APPENDIX C
Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Teach AML Reclamation Project City/County: Ottumwa/Wapello Sampling Date: 11/7/2012
Applicant/Owner: Trihydro Corporation State: IA Sampling Point: DP-1
Investigator(s): Jessica Engelbart and Nick Ruhnke Section, Township Range: Sec.9, T72N, R15W
Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave
Slope (%): 0 Lat: 41.05542 Long: 96.58983 Datum: 1984
Soil Map Unit Name: Nodaway-Cantril Complex NWI Classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No X* (If no, explain in Remarks)
Are vegetation N soil N or hydrology N significantly disturbed? Are "Normal Circumstances" present? Y X N ____
Are vegetation N soil N or hydrology N significantly problematic? (if needed, explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?**	**Yes X No ____**
Hydric Soil Present?	Yes X	No ____		
Wetland Hydrology Present?	Yes X	No ____		

Remarks: Data point located where WUS-1 and an off-site drainage connect.
*Drought

VEGETATION – Use scientific names of plants.

Tree Stratum >3" DBH (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Gleditsia triacanthos* - Honey-locust	10	Y	FACU
2			
3			
4			
5			
20% Total Cover ____	10	= Total Cover	

Sapling/Shrub Stratum <3" DBH or > 1 m tall (Plot size: 15' radius)			
1			
2			
3			
4			
5			
20% Total Cover ____		= Total Cover	

Herb Stratum non-woody or woody < 1 m tall (Plot size: 5' radius)			
1 *Persicaria lapathifolium* – Dock-leaf smartweed	25	Y	FACW
2 Carex species - Sedge species	20	Y	FACW
3 *Solidago gigantea* -Late goldenrod	15	Y	FACW
4 *Phalaris arundinacea* - Reed canary grass	10	N	FACW
5 *Trifolium pretense* - Purple clover	10	N	FACU
6			
7			
8			
9			
10			
11			
20% Total Cover ____	75	= Total Cover	

Woody Vine Stratum > 1 m tall (Plot size: 30' radius)			
1			
2			
3			
20% Total Cover ____		= Total Cover	

Dominance Test Worksheet:

Number of Dominant Species that are OBL, FACW, or FAC (A):	3
Total Number of Dominant Species Across All Strata (B):	4
Percent of Dominant Species That are OBL, FACW, or FAC (A/B):	75

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	X 1	____
FACW species	____	X 2	____
FAC species	____	X 3	____
FACU species	____	X 4	____
UPL species	____	X 5	____
Totals (A)	____	(B)	____

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1-Rapid Test for Hydrophytic Veg
- Y 2-Dominance Test is > 50%
- ____ 3-Prevalence Index is ≤3.0[1]
- ____ 4-Morphological Adaptations (Provide supporting data in Remarks)
- ____ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No ____**

Remarks: Data point is shown as Photo 1 on Exhibit 5.
Vegetation passes the FAC-Neutral test. Hydrophytic vegetation was dominant.

SOIL

Sampling Point: DP-1

Profile Description: (Describe to the depth needed to document the indicator to confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR3/1						Sandy loam	
6-16	10YR3/1	80	10YR2/1	20	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2 Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ 5 cm Mucky Peat or Peat (S3)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicator for Problematic Hydric Soils[3]:

- ____ Coast Prairie Redox (A16)
- ____ Iron-Manganese Masses (F12)
- ____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks: Hydric soil indicators were observed during the site reconnaissance. Probe was extended to 16 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery(B7)
- ____ Sparse Vegetated Concave Surface(B8)
- ____ Water-Stained Leaves (B9)
- X Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction on Tilled Soil (C6)
- ____ Thin Muck Surface (C7)
- ____ Gauge or Well Data (D9)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth: _____	in	
Water Table Present?	Yes X	No ____	Depth: 0	in	
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth: 0	in	

Wetland Hydrology Present **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Indicators of wetland hydrology were observed during the site reconnaissance.
Frog observed.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Teach AML Reclamation Project City/County: Ottumwa/Wapello Sampling Date: 11/7/2012
Applicant/Owner: Trihydro Corporation State: IA Sampling Point: DP-2
Investigator(s): Jessica Engelbart and Nick Ruhnke Section, Township Range: Sec.9, T72N, R15W
Landform (hillslope, terrace, etc.): Slope Local Relief (concave, convex, none): None
Slope (%): 1 Lat: 41.05542 Long: 96.58983 Datum:
Soil Map Unit Name: Nodaway-Cantril Complex NWI Classification: None
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No X* (If no, explain in Remarks)
Are vegetation N soil N or hydrology N significantly disturbed? Are "Normal Circumstances" present? Y X N ____
Are vegetation N soil N or hydrology N significantly problematic? (if needed, explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks: Data point taken upland of a wetland off-site on a slight slope.
*Drought

VEGETATION – Use scientific names of plants.

Tree Stratum >3" DBH (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Tilia americana* - American basswood	20	Y	FACU
2			
3			
4			
5			
20% Total Cover ____	20	= Total Cover	

Sapling/Shrub Stratum <3" DBH or > 1 m tall (Plot size: 15' radius)			
1 Amelanchier Canadensis – Canadian service-berry	25	Y	FACU
2 *Lonicera morrowii* - Morrow honeysuckle	15	Y	FACU
3 *Rosa multiflora* – Multiflora rose	5	N	FACU
4			
5			
20% Total Cover ____	45	= Total Cover	

Herb Stratum non-woody or woody < 1 m tall (Plot size: 5' radius)			
1 *Trifolium pretense* - Purple clover	30	Y	FACU
2 *Viola bicolor* – Field pansy	25	Y	FACU
3 *Carex* species - Sedge species	20	Y	FACW
4 *Poa annua* - Annual bluegrass	15	N	FAC
5			
6			
7			
8			
9			
10			
11			
20% Total Cover ____	90	= Total Cover	

Woody Vine Stratum > 1 m tall (Plot size: 30' radius)			
1			
2			
3			
20% Total Cover ____		= Total Cover	

Dominance Test Worksheet:

Number of Dominant Species that are OBL, FACW, or FAC (A):	1
Total Number of Dominant Species Across All Strata (B):	6
Percent of Dominant Species That are OBL, FACW, or FAC (A/B):	17%

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	X 1	____
FACW species	____	X 2	____
FAC species	____	X 3	____
FACU species	____	X 4	____
UPL species	____	X 5	____
Totals (A)	____	(B)	____

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1-Rapid Test for Hydrophytic Veg
- N 2-Dominance Test is > 50%
- ____ 3-Prevalence Index is ≤3.0[1]
- ____ 4-Morphological Adaptations (Provide supporting data in Remarks)
- ____ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ____ No X**

Remarks: Vegetation fails the FAC-Neutral test. Hydrophytic vegetation was not dominant.

SOIL

Sampling Point: DP-2

Profile Description: (Describe to the depth needed to document the indicator to confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR3/4	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2 Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ 5 cm Mucky Peat or Peat (S3)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)

Indicator for Problematic Hydric Soils[3]:

____ Coast Prairie Redox (A16)
____ Iron-Manganese Masses (F12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks: Hydric soil indicators were not observed during the site reconnaissance. Probe was extended to 15 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1)
____ Sediment Deposits (B2)
____ Drift Deposits (B3)
____ Algal Mat or Crust (B4)
____ Iron Deposits (B5)
____ Inundation Visible on Aerial Imagery(B7)
____ Sparse Vegetated Concave Surface(B8)
____ Water-Stained Leaves (B9)
____ Aquatic Fauna (B13)
____ True Aquatic Plants (B14)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres on Living Roots (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction on Tilled Soil (C6)
____ Thin Muck Surface (C7)
____ Gauge or Well Data (D9)
____ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

____ Surface Soil Cracks (B6)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Stunted or Stressed Plants (D1)
____ Geomorphic Position (D2)
____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth: _____ in
Water Table Present? Yes ____ No X Depth: _____ in
Saturation Present? Yes ____ No X Depth: _____ in
(includes capillary fringe)

Wetland Hydrology Present **Yes** _____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Indicators of wetland hydrology were not observed during the site reconnaissance.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Teach AML Reclamation Project City/County: Ottumwa/Wapello Sampling Date: 11/7/2012
Applicant/Owner: Trihydro Corporation State: IA Sampling Point: DP-3
Investigator(s): Jessica Engelbart and Nick Ruhnke Section, Township Range: Sec.9, T72N, R15W
Landform (hillslope, terrace, etc.): Slope Local Relief (concave, convex, none): None
Slope (%): 1 Lat: 41.05542 Long: 96.58983 Datum: 1984
Soil Map Unit Name: Nodaway-Cantril Complex NWI Classification:
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No X* (If no, explain in Remarks)
Are vegetation N soil N or hydrology N significantly disturbed? Are "Normal Circumstances" present? Y X N ____
Are vegetation N soil N or hydrology N significantly problematic? (if needed, explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks: Data point taken adjacent to southern portion of the pond on a slope.
*Drought

VEGETATION – Use scientific names of plants.

Tree Stratum >3" DBH (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Quercus rubra* - Northern red oak	15	Y	FACU
2 *Tilia americana* - American basswood	15	Y	FACU
3 *Pinus banksiana* - Jack pine	5	N	FACU
4			
5			
20% Total Cover ____	35	= Total Cover	

Sapling/Shrub Stratum <3" DBH or > 1 m tall (Plot size: 15' radius)			
1 *Rosa multiflora* – Multiflora rose	60	Y	FACU
2 *Lonicera morrowii* - Morrow honeysuckle	20	Y	FACU
3			
4			
5			
20% Total Cover ____	80	= Total Cover	

Herb Stratum non-woody or woody < 1 m tall (Plot size: 5' radius)			
1 *Poa annua* - Annual bluegrass	25	Y	FAC
2 *Carex* species - Sedge Species	10	Y	FACW
3			
4			
5			
6			
7			
8			
9			
10			
11			
20% Total Cover ____	35	= Total Cover	

Woody Vine Stratum > 1 m tall (Plot size: 30' radius)			
1			
2			
3			
20% Total Cover ____		= Total Cover	

Dominance Test Worksheet:

Number of Dominant Species that are OBL, FACW, or FAC (A):	2
Total Number of Dominant Species Across All Strata (B):	6
Percent of Dominant Species That are OBL, FACW, or FAC (A/B):	33%

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	X 1	____
FACW species	____	X 2	____
FAC species	____	X 3	____
FACU species	____	X 4	____
UPL species	____	X 5	____
Totals (A)	____	(B)	____

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1-Rapid Test for Hydrophytic Veg
- N 2-Dominance Test is > 50%
- ____ 3-Prevalence Index is ≤3.0[1]
- ____ 4-Morphological Adaptations (Provide supporting data in Remarks)
- ____ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ____ No X**

Remarks: Vegetation fails the FAC-Neutral test. Hydrophytic vegetation was not dominant.
Data point is shown as Photo 2 on Exhibit 5.

SOIL

Sampling Point: DP-3

Profile Description: (Describe to the depth needed to document the indicator to confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR3/3	80	10YR4/6	20	C	M	Silt loam	Crumbly.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2 Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ 5 cm Mucky Peat or Peat (S3)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)

Indicator for Problematic Hydric Soils[3]:

____ Coast Prairie Redox (A16)
____ Iron-Manganese Masses (F12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** __X__

Remarks: Hydric soil indicators were not observed during the site reconnaissance. Probe was extended to 13 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1)
____ Sediment Deposits (B2)
____ Drift Deposits (B3)
____ Algal Mat or Crust (B4)
____ Iron Deposits (B5)
____ Inundation Visible on Aerial Imagery(B7)
____ Sparse Vegetated Concave Surface(B8)
____ Water-Stained Leaves (B9)
____ Aquatic Fauna (B13)
____ True Aquatic Plants (B14)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres on Living Roots (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction on Tilled Soil (C6)
____ Thin Muck Surface (C7)
____ Gauge or Well Data (D9)
____ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

____ Surface Soil Cracks (B6)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Stunted or Stressed Plants (D1)
____ Geomorphic Position (D2)
____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No __X__ Depth: _____ in
Water Table Present? Yes ____ No __X__ Depth: _____ in
Saturation Present? Yes ____ No __X__ Depth: _____ in
(includes capillary fringe)

Wetland Hydrology Present **Yes** _____ **No** __X__

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Indicators of wetland hydrology were not observed during the site reconnaissance.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Teach AML Reclamation Project City/County: Ottumwa/Wapello Sampling Date: 11/7/2012
Applicant/Owner: Trihydro Corporation State: IA Sampling Point: DP-4
Investigator(s): Jessica Engelbart and Nick Ruhnke Section, Township Range: Sec.9, T72N, R15W
Landform (hillslope, terrace, etc.): Slope Local Relief (concave, convex, none): None
Slope (%): 1 Lat: 41.05542 Long: 96.58983 Datum: 1984
Soil Map Unit Name: Nodaway-Cantril Complex NWI Classification: None
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No X* (If no, explain in Remarks)
Are vegetation N soil N or hydrology N significantly disturbed? Are "Normal Circumstances" present? Y X N ____
Are vegetation N soil Y or hydrology N significantly problematic? (if needed, explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks: Data point taken adjacent on the western portion of the pond on a slope.
*Drought
*Soils problematic from mine spoils

VEGETATION – Use scientific names of plants.

Tree Stratum >3" DBH (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Gleditsia triacanthos* - Honey-locust	20	Y	FACU
2 *Quercus rubra* - Northern red oak	10	Y	FACU
3			
4			
5			
20% Total Cover ____	30	= Total Cover	

Sapling/Shrub Stratum <3" DBH or > 1 m tall (Plot size: 15' radius)			
1 *Lonicera morrowii* - Morrow honeysuckle	10	Y	FACU
2			
3			
4			
5			
20% Total Cover ____	10	= Total Cover	

Herb Stratum non-woody or woody < 1 m tall (Plot size: 5' radius)			
1 *Poa annua* - Annual bluegrass	25	Y	FAC
2 *Solidago gigantea* -Late goldenrod	20	Y	FACW
3			
4			
6			
7			
8			
9			
10			
11			
12			
20% Total Cover ____	45	= Total Cover	

Woody Vine Stratum > 1 m tall (Plot size: 30' radius)			
1			
2			
1			
20% Total Cover ____		= Total Cover	

Dominance Test Worksheet:

Number of Dominant Species that are OBL, FACW, or FAC (A):	2
Total Number of Dominant Species Across All Strata (B):	5
Percent of Dominant Species That are OBL, FACW, or FAC (A/B):	40

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	X 1	____
FACW species	____	X 2	____
FAC species	____	X 3	____
FACU species	____	X 4	____
UPL species	____	X 5	____
Totals	(A) ____		(B) ____

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1-Rapid Test for Hydrophytic Veg
- N 2-Dominance Test is > 50%
- ____ 3-Prevalence Index is ≤3.0[1]
- ____ 4-Morphological Adaptations (Provide supporting data in Remarks)
- ____ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ____ No X**

Remarks: Vegetation fails the FAC-Neutral test. Hydrophytic vegetation was not dominant.
Data point is shown as Photo 3 on Exhibit 5.

SOIL

Sampling Point: DP-4

Profile Description: (Describe to the depth needed to document the indicator to confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR2/1	97	10YR3/4	3	C	M	Silt loam	
8-18	2.5Y7/3	100					Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2 Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ 5 cm Mucky Peat or Peat (S3)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)

Indicator for Problematic Hydric Soils[3]:

____ Coast Prairie Redox (A16)
____ Iron-Manganese Masses (F12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** __X__

Remarks: Hydric soil indicators were not observed during the site reconnaissance. Probe was extended to 18 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1)
____ Sediment Deposits (B2)
____ Drift Deposits (B3)
____ Algal Mat or Crust (B4)
____ Iron Deposits (B5)
____ Inundation Visible on Aerial Imagery(B7)
____ Sparse Vegetated Concave Surface(B8)
____ Water-Stained Leaves (B9)
____ Aquatic Fauna (B13)
____ True Aquatic Plants (B14)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres on Living Roots (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction on Tilled Soil (C6)
____ Thin Muck Surface (C7)
____ Gauge or Well Data (D9)
____ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

____ Surface Soil Cracks (B6)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Stunted or Stressed Plants (D1)
____ Geomorphic Position (D2)
____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No __X__ Depth: _____ in
Water Table Present? Yes ____ No __X__ Depth: _____ in
Saturation Present? Yes ____ No __X__ Depth: _____ in
(includes capillary fringe)

Wetland Hydrology Present **Yes** _____ **No** __X__

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Indicators of wetland hydrology were not observed during the site reconnaissance.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Teach AML Reclamation Project City/County: Ottumwa/Wapello Sampling Date: 11/7/2012
Applicant/Owner: Trihydro Corporation State: IA Sampling Point: DP-5
Investigator(s): Jessica Engelbart and Nick Ruhnke Section, Township Range: Sec.9, T72N, R15W
Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave
Slope (%): 0 Lat: 41.05542 Long: 96.58983 Datum: 1984
Soil Map Unit Name: Nodaway-Cantril Complex NWI Classification: ____
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No X* (If no, explain in Remarks)
Are vegetation N soil N or hydrology N significantly disturbed? Are "Normal Circumstances" present? Y ____ N ____
Are vegetation N soil N or hydrology N significantly problematic? (if needed, explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks: Data point taken where WUS-1 drains into Pond 1 in a depression.
*Drought

VEGETATION – Use scientific names of plants.

Tree Stratum >3" DBH (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Gleditsia triacanthos* - Honey locust	15	Y	FACU
2			
3			
4			
5			
20% Total Cover ____	15	= Total Cover	

Sapling/Shrub Stratum <3" DBH or > 1 m tall (Plot size: 15' radius)			
1 *Lonicera morrowii* - Morrow honeysuckle	10	Y	FACU
2			
3			
4			
5			
20% Total Cover ____	10	= Total Cover	

Herb Stratum non-woody or woody < 1 m tall (Plot size: 5' radius)			
1 *Poa annua* - Annual bluegrass	15	Y	FAC
2 *Euphorbia supine* - Prostate spurge	10	Y	NI
3			
4			
5			
6			
7			
8			
9			
10			
11			
20% Total Cover ____	25	= Total Cover	

Woody Vine Stratum > 1 m tall (Plot size: 30' radius)			
1			
2			
3			
20% Total Cover ____		= Total Cover	

Dominance Test Worksheet:

Number of Dominant Species that are OBL, FACW, or FAC (A):	1
Total Number of Dominant Species Across All Strata (B):	3
Percent of Dominant Species That are OBL, FACW, or FAC (A/B):	33

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	X 1	____
FACW species	____	X 2	____
FAC species	____	X 3	____
FACU species	____	X 4	____
UPL species	____	X 5	____
Totals	(A) ____	(B)	____

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1-Rapid Test for Hydrophytic Veg
- N 2-Dominance Test is > 50%
- ____ 3-Prevalence Index is ≤3.0[1]
- ____ 4-Morphological Adaptations (Provide supporting data in Remarks)
- ____ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ____ No X**

Remarks: Data point is shown as Photo 4 on Exhibit 5.
Vegetation fails the FAC-Neutral test. Hydrophytic vegetation was not dominant.
Bareground observed. Prostrate spurge was not used in the dominance test.

SOIL

Sampling Point: DP-5

Profile Description: (Describe to the depth needed to document the indicator to confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR3/4	100					Sand loam	Contains gravel.
12-19	10YR3/4	90	10YR4/3	10	C	M	Sand loam	Contains gravel.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2 Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ 5 cm Mucky Peat or Peat (S3)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)

Indicator for Problematic Hydric Soils[3]:

____ Coast Prairie Redox (A16)
____ Iron-Manganese Masses (F12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** __X__

Remarks: Hydric soil indicators were not observed during the site reconnaissance. Probe was extended to 19 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1)
____ Sediment Deposits (B2)
____ Drift Deposits (B3)
____ Algal Mat or Crust (B4)
____ Iron Deposits (B5)
____ Inundation Visible on Aerial Imagery(B7)
____ Sparse Vegetated Concave Surface(B8)
____ Water-Stained Leaves (B9)
____ Aquatic Fauna (B13)
____ True Aquatic Plants (B14)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres on Living Roots (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction on Tilled Soil (C6)
____ Thin Muck Surface (C7)
____ Gauge or Well Data (D9)
____ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

____ Surface Soil Cracks (B6)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Stunted or Stressed Plants (D1)
____ Geomorphic Position (D2)
____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No __X__ Depth: _____ in
Water Table Present? Yes ____ No __X__ Depth: _____ in
Saturation Present? Yes ____ No __X__ Depth: _____ in
(includes capillary fringe)

Wetland Hydrology Present **Yes** _____ **No** __X__

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Indicators of wetland hydrology were not observed during the site reconnaissance.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Teach AML Reclamation Project City/County: Ottumwa/Wapello Sampling Date: 11/7/2012
Applicant/Owner: Trihydro Corporation State: IA Sampling Point: DP-6
Investigator(s): Jessica Engelbart and Nick Ruhnke Section, Township Range: Sec.9, T72N, R15W
Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave
Slope (%): 0 Lat: 41.05542 Long: 96.58983 Datum: 1984 WL-1
Soil Map Unit Name: Pits-Dumps Complex Mines NWI Classification: None
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No X* (If no, explain in Remarks)
Are vegetation N soil N or hydrology N significantly disturbed? Are "Normal Circumstances" present? Y X N ____
Are vegetation Y soil Y or hydrology N significantly problematic? (if needed, explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?**	**Yes X No ____**
Hydric Soil Present?	Yes X	No ____		
Wetland Hydrology Present?	Yes X	No ____		

Remarks: Data point taken adjacent to WUS-2 in WL-1.
*Drought
*Vegetation and soil problematic due to mine spoils.

VEGETATION – Use scientific names of plants.

Tree Stratum >3" DBH (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
20% Total Cover ____		= Total Cover	

Sapling/Shrub Stratum <3" DBH or > 1 m tall (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Salix nigra* - Black willow	10	Y	FACW
2			
3			
4			
5			
20% Total Cover ____	10	= Total Cover	

Herb Stratum non-woody or woody < 1 m tall (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Setaria pumila* - Yellow bristle grass	30	Y	FAC
2 *Phalaris arundinacea* - Reed canary grass	15	Y	FACW
3 *Ambosia trifida* - Great ragweed	15	Y	FAC
4			
5			
6			
7			
8			
9			
10			
11			
20% Total Cover ____	60	= Total Cover	

Woody Vine Stratum > 1 m tall (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
20% Total Cover ____		= Total Cover	

Dominance Test Worksheet:

Number of Dominant Species that are OBL, FACW, or FAC (A):	4
Total Number of Dominant Species Across All Strata (B):	4
Percent of Dominant Species That are OBL, FACW, or FAC (A/B):	100

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	X 1	____
FACW species	____	X 2	____
FAC species	____	X 3	____
FACU species	____	X 4	____
UPL species	____	X 5	____
Totals	(A) ____		(B) ____

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1-Rapid Test for Hydrophytic Veg
- Y 2-Dominance Test is > 50%
- ____ 3-Prevalence Index is ≤3.0[1]
- ____ 4-Morphological Adaptations (Provide supporting data in Remarks)
- ____ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No ____**

Remarks: Data point is shown as Photo 5 on Exhibit 5.
Vegetation fails the FAC-Neutral test. Hydrophytic vegetation was dominant.

SOIL

Sampling Point: DP-6

Profile Description: (Describe to the depth needed to document the indicator to confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR2/1	90	10YR3/6	10	C	M	Sandy loam	Contains gravel.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2 Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ 5 cm Mucky Peat or Peat (S3)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicator for Problematic Hydric Soils[3]:

- ____ Coast Prairie Redox (A16)
- ____ Iron-Manganese Masses (F12)
- ____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks: Hydric soil indicators were observed during the site reconnaissance. Probe was extended to 20 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery(B7)
- ____ Sparse Vegetated Concave Surface(B8)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction on Tilled Soil (C6)
- ____ Thin Muck Surface (C7)
- ____ Gauge or Well Data (D9)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth: _____ in
Water Table Present? Yes ____ No X Depth: _____ in
Saturation Present? Yes X No ____ Depth: 11 in
(includes capillary fringe)

Wetland Hydrology Present **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Indicators of wetland hydrology were observed during the site reconnaissance.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Teach AML Reclamation Project City/County: Ottumwa/Wapello Sampling Date: 11/7/2012
Applicant/Owner: Trihydro Corporation State: IA Sampling Point: DP-7
Investigator(s): Jessica Engelbart and Nick Ruhnke Section, Township Range: Sec.9, T72N, R15W
Landform (hillslope, terrace, etc.): Slope Local Relief (concave, convex, none): Concave
Slope (%): 1 Lat: 41.05542 Long: 96.58983 Datum: 1984
Soil Map Unit Name: Pits-Dumps Complex Mines NWI Classification: None
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No X* (If no, explain in Remarks)
Are vegetation N soil N or hydrology N significantly disturbed? Are "Normal Circumstances" present? Y X N ____
Are vegetation Y soil Y or hydrology N significantly problematic? (if needed, explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No N	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes ____	No N		
Wetland Hydrology Present?	Yes ____	No N		

Remarks: Upland of WL-1; severely eroded causing bare ground.
*Drought
*Vegetation and soil problematic from mine spoils.

VEGETATION – Use scientific names of plants.

Tree Stratum >3" DBH (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Pinus banksiana* - Jack pine	5	Y	FACU
2			
3			
4			
5			
20% Total Cover ____	5	= Total Cover	

Sapling/Shrub Stratum <3" DBH or > 1 m tall (Plot size: 15' radius)			
1 *Lonicera morrowii* - Morrow honey locust	10	Y	FACU
2			
3			
4			
5			
20% Total Cover ____	10	= Total Cover	

Herb Stratum non-woody or woody < 1 m tall (Plot size: 5' radius)			
1 *Rosa multiflora* - Multiflora rose	50	Y	FACU
2 *Poa annua* - Annual bluegrass	20	Y	FAC
3 *Carex* species - Sedge species	10	N	FACW
4			
5			
6			
7			
8			
9			
10			
11			
20% Total Cover ____	80	= Total Cover	

Woody Vine Stratum > 1 m tall (Plot size: 30' radius)			
1			
2			
3			
20% Total Cover ____		= Total Cover	

Dominance Test Worksheet:

Number of Dominant Species that are OBL, FACW, or FAC (A):	1
Total Number of Dominant Species Across All Strata (B):	4
Percent of Dominant Species That are OBL, FACW, or FAC (A/B):	25

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	X 1	____
FACW species	____	X 2	____
FAC species	____	X 3	____
FACU species	____	X 4	____
UPL species	____	X 5	____
Totals	(A) ____		(B) ____

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1-Rapid Test for Hydrophytic Veg
- N 2-Dominance Test is > 50%
- ____ 3-Prevalence Index is ≤3.0[1]
- ____ 4-Morphological Adaptations (Provide supporting data in Remarks)
- ____ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ____ No X**

Remarks: Vegetation fails the FAC-Neutral test. Hydrophytic vegetation was not dominant.

SOIL

Sampling Point: DP-7

Profile Description: (Describe to the depth needed to document the indicator to confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR3/2	100					Silt loam	Contains sand.
12-20	10YR3/1	90	10YR4/3	10	C	M	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2 Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ 5 cm Mucky Peat or Peat (S3)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)

Indicator for Problematic Hydric Soils[3]:

____ Coast Prairie Redox (A16)
____ Iron-Manganese Masses (F12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks: Hydric soil indicators were not observed during the site reconnaissance. Probe was extended to 20 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1)
____ Sediment Deposits (B2)
____ Drift Deposits (B3)
____ Algal Mat or Crust (B4)
____ Iron Deposits (B5)
____ Inundation Visible on Aerial Imagery(B7)
____ Sparse Vegetated Concave Surface(B8)
____ Water-Stained Leaves (B9)
____ Aquatic Fauna (B13)
____ True Aquatic Plants (B14)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres on Living Roots (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction on Tilled Soil (C6)
____ Thin Muck Surface (C7)
____ Gauge or Well Data (D9)
____ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

____ Surface Soil Cracks (B6)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Stunted or Stressed Plants (D1)
____ Geomorphic Position (D2)
____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ____ Depth: _____ in
Water Table Present? Yes ____ No ____ Depth: _____ in
Saturation Present? Yes ____ No ____ Depth: _____ in
(includes capillary fringe)

Wetland Hydrology Present **Yes** _____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Indicators of wetland hydrology were not observed during the site reconnaissance.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Teach AML Reclamation Project City/County: Ottumwa/Wapello Sampling Date: 11/7/2012
Applicant/Owner: Trihydro Corporation State: IA Sampling Point: DP-8
Investigator(s): Jessica Engelbart and Nick Ruhnke Section, Township Range: Sec.9, T72N, R15W
Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): concave
Slope (%): 0 Lat: 41.05542 Long: 96.58983 Datum: 1984
Soil Map Unit Name: Pits-Dumps Complex Mines NWI Classification: None
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No X* (If no, explain in Remarks)
Are vegetation N soil N or hydrology N significantly disturbed? Are "Normal Circumstances" present? Y X N ____
Are vegetation Y soil Y or hydrology N significantly problematic? (if needed, explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks: Data point taken adjacent to WUS-3.
*Drought
*Vegetation and soil problematic due to mine spoils.

VEGETATION – Use scientific names of plants.

Tree Stratum >3" DBH (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
20% Total Cover ____		= Total Cover	

Sapling/Shrub Stratum <3" DBH or > 1 m tall (Plot size: 15' radius)			
1			
2			
3			
4			
5			
20% Total Cover ____		= Total Cover	

Herb Stratum non-woody or woody < 1 m tall (Plot size: 5' radius)			
1 *Poa annua* - Annual bluegrass	50	Y	FAC
2 *Rosa multiflora* - Multiflora rose	10	N	FACU
3 *Artemisia annua* - Annual wormwood	10	N	FACU
4			
6			
7			
8			
9			
10			
11			
12			
20% Total Cover 14	70	= Total Cover	

Woody Vine Stratum > 1 m tall (Plot size: 30' radius)			
1			
2			
1			
20% Total Cover ____		= Total Cover	

Dominance Test Worksheet:

Number of Dominant Species that are OBL, FACW, or FAC (A):	1
Total Number of Dominant Species Across All Strata (B):	1
Percent of Dominant Species That are OBL, FACW, or FAC (A/B):	100

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	X 1	____
FACW species	____	X 2	____
FAC species	____	X 3	____
FACU species	____	X 4	____
UPL species	____	X 5	____
Totals	(A) ____		(B) ____

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1-Rapid Test for Hydrophytic Veg
- Y 2-Dominance Test is > 50%
- ____ 3-Prevalence Index is ≤3.0[1]
- ____ 4-Morphological Adaptations (Provide supporting data in Remarks)
- ____ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No ____**

Remarks: Data point is shown as Photo 6 on Exhibit 5.
Vegetation fails the FAC-Neutral test. Hydrophytic vegetation was dominant.

SOIL

Sampling Point: DP-8

Profile Description: (Describe to the depth needed to document the indicator to confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR5/4	50	10YR5/6 10YR4/1	10 4	C	M	Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2 Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ 5 cm Mucky Peat or Peat (S3)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicator for Problematic Hydric Soils[3]:

- ____ Coast Prairie Redox (A16)
- ____ Iron-Manganese Masses (F12)
- ____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** **X***

Remarks: Hydric soil indicators were not observed during the site reconnaissance. Probe was extended to 15 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery(B7)
- ____ Sparse Vegetated Concave Surface(B8)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction on Tilled Soil (C6)
- ____ Thin Muck Surface (C7)
- ____ Gauge or Well Data (D9)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth: _____ in
Water Table Present? Yes ____ No X Depth: _____ in
Saturation Present? Yes ____ No X Depth: _____ in
(includes capillary fringe)

Wetland Hydrology Present **Yes** _____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Indicators of wetland hydrology were not observed during the site reconnaissance.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Teach AML Reclamation Project City/County: Ottumwa/Wapello Sampling Date: 11/7/2012
Applicant/Owner: Trihydro Corporation State: IA Sampling Point: DP-9
Investigator(s): Jessica Engelbart and Nick Ruhnke Section, Township Range: Sec.9, T72N, R15W
Landform (hillslope, terrace, etc.): _____ Local Relief (concave, convex, none): _____
Slope (%): _____ Lat: 41.05542 Long: 96.58983 Datum: 1984
Soil Map Unit Name: Pits-Dumps Complex Mines NWI Classification: None
Are climatic/hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks)
Are vegetation N soil N or hydrology N significantly disturbed? Are "Normal Circumstances" present? Y ___ N ___
Are vegetation Y soil Y or hydrology N significantly problematic? (if needed, explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No X	**Is the Sampled Area within a Wetland?**	**Yes** ___ **No X**
Hydric Soil Present?	Yes ___	No X		
Wetland Hydrology Present?	Yes ___	No X		

Remarks: Data point taken on the east side of WUS-2.
*Drought
*Vegetation and soil problematic due to mine spoils.

VEGETATION – Use scientific names of plants.

Tree Stratum >3" DBH (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
20% Total Cover ___		= Total Cover	

Sapling/Shrub Stratum <3" DBH or > 1 m tall (Plot size: 15' radius)			
1 *Lonicera morrowii* - Morrow honeysuckle	10	Y	FACU
2			
3			
4			
5			
20% Total Cover ___	10	= Total Cover	

Herb Stratum non-woody or woody < 1 m tall (Plot size: 5' radius)			
1 *Poa annua* - Annual bluegrass	30	Y	FAC
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
20% Total Cover ___	30	= Total Cover	

Woody Vine Stratum > 1 m tall (Plot size: 30' radius)			
1			
2			
3			
20% Total Cover ___		= Total Cover	

Dominance Test Worksheet:

Number of Dominant Species that are OBL, FACW, or FAC (A):	1
Total Number of Dominant Species Across All Strata (B):	2
Percent of Dominant Species That are OBL, FACW, or FAC (A/B):	50

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	___	X 1 ___
FACW species	___	X 2 ___
FAC species	___	X 3 ___
FACU species	___	X 4 ___
UPL species	___	X 5 ___
Totals	(A) ___	(B) ___

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid Test for Hydrophytic Veg
- N 2-Dominance Test is > 50%
- ___ 3-Prevalence Index is ≤3.0[1]
- ___ 4-Morphological Adaptations (Provide supporting data in Remarks)
- ___ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ___ **No X**

Remarks: Vegetation fails the FAC-Neutral test. Hydrophytic vegetation was not dominant.

SOIL

Sampling Point: DP-9

Profile Description: (Describe to the depth needed to document the indicator to confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR4/1	50	10YR5/4	50	C	M	Silt clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2 Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ 5 cm Mucky Peat or Peat (S3)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicator for Problematic Hydric Soils[3]:

- ____ Coast Prairie Redox (A16)
- ____ Iron-Manganese Masses (F12)
- ____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** **X***

Remarks: Hydric soil indicators were not observed during the site reconnaissance. Probe was extended to 20 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery(B7)
- ____ Sparse Vegetated Concave Surface(B8)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction on Tilled Soil (C6)
- ____ Thin Muck Surface (C7)
- ____ Gauge or Well Data (D9)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No N Depth: _____ in
Water Table Present? Yes ____ No N Depth: _____ in
Saturation Present? Yes ____ No N Depth: _____ in
(includes capillary fringe)

Wetland Hydrology Present **Yes** _____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Indicators of wetland hydrology were not observed during the site reconnaissance.

Project/Site: Teach AML Reclamation Project City/County: Ottumwa/Wapello Sampling Date: 11/7/2012
Applicant/Owner: Trihydro Corporation State: IA Sampling Point: DP-10
Investigator(s): Jessica Engelbart and Nick Ruhnke Section, Township Range: Sec.9, T72N, R15W
Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): concave
Slope (%): 0 Lat: 41.05542 Long: 96.58983 Datum: 1984 WL-2
Soil Map Unit Name: Pits-Dumps Complex Mines NWI Classification: None
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No X* (If no, explain in Remarks)
Are vegetation N soil N or hydrology N significantly disturbed? Are "Normal Circumstances" present? Y X N ____
Are vegetation Y soil Y or hydrology N significantly problematic? (if needed, explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?**	**Yes X** **No ____**
Hydric Soil Present?	Yes X	No ____		
Wetland Hydrology Present?	Yes X	No ____		

Remarks: Data point taken in WL-2.
*Drought
*Vegetation and soil problematic due to mine spoils.

VEGETATION – Use scientific names of plants.

Tree Stratum >3" DBH (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
20% Total Cover ____		= Total Cover	

Sapling/Shrub Stratum <3" DBH or > 1 m tall (Plot size: 15' radius)			
1			
2			
3			
4			
5			
20% Total Cover ____		= Total Cover	

Herb Stratum non-woody or woody < 1 m tall (Plot size: 5' radius)			
1 *Poa Annua* - Annual bluegrass	40	Y	FAC
2 *Typha latfolia* – Broad-leaf cat-tail	20	Y	OBL
3 *Carex* species - Sedge species	20	Y	FACW
4 *Trifolium pratense* - Purple clover	15	N	FACU
5			
6			
7			
8			
9			
10			
11			
20% Total Cover 18	95	= Total Cover	

Woody Vine Stratum > 1 m tall (Plot size: 30' radius)			
1			
2			
3			
20% Total Cover ____		= Total Cover	

Dominance Test Worksheet:

Number of Dominant Species that are OBL, FACW, or FAC (A):	3
Total Number of Dominant Species Across All Strata (B):	3
Percent of Dominant Species That are OBL, FACW, or FAC (A/B):	100

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	X 1	____
FACW species	____	X 2	____
FAC species	____	X 3	____
FACU species	____	X 4	____
UPL species	____	X 5	____
Totals (A)	____	(B)	____

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1-Rapid Test for Hydrophytic Veg
- Y 2-Dominance Test is > 50%
- ____ 3-Prevalence Index is ≤3.0[1]
- ____ 4-Morphological Adaptations (Provide supporting data in Remarks)
- ____ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No ____**

Remarks: Data point is shown as Photo 8 on Exhibit 5.
Vegetation passes the FAC-Neutral test. Hydrophytic vegetation was dominant.

SOIL

Sampling Point: DP-10

Profile Description: (Describe to the depth needed to document the indicator to confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR2/1	97	10YR4/6	3	C	M	Silt loam	Contains sand.
14-20	10Yr2/1	85	10YR4/6	15	C	M	Silt loam	Contains sand.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2 Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ 5 cm Mucky Peat or Peat (S3)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicator for Problematic Hydric Soils[3]:

- ____ Coast Prairie Redox (A16)
- ____ Iron-Manganese Masses (F12)
- ____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks: Hydric soil indicators were observed during the site reconnaissance. Probe was extended to 20 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery(B7)
- ____ Sparse Vegetated Concave Surface(B8)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction on Tilled Soil (C6)
- ____ Thin Muck Surface (C7)
- ____ Gauge or Well Data (D9)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ____ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth: _____	in
Water Table Present?	Yes ____	No X	Depth: _____	in
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth: _____	in

Wetland Hydrology Present **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Indicators of wetland hydrology were observed during the site reconnaissance.
Dried cattle footprints.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Teach AML Reclamation Project City/County: Ottumwa/Wapello Sampling Date: 11/7/2012
Applicant/Owner: Trihydro Corporation State: IA Sampling Point: DP-11
Investigator(s): Jessica Engelbart and Nick Ruhnke Section, Township Range: Sec.9, T72N, R15W
Landform (hillslope, terrace, etc.): Slope Local Relief (concave, convex, none): ____
Slope (%): 1 Lat: 41.05542 Long: 96.58983 Datum: 1984
Soil Map Unit Name: Pits-Dumps Complex Mines NWI Classification: None
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No X* (If no, explain in Remarks)
Are vegetation N soil N or hydrology N significantly disturbed? Are "Normal Circumstances" present? Y X N ____
Are vegetation Y soil Y or hydrology N significantly problematic? (if needed, explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks: Data point taken upland of WL-2.
*Drought
*Vegetation and soil was problematic due to mine spoils.

VEGETATION – Use scientific names of plants.

Tree Stratum >3" DBH (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
20% Total Cover ____		= Total Cover	

Sapling/Shrub Stratum <3" DBH or > 1 m tall (Plot size: 15' radius)			
1			
2			
3			
4			
5			
20% Total Cover ____		= Total Cover	

Herb Stratum non-woody or woody < 1 m tall (Plot size: 5' radius)			
1 *Poa pratensis* – Kentucky bluegrass	25	Y	FAC
2 *Bromus inermus* – Smooth brome	20	Y	FACU
3 *Poa annua* - Annual bluegrass	20	Y	FAC
4 *Solidago gigantea* -Late goldenrod	N	Y	FACW
5			
6			
7			
8			
9			
10			
11			
20% Total Cover 16	80	= Total Cover	

Woody Vine Stratum > 1 m tall (Plot size: 30' radius)			
1			
2			
3			
20% Total Cover ____		= Total Cover	

Dominance Test Worksheet:

Number of Dominant Species that are OBL, FACW, or FAC (A):	2
Total Number of Dominant Species Across All Strata (B):	3
Percent of Dominant Species That are OBL, FACW, or FAC (A/B):	66

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	X 1	____
FACW species	____	X 2	____
FAC species	____	X 3	____
FACU species	____	X 4	____
UPL species	____	X 5	____
Totals (A)	____	(B)	____

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1-Rapid Test for Hydrophytic Veg
- Y 2-Dominance Test is > 50%
- ____ 3-Prevalence Index is ≤3.0[1]
- ____ 4-Morphological Adaptations (Provide supporting data in Remarks)
- ____ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No ____**

Remarks: Vegetation fails the FAC-Neutral test. Hydrophytic vegetation was dominant.
Bareground observed from mining.

SOIL

Sampling Point: DP-11

Profile Description: (Describe to the depth needed to document the indicator to confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR2/2	100					Silt loam	Crumbly
8-14	10YR2/2	95	10YR3/4	5	C	M	Silt loam	Crumbly

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2 Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ 5 cm Mucky Peat or Peat (S3)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)

Indicator for Problematic Hydric Soils[3]:

____ Coast Prairie Redox (A16)
____ Iron-Manganese Masses (F12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks: Hydric soil indicators were not observed during the site reconnaissance. Probe was extended to 14 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1)
____ Sediment Deposits (B2)
____ Drift Deposits (B3)
____ Algal Mat or Crust (B4)
____ Iron Deposits (B5)
____ Inundation Visible on Aerial Imagery(B7)
____ Sparse Vegetated Concave Surface(B8)
____ Water-Stained Leaves (B9)
____ Aquatic Fauna (B13)
____ True Aquatic Plants (B14)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres on Living Roots (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction on Tilled Soil (C6)
____ Thin Muck Surface (C7)
____ Gauge or Well Data (D9)
____ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

____ Surface Soil Cracks (B6)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Stunted or Stressed Plants (D1)
____ Geomorphic Position (D2)
____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth: _____ in
Water Table Present? Yes ____ No X Depth: _____ in
Saturation Present? Yes ____ No X Depth: _____ in
(includes capillary fringe)

Wetland Hydrology Present **Yes** _____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Indicators of wetland hydrology were not observed during the site reconnaissance.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Teach AML Reclamation Project City/County: Ottumwa/Wapello Sampling Date: 11/7/2012
Applicant/Owner: Trihydro Corporation State: IA Sampling Point: DP-12
Investigator(s): Jessica Engelbart and Nick Ruhnke Section, Township Range: Sec.9, T72N, R15W
Landform (hillslope, terrace, etc.): Slope Local Relief (concave, convex, none): Concave
Slope (%): 1 Lat: 41.05542 Long: 96.58983 Datum: 1984
Soil Map Unit Name: Pits-Dumps Complex Mines NWI Classification: ____
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No X* (If no, explain in Remarks)
Are vegetation N soil N or hydrology N significantly disturbed? Are "Normal Circumstances" present? Y X N ____
Are vegetation Y soil Y or hydrology N significantly problematic? (if needed, explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?**	**Yes X No ____**
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks: Data point located on the eastern portion of the pond; upland of WL-3.
*Drought
*Vegetation and soil problematic due to mine spoils.

VEGETATION – Use scientific names of plants.

Tree Stratum >3" DBH (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
20% Total Cover ____		= Total Cover	

Sapling/Shrub Stratum <3" DBH or > 1 m tall (Plot size: 15' radius)			
1			
2			
3			
4			
5			
20% Total Cover ____		= Total Cover	

Herb Stratum non-woody or woody < 1 m tall (Plot size: 5' radius)			
1 *Poa annua* - Annual bluegrass	40	Y	FAC
2 *Setaria pumila* - Yellow bristle grass	20	Y	FAC
3 *Artemisia annua* - Annual wormwood	10	N	FACU
4			
5			
6			
7			
8			
9			
10			
11			
20% Total Cover ____	70	= Total Cover	

Woody Vine Stratum > 1 m tall (Plot size: 30' radius)			
1			
2			
3			
20% Total Cover ____		= Total Cover	

Dominance Test Worksheet:

Number of Dominant Species that are OBL, FACW, or FAC (A):	2
Total Number of Dominant Species Across All Strata (B):	2
Percent of Dominant Species That are OBL, FACW, or FAC (A/B):	100

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	X 1	____
FACW species	____	X 2	____
FAC species	____	X 3	____
FACU species	____	X 4	____
UPL species	____	X 5	____
Totals (A)	____	(B)	____

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1-Rapid Test for Hydrophytic Veg
- Y 2-Dominance Test is > 50%
- ____ 3-Prevalence Index is ≤3.0[1]
- ____ 4-Morphological Adaptations (Provide supporting data in Remarks)
- ____ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No ____**

Remarks: Vegetation fails the FAC-Neutral test. Hydrophytic vegetation was dominant.
Bareground was observed.

SOIL

Sampling Point: DP-12

Profile Description: (Describe to the depth needed to document the indicator to confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR2/1	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2 Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ 5 cm Mucky Peat or Peat (S3)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicator for Problematic Hydric Soils[3]:

- ____ Coast Prairie Redox (A16)
- ____ Iron-Manganese Masses (F12)
- ____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks: Hydric soil indicators were not observed during the site reconnaissance. Probe was extended to 15 inches.
*Soil problematic due to mine spoils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery(B7)
- ____ Sparse Vegetated Concave Surface(B8)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction on Tilled Soil (C6)
- ____ Thin Muck Surface (C7)
- ____ Gauge or Well Data (D9)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth: _____ in

Water Table Present? Yes ____ No X Depth: _____ in

Saturation Present? Yes ____ No X Depth: _____ in
(includes capillary fringe)

Wetland Hydrology Present **Yes** _____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Indicators of wetland hydrology were not observed during the site reconnaissance.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Teach AML Reclamation Project City/County: Ottumwa/Wapello Sampling Date: 11/7/2012
Applicant/Owner: Trihydro Corporation State: IA Sampling Point: DP-13
Investigator(s): Jessica Engelbart and Nick Ruhnke Section, Township Range: Sec.9, T72N, R15W
Landform (hillslope, terrace, etc.): Slight slope Local Relief (concave, convex, none): concave
Slope (%): 1 Lat: 41.05542 Long: 96.58983 Datum: 1984 WL-3
Soil Map Unit Name: Pits-Dumps Complex Mines NWI Classification: None
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No X* (If no, explain in Remarks)
Are vegetation N soil N or hydrology N significantly disturbed? Are "Normal Circumstances" present? Y X N ____
Are vegetation Y soil Y or hydrology N significantly problematic? (if needed, explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?**	**Yes X No ____**
Hydric Soil Present?	Yes X	No ____		
Wetland Hydrology Present?	Yes X	No ____		

Remarks: Data point taken in WL-3.
*Drought
*Vegetation and soils problematic due to mining spoils.

VEGETATION – Use scientific names of plants.

Tree Stratum >3" DBH (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
20% Total Cover ____		= Total Cover	

Sapling/Shrub Stratum <3" DBH or > 1 m tall (Plot size: 15' radius)			
1			
2			
3			
4			
5			
20% Total Cover ____		= Total Cover	

Herb Stratum non-woody or woody < 1 m tall (Plot size: 5' radius)			
1 *Eleocharis palustis* – Common spikerush	20	Y	OBL
2 *Cyperus esculentus* - Chufa	20	Y	FACW
3 *Setaria pumila* - Yellow bristle grass	20	Y	FAC
4			
5			
6			
7			
8			
9			
10			
11			
20% Total Cover ____	60	= Total Cover	

Woody Vine Stratum > 1 m tall (Plot size: 30' radius)			
1			
2			
3			
20% Total Cover ____		= Total Cover	

Dominance Test Worksheet:

Number of Dominant Species that are OBL, FACW, or FAC (A):	3
Total Number of Dominant Species Across All Strata (B):	3
Percent of Dominant Species That are OBL, FACW, or FAC (A/B):	100

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	X 1	____
FACW species	____	X 2	____
FAC species	____	X 3	____
FACU species	____	X 4	____
UPL species	____	X 5	____
Totals	(A) ____		(B) ____

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1-Rapid Test for Hydrophytic Veg
- Y 2-Dominance Test is > 50%
- ____ 3-Prevalence Index is ≤3.0[1]
- ____ 4-Morphological Adaptations (Provide supporting data in Remarks)
- ____ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No ____**

Remarks: Data point is shown as Photo 8 on Exhibit 5.
Vegetation passes the FAC-Neutral test. Hydrophytic vegetation was dominant.

SOIL

Sampling Point: DP-13

Profile Description: (Describe to the depth needed to document the indicator to confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR4/1	80	10YR4/6	20	C	M	Silt loam	Contains sand.
6-20	10YR3/2	90	10YR4/6	10	C	M	Silt loam	Contains sand.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2 Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ 5 cm Mucky Peat or Peat (S3)

____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)

Indicator for Problematic Hydric Soils[3]:

____ Coast Prairie Redox (A16)
____ Iron-Manganese Masses (F12)
____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks: Hydric soil indicators were observed during the site reconnaissance. Probe was extended to 20 inches. Contains coal and other mine spoils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1)
____ Sediment Deposits (B2)
____ Drift Deposits (B3)
____ Algal Mat or Crust (B4)
____ Iron Deposits (B5)
____ Inundation Visible on Aerial Imagery(B7)
____ Sparse Vegetated Concave Surface(B8)

____ Water-Stained Leaves (B9)
____ Aquatic Fauna (B13)
____ True Aquatic Plants (B14)
____ Hydrogen Sulfide Odor (C1)
X Oxidized Rhizospheres on Living Roots (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction on Tilled Soil (C6)
____ Thin Muck Surface (C7)
____ Gauge or Well Data (D9)
____ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

____ Surface Soil Cracks (B6)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Stunted or Stressed Plants (D1)
____ Geomorphic Position (D2)
____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth: _____ in
Water Table Present? Yes ____ No X Depth: _____ in
Saturation Present? (includes capillary fringe) Yes ____ No X Depth: _____ in

Wetland Hydrology Present **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Indicators of wetland hydrology were observed during the site reconnaissance.