61

Date 9/22/61 Driller C. W. Lauman & Co., Inc.

License No. 13

NOTE: Show log of well—materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job.

See Instructions as to Well Drillers' Licenses and Reports—pp. 5-7.

WATER RESOURCES COMMISSION
SEP 26 1961
RECEIVED

ORIGINAL—TO COMMISSION

County Nassau

Well No. L-7134D
(on preliminary report)

cc-1993

State of New York
Department of Conservation
Division of Water Power and Control

LOG

COMPLETION REPORT—LONG ISLAND WELL

Ground Surf., El.....ft. above sea

^
.....ft.
v
Top of Well

Owner Pall Corporation

Address 30 Sea Cliff Avenue, Sea Cliff, Long Island

Location of well same

Depth of well below surface 35'9" feet

Depth to ground water from surface 5'2" feet

CASINGS:

Diameter	6 in.	..... in.	..... in.	..... in.
Length	26 ft.	..... ft.	..... ft.	..... ft.

Sealing lead packer

Casings removed none

SCREENS: Make Johnson SRB Openings 40 slot

Diameter	6 in.	..... in.	..... in.	..... in.
Length	10 ft.	..... ft.	..... ft.	..... ft.

Depth to top from top of casing 26 ft.

PUMPING TEST: Date..... Test or permanent pump?.....

Duration of Test.....days.....hours

Maximum Discharge.....gallons per minute

Static level prior to test.....ft.....in. below top of casing

Level during Max. Pumping.....ft.....in. below top of casing

Maximum Drawdown.....ft.

Approx. time of return to normal level after cessation of pumping.....hours.....minutes

PUMP INSTALLED:

Type.....Make.....Model No.....

Motive power.....Make.....H.P.....

Capacity.....g.p.m. against } .....ft. of discharge head

No. bowls or stages..... } .....ft. of total head

DROP LINE:		SUCTION LINE:	
Diameter	..... in.		..... in.
Length	..... ft.		..... ft.

Use of water Diff. No. 2 for N23-16

Work started 7/14/61 Completed 7/16/61

Date 9/22/61 Driller C. W. Lauman & Co., Inc.

License No 13

NOTE: Show log of well—material encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job.

See Instructions as to Well Drillers' Licenses and Reports—pp. 5-7.

ORIGINAL—TO COMMISSION

Well No. N-7155D (on preliminary report)

County Nassau

State of New York
Department of Conservation
Division of Water Power and Control

LOG

Ground Surf. El.........ft. above sea

.........ft.

Top of Well

u-1993

COMPLETION REPORT—LONG ISLAND WELL

Diff. No. 3

Owner Bal' C. poration

Address 30 ' a Cliff Avenue, Sea Cliff, Long Island

Location of well same

Depth of well below surface 27'6" feet

Depth to ground water from surface 5'2" feet

CASINGS:

Diameter 6 in. ......in. ......in. ......in.

Length 17'9" ft. ......ft. ......ft. ......ft.

Sealing lead packer

Casings removed none

SCREENS: Make Johnson SS0 Openings 50 slot

Diameter 6 in. ......in. ......in. ......in.

Length 10'9" ft. ......ft. ......ft. ......ft.

Depth to top from top of casing 17'9" ft.

PUMPING TEST: Date ...... Test or permanent pump? ......

Duration of Test ......days ......hours

Maximum Discharge ......gallons per minute

Static level prior to test ......ft. ......in. below top of casing

Level during Max. Pumping ......ft. ......in. below top of casing

Maximum Drawdown ......ft.

Approx. time of return to normal level after cessation of pumping ......hours ......minutes

PUMP INSTALLED: Model No. ......

Type ...... Make ...... H.P. ......

Motive power ...... Make ...... ft. of discharge head

Capacity ...... g.p.m. against ...... ft. of total head

No. bowls or stages ......

STATE OF NEW YORK
WATER RESOURCES
SEP 26 1961

DROP LINE: SUCTION LINE:

Diameter ......in. ......in.

Length ......ft. ......ft.

Use of water Diff. 43 Cor. N2316

Work started 7/12/61 Completed 7/14/61

Date 9/22/61 Driller C.W. Lauman & Co., Inc.

License No. 13

NOTE: Show log of well—materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job.

See Instructions as to Well Drillers' Licenses and Reports—pp. 5-7.