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ARCADIS
Two Huntington Quadrangle
Suite 1S10
Melville
New York 11747
Tel 631.249.7600
Fax 631.249.7610
www.arcadis-us.com

ENVIRONMENT

Mr. Steven Scharf, P.E.
New York State Department of Environmental Conservation
Remedial Action, Bureau A
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7015

Subject:
Operation, Maintenance, and Monitoring Manual, Soil Gas Interim Remedial Measure, Operable Unit 3 (Former Grumman Settling Ponds), Bethpage, New York, NYSDEC Site #1-30-003A.

Date:
February 16, 2011

Contact:
Carlo San Giovanni

Phone:
631.391.5259

Email:
Carlo.SanGiovanni@arcadis-us.com

Our ref:
NY001496.1211.SGSH2

Dear Steve:

Enclosed is a revised copy of Table 3 of the Operation, Maintenance, and Monitoring (OM&M) Manual for the Operable Unit 3 (OU3) Soil Gas Interim Remedial Measure (IRM), Former Grumman Settling Ponds, Bethpage, New York, NYSDEC Site #1-30-003A. The typical operating ranges for system parameters presented on this table have been updated to reflect the actual, acceptable system operating ranges observed between January 23, 2009 and January 5, 2011 that meet the criteria for generating an induced vacuum at all compliance-related monitoring wells of greater than or equal to -0.1 inches of water column (iwc). Please replace the original Table 3 with the enclosed version.

If you have any questions, please do not hesitate to contact us at any time.

Sincerely,

ARCADIS

Carlo San Giovanni

Carlo San Giovanni
Project Manager

Imagine the result

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Revision Number: 1
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Table 3. Summary of Typical Operating Parameters, Northrop Grumman Operable Unit 3, Soil Gas Interim Remedial Measure, Former Grumman Settling Ponds, Bethpage, New York.

	Unit	Minimum Acceptable Value[2][3]	Average Typical Value[1][3]	Maximum Acceptable Value[2][3]
Depressurization Well Parameters				
DW-7S				
Flow Rate at Manifold (FI -118)	scfm	68.0	84.0	118.0
Vacuum at Manifold (VI -136)	iwc	-14.0	-16.5	-23.0
Temperature at Manifold	° F	45	64	75
PID Measured Concentration (VSP-118)	ppmv	0.0	3.2	5.0
Wellhead Vacuum (VI-118)	iwc	-1.0	-1.5	-2.0
DW-7D				
Flow Rate at Manifold (FI-101)	scfm	4.0	6.0	9.0
Vacuum at Manifold (VI-119)	iwc	-6.0	-7.7	-12.0
Temperature at Manifold	° F	45	64	75
PID Measured Concentration(VSP-101)	ppmv	0.0	1.6	5.0
Wellhead Vacuum (VI-101)	iwc	-0.30	-0.46	-0.70
DW-3S				
Flow Rate at Manifold (FI-117)	scfm	5.0	6.0	7.0
Vacuum at Manifold (VI-135)	iwc	-4.0	-5.6	-7.0
Temperature at Manifold	° F	45	64	75
PID Measured Concentration (VSP-117)	ppmv	0.0	0.8	5.0
Wellhead Vacuum(VI-117)	iwc	-0.20	-0.23	-0.30
DW-3D				
Flow Rate at Manifold (FI-102)	scfm	8.0	10.0	15.0
Vacuum at Manifold (VI-120)	iwc	-5.0	-6.6	-10.0
Temperature at Manifold	° F	45	64	75
PID Measured Concentration (VSP-102)	ppmv	0.0	2.2	5.0
Wellhead Vacuum (VI-102)	iwc	-0.20	-0.37	-0.50
DW-5S				
Flow Rate at Manifold (FI-116)	scfm	63.0	90.0	145.0
Vacuum at Manifold (VI-134)	iwc	-12.0	-16.4	-26.0
Temperature at Manifold	° F	45	64	75
PID Measured Concentration VSP-116)	ppmv	0.0	1.5	5.0
Wellhead Vacuum (VI-116)	iwc	-1.0	-1.5	-2.4
DW-5D				
Flow Rate at Manifold (FI-103)	scfm	12.0	13.8	16.0
Vacuum at Manifold (VI-121)	iwc	-8.0	-9.5	-11.0
Temperature at Manifold	° F	45	64	75
PID Measured Concentration (VSP-103)	ppmv	0.0	0.8	5.0
Wellhead Vacuum (VI-103)	iwc	-2.0	-2.2	-3.0

Notes and abbreviations on last page.

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	Unit	Minimum Acceptable Value[2][3]	Average Typical Value[1][3]	Maximum Acceptable Value[2][3]
DW-6S				
Flow Rate at Manifold (FI-115)	scfm	63.0	90.0	145.0
Vacuum at Manifold (VI-133)	iwc	-12.0	-16.4	-26.0
Temperature at Manifold	° F	45	64	75
PID Measured Concentration (VSP-115)	ppmv	0.0	1.5	5.0
Wellhead Vacuum (VI-115)	iwc	-1.0	-1.5	-2.4
DW-6D				
Flow Rate at Manifold (FI-104)	scfm	3.0	6.1	11.0
Vacuum at Manifold (VI-122)	iwc	-2.0	-3.6	-7.0
Temperature at Manifold	° F	45	64	75
PID Measured Concentration (VSP-104)	ppmv	0.0	0.8	5.0
Wellhead Vacuum (VI-104)	iwc	-1.0	-1.7	-3.0
DW-1S				
Flow Rate at Manifold (FI-114)	scfm	63.0	90.0	145.0
Vacuum at Manifold (VI-132)	iwc	-12.0	-16.4	-26.0
Temperature at Manifold	° F	45	64	75
PID Measured Concentration (VSP-114)	ppmv	0.0	1.5	5.0
Wellhead Vacuum (VI-114)	iwc	-1.0	-1.5	-2.4
DW-1D				
Flow Rate at Manifold (FI-105)	scfm	3.0	6.1	11.0
Vacuum at Manifold (VI-123)	iwc	-2.0	-3.6	-7.0
Temperature at Manifold	° F	45	64	75
PID Measured Concentration (VSP-105)	ppmv	0.0	0.8	5.0
Wellhead Vacuum (VI-105)	iwc	-1.0	-1.7	-3.0
DW-4S				
Flow Rate at Manifold (FI-113)	scfm	44.0	78.0	146.0
Vacuum at Manifold (VI-131)	iwc	-12.0	-22.4	-42.0
Temperature at Manifold	° F	45	64	75
PID Measured Concentration (VSP-113)	ppmv	0.0	1.6	5.0
Wellhead Vacuum (VI-113)	iwc	-1.3	-2.4	-4.4
DW-4D				
Flow Rate at Manifold (FI-106)	scfm	4.0	6.7	12.0
Vacuum at Manifold (VI-124)	iwc	-4.0	-7.3	-13.0
Temperature at Manifold	° F	45	64	75
PID Measured Concentration (VSP-106)	ppmv	0.0	1.0	5.0
Wellhead Vacuum (VI-106)	iwc	-0.40	-0.63	-1.1

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Table 3. Summary of Typical Operating Parameters, Northrop Grumman Operable Unit 3, Soil Gas Interim Remedial Measure, Former Grumman Settling Ponds, Bethpage, New York.

	Unit	Minimum Acceptable Value[2][3]	Average Typical Value[1][3]	Maximum Acceptable Value[2][3]
DW-8S				
Flow Rate at Manifold (FI-112)	scfm	44.0	78.0	146.0
Vacuum at Manifold (VI-130)	iwc	-12.0	-22.4	-42.0
Temperature at Manifold	° F	45	64	75
PID Measured Concentration (VSP-112)	ppmv	0.0	1.6	5.0
Wellhead Vacuum (VI-112)	iwc	-1.3	-2.4	-4.4
DW-9S				
Flow Rate at Manifold (FI-111)	scfm	27.0	31.0	35.0
Vacuum at Manifold (VI-129)	iwc	-10.0	-22.7	-25.0
Temperature at Manifold	° F	45.0	64.0	75.0
PID Measured Concentration (VSP-111)	ppmv	0.0	0.9	5.0
Wellhead Vacuum (VI-111)	iwc	-0.90	-1.0	-2.0
DW-2S				
Flow Rate at Manifold (FI-110)	scfm	27.0	31.0	35.0
Vacuum at Manifold (VI-128)	iwc	-20.0	-22.7	-25.0
Temperature at Manifold	° F	45	64	75
PID Measured Concentration (VSP-110)	ppmv	0.0	0.9	5.0
Wellhead Vacuum (VI-110)	iwc	-0.90	-1.0	-2.0
DW-2D				
Flow Rate at Manifold (FI-107)	scfm	18.0	38.0	76.0
Vacuum at Manifold (VI-125)	iwc	-11.0	-24.3	-49.0
Temperature at Manifold	° F	45	64	75
PID Measured Concentration (VSP-107)	ppmv	0.0	1.1	5.0
Wellhead Vacuum (VI-107)	iwc	-1.0	-2.2	-5.0
DW-10S				
Flow Rate at Manifold (FI-109)	scfm	27.0	31.0	35.0
Vacuum at Manifold (VI-127)	iwc	-12.0	-22.7	-25.0
Temperature at Manifold	° F	45.0	64.0	75.0
PID Measured Concentration (VSP-109)	ppmv	0.0	0.9	5.0
Wellhead Vacuum (VI-109)	iwc	-0.90	-1.0	-3.0
DW-11S				
Flow Rate at Manifold (FI-108)	scfm	25.0	31.0	42.0
Vacuum at Manifold (VI-126)	iwc	-19.0	-23.0	-31.0
Temperature at Manifold	° F	45	64	75
PID Measured Concentration (VSP-108)	ppmv	0.0	1.0	5.0
Wellhead Vacuum (VI-108)	iwc	-1.0	-2.3	-4.0

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	Unit	Minimum Acceptable Value[2][3]	Average Typical Value[1][3]	Maximum Acceptable Value[2][3]
General Operating Parameters				
Knock Out Tank Parameters				
Vacuum				
Influent KO-200 (VI-201)[4]	iwc	-22	-28	-34
Influent KO-300 (VI-301)	iwc	-20	-26	-32
Influent KO-400 (VI-401)[4]	iwc	-20	-26	-32
BL-200[4]				
Influent Vacuum (VI-202)[5]	iwc	-24	-30	-36
Effluent Pressure (PI-201)[5]	iwc	1.0	2.0	3.0
Heat Exchanger Influent Temperature (TI-601)[5]	°F	80	100	120
Effluent Flow Rate (FE)[6]	scfm	--	--	--
Effluent PID (VSP-201)[6]	ppmv	--	--	--
BL-300				
Influent Vacuum (VI-302)	iwc	-23.0	-29.8	-36.0
Effluent Pressure (PI-301)	iwc	1.0	2.1	3.0
Heat Exchanger Influent Temperature (TI-601)	°F	81	102	123
Effluent Flow Rate (FE)[6]	scfm	--	--	--
Effluent PID (VSP-301)[6]	ppmv	--	--	--
BL-400[4]				
Influent Vacuum (VI-402)	iwc	-23.0	-29.8	-36.0
Effluent Pressure (PI-401)	iwc	1.0	2.1	3.0
Heat Exchanger Influent Temperature (TI-601)	°F	81	102	123
Effluent Flow Rate (FE)[6]	scfm	--	--	--
Effluent PID (VSP-401)[6]	ppmv	--	--	--
Stack Parameters				
Total Effluent Flow Rate	scfm	500	595	800
Total Effluent PID (VSP-601)	ppmv	1.0	1.5	2.0
Total Effluent Pressure (PIT-601)	iwc	2.0	2.6	4.0
Total Effluent Temperature (TI-602)	°F	70	90	110
Water levels in Wells				
VMWC-1C	ft bmp	Dry	Dry	Dry
VMWC-5B	ft bmp	Dry	Dry	Dry

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Table 3. Summary of Typical Operating Parameters, Northrop Grumman Operable Unit 3, Soil Gas Interim Remedial Measure, Former Grumman Settling Ponds, Bethpage, New York.

	Unit	Minimum Acceptable Value[2][3]	Average Typical Value[1][3]	Maximum Acceptable Value[2][3]
Induced Vacuum Measurements				
DW-7S				
VMWC-14A	iwc	-0.100	-0.110	-0.200
VMWC-14B	iwc	-0.100	-0.150	-0.200
DW-7D				
VMWC-14D	iwc	-0.100	-0.150	-0.200
DW-3S				
VMWC-9A[7]	iwc	--	--	--
VMWC-9B[7]	iwc	--	--	--
VMWC-10B[7]	iwc	--	--	--
VMWC-11B	iwc	-0.090	-0.100	-0.200
DW-3D				
VMWC-10D[7]	iwc	--	--	--
VMWC-11D[7]	iwc	--	--	--
VMWC-12D	iwc	-0.100	-0.140	-0.200
DW-5S				
VMWC-15A	iwc	-0.100	-0.150	-0.200
VMWC-15B	iwc	-0.100	-0.140	-0.200
DW-5D				
VMWC-15D	iwc	-0.100	-0.110	-0.200
DW-1S				
VMWC-1A[7]	iwc	--	--	--
VMWC-2A[7]	iwc	--	--	--
VMWC-4A[7]	iwc	--	--	--
VMWC-3A	iwc	-0.100	-0.120	-0.200
VMWC-1B[7]	iwc	--	--	--
VMWC-4B[7]	iwc	--	--	--
VMWC-3B	iwc	-0.100	-0.130	-0.200
VMWC-1C[7]	iwc	--	--	--
VMWC-4C[7]	iwc	--	--	--
VMWC-3C	iwc	-0.100	-0.150	-0.200
DW-1D				
VMWC-1D[7]	iwc	--	--	--
VMWC-2D[7]	iwc	--	--	--
VMWC-4D[7]	iwc	--	--	--
VMWC-3D	iwc	-0.100	-0.160	-0.200

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Table 3. Summary of Typical Operating Parameters, Northrop Grumman Operable Unit 3, Soil Gas Interim Remedial Measure, Former Grumman Settling Ponds, Bethpage, New York.

	Unit	Minimum Acceptable Value[2][3]	Average Typical Value[1][3]	Maximum Acceptable Value[2][3]
DW-4D				
VMWC-16D	iwc	-0.100	-0.150	-0.200
DW-8S				
VMWC-16A	iwc	-0.100	-0.170	-0.210
VMWC-16B	iwc	-0.100	-0.180	-0.220
DW-2S				
VMWC-5A[7]	iwc	--	--	--
VMWC-6A[7]	iwc	--	--	--
VMWC-8A[7]	iwc	--	--	--
VMWC-7A	iwc	-0.090	-0.100	-0.200
VMWC-5B[7]	iwc	--	--	--
VMWC-6B[7]	iwc	--	--	--
VMWC-8B[7]	iwc	--	--	--
VMWC-7B	iwc	-0.090	-0.100	-0.200
DW-2D				
VMWC-5D[7]	iwc	--	--	--
VMWC-6D[7]	iwc	--	--	--
VMWC-8D[7]	iwc	--	--	--
VMWC-7D[7]	iwc	--	--	--
VMWC-13D	iwc	-0.100	-0.190	-0.250
VMWC-17D	iwc	-0.100	-0.190	-0.330
DW-11S				
VMWC-18A	iwc	-0.090	-0.110	-0.200
VMWC-18B	iwc	-0.100	-0.130	-0.200

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Table 3. Summary of Typical Operating Parameters, Northrop Grumman Operable Unit 3, Soil Gas Interim Remedial Measure, Former Grumman Settling Ponds, Bethpage, New York.

Notes & Abbreviations:

1. Average typical values shown correspond to an induced vacuum at all compliance monitoring wells of greater than or equal to -0.1 inches of water column (i.w.c).
2. Minimum and maximum acceptable values based on engineering judgment, allowable equipment operating range, or range of values observed during normal system operation. If the operator encounters a value outside of the minimum and maximum range he/she should contact the project manager or design engineer as soon as possible.
3. This document to be updated any time there is a change in the minimum and/or maximum allowable operating ranges for any parameter due to a change in system configuration, gauge replacement, field conditions, or any other change. Operators should notify the design engineer immediately if such a change is observed.
4. Blower BL-200 and BL-400 remain offline as part of the blower rotation program. Average typical values shown should be updated upon rotation of the online blower.
5. Values estimated. Values should be revised based on actual system operation once BL-200 is placed online.
6. Vapor phase granular activated carbon air treatment was removed from the system in December 2008. Therefore, the blower effluent flow rate and PID measurements are now collected at the stack location.
7. Measurements are not collected on a regular basis from non-compliance monitoring points.

ft bmp - Feet below measuring point.
DW- Depressurization well.
VMWC - Vapor monitoring well cluster.
iwc - Inches of water column.
°F - Degrees Fahrenheit.
scfm - Standard cubic feet per minute.
ppmv - Parts per million volume.
-- - Data not available.