Agenda Report

2725 Judge Fran Jamieson Way
Viera, FL 32940

Public Hearing

G.1. 5/7/2024

Subject:

PUBLIC HEARING; RE: Temporary Use Agreement (TUA) for Brevard County to Continue Temporary Dewatering Activities on a County-owned Parcel for the Grand Canal Muck Removal Project (unincorporated D4).

Fiscal Impact:

None.

Dept/Office:

Natural Resources Management Department (NRM), Save Our Indian River Lagoon (SOIRL) Program

Requested Action:

It is requested that the Board of County Commissioners authorize the Chair to execute the TUA (Attachment A) to allow NRM to continue to utilize 6.38 acres of the 18.83-acre, County-owned, PUD-zoned, vacant parcel for temporary dewatering activities for the Grand Canal Muck Removal Project (unincorporated area), for a period of up to four (4) years from the current TUA expiration date of July 9, 2024. The dewatering site and project overview are shown on Attachment B.

Summary Explanation and Background:

The Grand Canal Muck Removal Project was one of five Indian River Lagoon (IRL) Restoration Initiative muck dredging project locations to receive State legislative appropriations for muck removal in 2014 2017. This initiative began two years prior to establishment of the SOIRL program. In the absence of continuing Legislative Appropriations, the Grand Canal project was added to the SOIRL Project Plan in 2018. The project is fully permitted and has recently received additional state funds: 1) State Legislative Appropriation - LPA0475 for $9,000,000.00, approved by the Board on November 14, 2023, and 2) State IRL Water Quality Grant No. LG003 for $10,053,228.00 (in contracting). Local match required for these state funds are provided by SOIRL funds that continue to be included in the SOIRL Project Plan, most recently approved by the Board on February 20, 2024.

Upon completion, the Grand Canal Muck Removal Project is estimated to remove a total of about 605,000 cubic yards (CY) of muck from the unincorporated portion of the Grand Canal system that extends from the Pineda Causeway to the northern end of Sampson Island. The subject site is located just south and adjacent to Pineda Causeway. Muck is dredged and transported via a pipeline to the subject site facility where temporary activities include dewatering of dredged material, processing dredged material utilizing heavy equipment, and loading dried material into haul trucks for off-site disposal. To date, the project has used the facility to process about 325,000 CY of muck.

Upon project completion, it is estimated that combined removal of the muck solids and treatment of the interstitial water will remove about 2,751,878 pounds (lbs) of nitrogen and 598,147 lbs of phosphorus from

the IRL system. Removal of this muck will reduce nitrogen and phosphorus released into the water annually as muck decays by approximately 26,481 lbs/yr, and 1,765 lbs/yr, respectfully.

Construction activities began on the site in August 2019 under a TUA approved by the Board of County Commissioners on September 18, 2018. On July 9, 2020, the Brevard County Board of County Commissioners approved use of the site under the current TUA (Attachment C) that expires on July 9, 2024. Due to unanticipated project delays, it is estimated that dredging activities will be complete toward the end of the dredge season in 2027. With the requested approval of this four (4) year TUA, the site will be authorized for continued use for this project through July 9, 2028. The additional time requested beyond the projected dredging completion date is to provide additional time for unanticipated encounters as explained below, and to allow time to remove all temporary equipment/supplies and restore the site with native vegetation.

Several unanticipated encounters have extended the project completion date, including: changes to interstitial water treatment methodology during project startup and subsequent FDEP permit modifications; actual dredged muck volumes approximately 30% greater than original estimations; effects of the COVID pandemic on material availability, equipment and trucking industries; hurricane and severe weather delays; unplanned dredge mobilizations to avoid unexpected encounters with clay and rock; and extra time needed to properly handle material to meet State clean-up target levels. These encounters consequently generated additional FDEP mandated closures of in-water work for the manatee season from December 1 to March 15. Each manatee closure adds 105 days to the project schedule.

Use of this parcel for the dredge material dewatering site was thoroughly evaluated and selected by Brevard County and the engineering consulting firm as the most cost effective, non-intrusive site for dredge material management in this beachside area. Since the site is completely permitted and already developed as a dredge material management area, the site continues to provide the most cost-effective location to complete the unincorporated project. The site design avoids impacts to wetlands and maintains a natural buffer of existing vegetation between the work area and the canal. An 8-foot-high chain link fence is maintained around the perimeter of the site for additional residential screening. Upon completion of dredging the unincorporated area, the facility will undergo site restoration including returning the site to its pre-construction grades, planting native vegetation, and hydro-seeding the work area (Attachment D).

A public meeting with the South Patrick Resident's Association (SPRA) was held on April 25, 2024, to discuss the project and plans for completion (Attachment E). Public comments were received, and resident's concerns regarding the project were heard.

Clerk to the Board Instructions:

Return a certified hard copy and an electronic copy of Assignment of Agreement to the Natural Resources Management Department and Jeanne.allen@brevardfl.gov, respectfully.

BREVARD County
BOARD OF COUNTY COMMISSIONERS

FLORIDA'S SPACE COAST

Kimberly Powell, Clerk to the Board, 400 South Street • P.O. Box 999, Titusville, Florida 32781-0999

Telephone: (321) 637-2001
Fax: (321) 264-6972
Kimberly.Powell@brevardclerk.us

May 8, 2024

M E M O R A N D U M

TO: Virginia Barker, Natural Resources Management Director Attn: Jeanne Allen

RE: Item G.1., Temporary Use Agreement (TUA) for Brevard County to Continue Temporary Dewatering Activities on a County-owned Parcel for the Grand Canal Muck Removal Project (unincorporated)

The Board of County Commissioners, in regular session on May 7, 2024, executed and approved the TUA allowing Natural Resources Management to continue utilizing 6.38 acres of the 18.83-acre, County-owned, PUD-zoned, vacant parcel for temporary dewatering activities for the Grand Canal Muck Removal Project (unincorporated area), for a period of up to four years from the current TUA expiration date of July 9, 2024; and authorized you to continue monitoring for the remainder of the month. Enclosed is the fully-executed TUA.

Your continued cooperation is always appreciated.

Sincerely,

BOARD OF COUNTY COMMISSIONERS
RACHEL M. SADOFF, CLERK

Kimberly Powell, Clerk to the Board

/ds

Encl. (1)

cc: Each Commissioner
Finance
Budget

Attachment A

TEMPORARY USE AGREEMENT
BOARD OF COUNTY COMMISSIONERS OF BREVARD COUNTY

THIS AGREEMENT, Made this 7th day of May, 2024 by the **BOARD OF COUNTY COMMISSIONERS OF BREVARD COUNTY ("BCC"), FLORIDA,** a political subdivision of the State of Florida, as follows:

1. **TEMPORARY DREDGED MATERIAL DEWATERING ACTIVITIES**

a) In connection with the Grand Canal Muck Removal Project, the County shall utilize a portion of the County's property located in the Planned Unit Development (PUD) zoning classification to temporarily allow the construction and operation of a temporary dredged material dewatering facility in conjunction with temporary parking and storage of construction equipment and materials, if necessary.

b) The purpose is to continue to fulfill the County's obligation to conduct muck dredging along the unincorporated segment of the Grand Canal system as part of the County's effort to conduct environmental restoration dredging to improve water quality within the Indian River Lagoon. The project provides a direct public benefit by removing nutrient-laden muck material that smothers the natural bottom, clouds the water, prevents the growth of seagrass, and contributes to harmful algal blooms that may lead to massive fish kills.

c) The temporary dredged material management activities will include (a) occasional site maintenance excavation and grading to maintain staging areas for equipment and materials, drying areas, stormwater swales, access road, and a sand separation pond for dredged materials, (b) ingress/egress of highway haul trucks, and (c) loading dredged material into highway haul trucks. Equipment on-site may include, but is not limited to, front-end loader(s), trackhoe, skid steer, backhoe, and highway haul trucks. Contractor's activities on-site will typically be between the hours of 7:00 AM to 7:00 PM.

d) This location is no less than approximately 110 feet from the closest property line under different ownership, and no less than 175 feet from the nearest dwelling unit. The temporary dredged material management area will be buffered from residential property by a 15-foot vegetative buffer and a chain link fence installed with sound dampening material. The temporary use will be subject to the noise limitations prescribed in Chapter 46, Article IV, Sections 46-126 through 46-131 Code of Ordinances of Brevard County, Florida.

e) The temporary uses described in paragraph (a) above are to be located on the property described by the Brevard County Property Identification Number as 26-37-22-00-3. The legal description is attached hereto and made part hereof as Exhibit "A".

f) Upon completion of the dredge activities and associated dewatering of dredged material, the County will require the removal of all equipment and materials from the site. Thereafter site restoration will occur.

Site Restoration will include (a) removal or barricading of the temporary construction access road, (b) restoration of site grades to pre-construction conditions, and (c) planting of the site with a variety of native vegetation including a combination of plants and hydroseed. The site restoration plan is attached hereto and made part hereof as Exhibit "B".

g) The current Temporary Use Acknowledgement (TUA) was approved by the Board of County Commissioners on July 9, 2020, and became active for a period of four (4) years, expiring on July 9, 2024.

h) This temporary use by the County is for a period of four (4) years effective upon the expiration of the current TUA.

i) The additional time requested for this Temporary Use Agreement beyond the estimated completion date of November 30, 2027, is intended to provide additional time in the event of unforeseen delays of the project.

j) If the project is completed prior to the expiration date of the Temporary Use Agreement (July 9, 2028), then the agreement shall expire on the date the project is deemed complete by the County.

k) If the project duration extends beyond the expiration date of July 9, 2028, a separate request for a new Temporary Use Agreement shall be required.

l) Chapter 62, "LAND DEVELOPMENT REGULATIONS", Code of Ordinances of Brevard County, Florida; Article VI, Zoning Regulations, Division 6, Subdivision 1, Section 62-2131, Temporary Use Agreements; allows for a temporary use agreement authorization period of up to five (5) years for lagoon restoration projects.

BREVARD COUNTY BOARD OF
COUNTY COMMISSIONERS

2725 Judge Fran Jamieson Way
Viera, Florida 32940

By:_____
Jason Steele, Chair

ATTEST:

_____
for Rachel Sadoff, Clerk

As approved by the Board on: MAY 07 2024

Attachment B

BOARD OF COUNTY COMMISSIONERS

atural Resources Management Department (NRM)
2725 Judge Fran Jamieson Way
Building A, Room 219
Viera, Florida 32940

Grand Canal Project Overview

Phone (321) 633-2069 • Fax (321) 633-2074
Website:www.brevardfl.gov/NaturalResources

Grand Canal Overview

Grand Canal Muck Removal: Dewatering Site

Attachment C

BREVARD County
BOARD OF COUNTY COMMISSIONERS

FLORIDA'S SPACE COAST

Kimberly Powell, Clerk to the Board, 400 South Street • P.O. Box 999, Titusville, Florida 32781-0999

Telephone: (321) 637-2001
Fax: (321) 264-6972
Kimberly.Powell@brevardclerk.us

July 10, 2020

MEMORANDUM

TO: Virginia Barker, Natural Resources Management Director

RE: Item H.1., Public Hearing for Temporary Use Acknowledgement (TUA) for Brevard County Dewatering Activities for the Grand Canal Muck Removal

The Board of County Commissioners, in regular session on July 9, 2020, approved and authorized the Chair to execute a TUA to allow you to utilize 6.38 acres of the 18.83 acre vacant parcel zoned PUD for dewatering activities for the Grand Canal Muck Removal Project for a period of up to four years. Enclosed is a fully-executed Acknowledgment.

Your continued cooperation is always appreciated.

Sincerely,

BOARD OF COUNTY COMMISSIONERS
SCOTT ELLIS, CLERK

Kimberly Powell

Kimberly Powell, Deputy Clerk

Encl. (1)

TEMPORARY USE ACKNOWLEDGMENT
BOARD OF COUNTY COMMISSIONERS OF BREVARD COUNTY

THIS ACKNOWLEDGEMENT, Made this 9 day of, July 2020 by the **BOARD OF COUNTY COMMISSIONERS OF BREVARD COUNTY ("BCC"), FLORIDA**, a political subdivision of the State of Florida, as follows:

1. **TEMPORARY DREDGED MATERIAL DEWATERING ACTIVITIES**

a) In connection with the Grand Canal Muck Removal Project, the County shall utilize a portion of the County's property located in the Planned Unit Development (PUD) zoning classification to temporarily allow the construction and operation of a temporary dredged material dewatering facility in conjunction with temporary parking and storage of construction equipment and materials, if necessary.

b) The purpose is to continue to fulfill the County's obligation to conduct muck dredging along the northern segment of the Grand Canal as part of the County's effort to conduct environmental restoration dredging to improve water quality within the Indian River Lagoon. The project is a direct public benefit by removing nutrient-laden muck material that smothers the natural bottom, clouds the water, prevents the growth of seagrass, and contributes to harmful algal blooms.

c) The temporary dredged material management activities will include (a) clearing of vegetation, (b) site excavation and grading to create staging areas for equipment and materials, drying areas, stormwater swales, an access road, and a containment pond for dredged materials, (c) ingress/egress of highway haul trucks, and (d) loading dredged material onto highway haul trucks. Equipment on-site may include, but is not limited to, front-end loader(s), trackhoe, skid steer, backhoe, and highway haul trucks. Contractor's activities on-site will typically be between the hours of 7:00 AM to 7:00 PM.

d) The initial construction activities began in August of 2019 and the previous Temporary Use Acknowledgement was approved by the Board of County Commissioners on September 18, 2018 and became active for a period of one (1) year upon the issuance of the Notice to Proceed to the contractor on July 29, 2019.

e) Upon completion of the dredge activities and the associated dewatering of dredged material the County will require the removal of all equipment and materials from the site. Thereafter site restoration will occur. Site Restoration will include (a) removal of temporary construction access road, (b) restoration of site grades to pre-construction conditions, and (c) planting of the site with a variety of native vegetation including a combination of plants and hydroseed. The site restoration plan is attached hereto and made part hereof as Exhibit "A".

f) The temporary uses described in paragraph (a) above are to be located on the property described by the Brevard County Property Identification Number as 26-37-22-00-3. The legal description is attached hereto and made part hereof as Exhibit "B";

f) This location is no less than approximately 110 feet from the closest property line under different ownership, and no less than 175 feet from the nearest dwelling unit. The temporary dredged material management area will be buffered from residential property by a 15 foot vegetative buffer and a chain link fence installed with sound dampening material. The temporary use will be subject to the noise limitations prescribed in Chapter 46, Article IV, Sections 46-126 through 46-131 Code of Ordinances of Brevard County, Florida.

g) This temporary use by the County is for a period of four (4) years effective upon execution by Brevard County.

h) The additional time requested for this TUA beyond the projected completion date of February 26, 2023 is intended to provide additional time in the event of unforeseen project delays.

i) If the project is completed prior to the expiration date of the TUA (July 9, 2024) the TUA shall expire on the date the project is deemed complete by the County.

k) On August 20, 2019 the Board approved an ordinance amending Chapter 62, "LAND DEVELOPMENT REGULATIONS", Code of Ordinances of Brevard County, Florida; amending Article VI, Zoning Regulations, Division 6, Supplement Regulations, Subdivision I, General Provisions; Specifically amending Section 62-2131, Temporary Use Agreements. The amendment allows for a temporary use agreement authorization period of up to five (5) years for lagoon restoration projects.

BREVARD COUNTY BOARD OF
COUNTY COMMISSIONERS

2725 Judge Fran Jamieson Way
Viera, Florida 32940

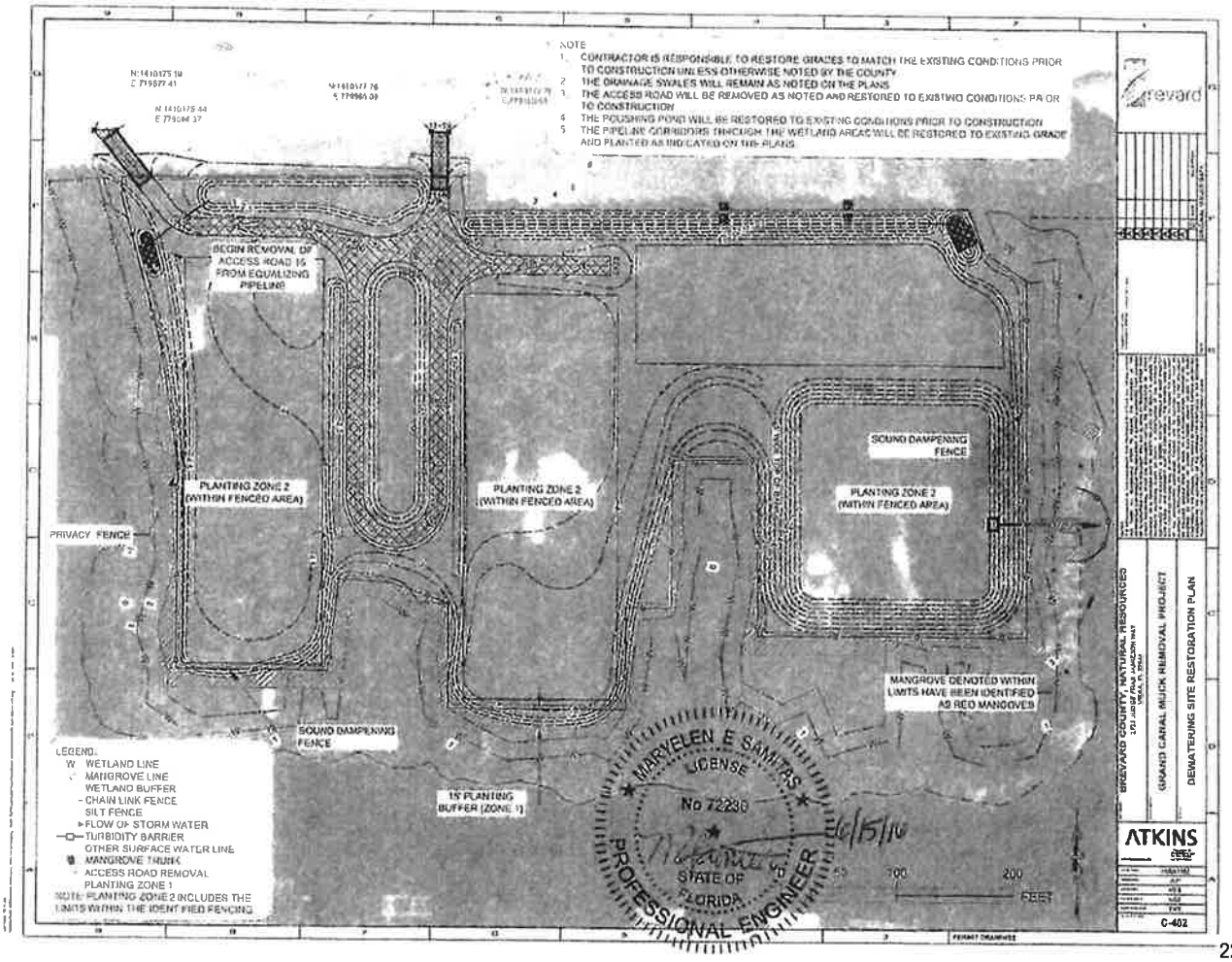
By: Bryan Andrew Lober
Bryan Lober, Chair

ATTEST:
Scott Ellis, Clerk

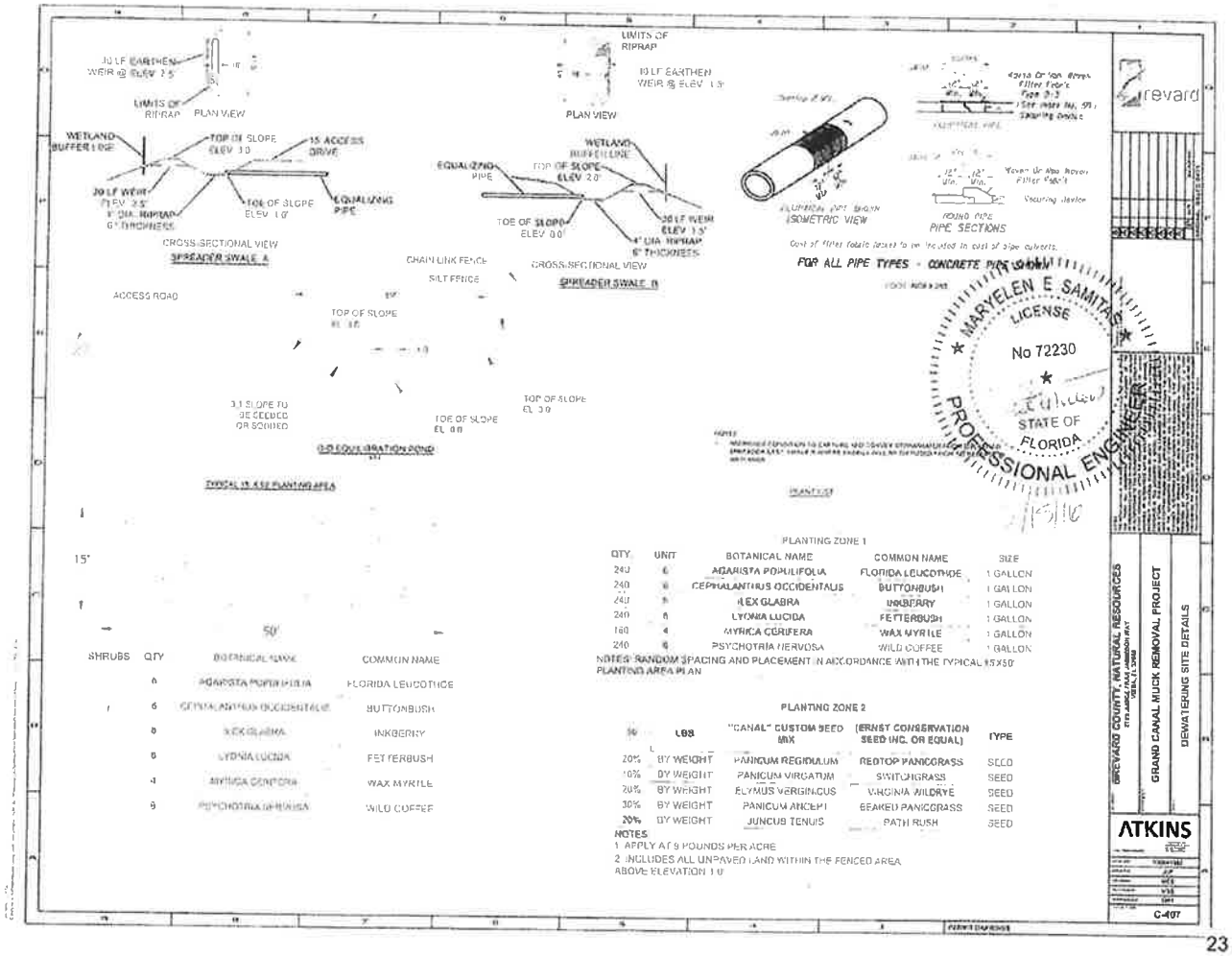
As approved by the Board on 7/9/2020

EXHIBIT A

SITE RESTORATION PLAN


NOTE
1. CONTRACTOR IS RESPONSIBLE TO RESTORE GRADES TO MATCH THE EXISTING CONDITIONS PRIOR TO CONSTRUCTION UNLESS OTHERWISE NOTED BY THE COUNTY
2. THE DRAINAGE SWALES WILL REMAIN AS NOTED ON THE PLANS
3. THE ACCESS ROAD WILL BE REMOVED AS NOTED AND RESTORED TO EXISTING CONDITIONS PRIOR TO CONSTRUCTION
4. THE POUSHING POND WILL BE RESTORED TO EXISTING CONDITIONS PRIOR TO CONSTRUCTION
5. THE PIPELINE CORRIDORS THROUGH THE WETLAND AREAS WILL BE RESTORED TO EXISTING GRADE AND PLANTED AS INDICATED ON THE PLANS
BEGIN REMOVAL OF ACCESS ROAD 15 FROM EQUALIZING PIPELINE
PLANTING ZONE 2 (WITHIN FENCED AREA)
PLANTING ZONE 2 (WITHIN FENCED AREA)
PLANTING ZONE 2 (WITHIN FENCED AREA)
SOUND DAMPENING FENCE
PRIVACY FENCE
SOUND DAMPENING FENCE
15 PLANTING BUFFER (ZONE 1)
MANGROVE DENOTED WITHIN LIMITS HAVE BEEN IDENTIFIED AS RED MANGOVES
LEGEND:
W WETLAND LINE
MANGROVE LINE
WETLAND BUFFER
CHAIN LINK FENCE
SILT FENCE
FLOW OF STORM WATER
TURBIDITY BARRIER
OTHER SURFACE WATER LINE
MANGROVE TRUNK
ACCESS ROAD REMOVAL
PLANTING ZONE 1
NOTE: PLANTING ZONE 2 INCLUDES THE LIMITS WITHIN THE IDENTIFIED FENCING
MARYELEN E SAMITAS
LICENSE
No 72230
STATE OF FLORIDA
PROFESSIONAL ENGINEER
0
100
200
FEET
BREVARD COUNTY, NATURAL RESOURCES
GRAND CANAL MUCK REMOVAL PROJECT
DEWATERING SITE RESTORATION PLAN
ATKINS
C-402

22



SHRUBS	QTY	BOTANICAL NAME	COMMON NAME
	6	AGARISTA POPULIFOLIA	FLORIDA LEUCOTHOE
	6	CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH
	6	ILEX GLABRA	INKBERRY
	6	LYONIA LUCIDA	FETTERBUSH
	4	MYRICA CERIFERA	WAX MYRTLE
	6	PSYCHOTRIA NERVOSA	WILD COFFEE

PLANTING ZONE 1

QTY.	UNIT	BOTANICAL NAME	COMMON NAME	SIZE
240	6	AGARISTA POPULIFOLIA	FLORIDA LEUCOTHOE	1 GALLON
240	6	CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	1 GALLON
240	6	ILEX GLABRA	INKBERRY	1 GALLON
240	6	LYONIA LUCIDA	FETTERBUSH	1 GALLON
160	4	MYRICA CERIFERA	WAX MYRTLE	1 GALLON
240	6	PSYCHOTRIA NERVOSA	WILD COFFEE	1 GALLON

NOTES: RANDOM SPACING AND PLACEMENT IN ACCORDANCE WITH THE TYPICAL 15X50' PLANTING AREA PLAN

PLANTING ZONE 2

%	LBS	"CANAL" CUSTOM SEED MIX	(ERNST CONSERVATION SEED INC. OR EQUAL)	TYPE
20%	BY WEIGHT	PANICUM REGIDULUM	REDTOP PANICGRASS	SEED
10%	BY WEIGHT	PANICUM VIRGATUM	SWITCHGRASS	SEED
20%	BY WEIGHT	ELYMUS VERGINICUS	VIRGINIA WILDRYE	SEED
30%	BY WEIGHT	PANICUM AMCEPI	BEAKED PANICGRASS	SEED
20%	BY WEIGHT	JUNCUS TENUIS	PATH RUSH	SEED

NOTES:
1. APPLY AT 9 POUNDS PER ACRE
2. INCLUDES ALL UNPAVED LAND WITHIN THE FENCED AREA ABOVE ELEVATION 1.0'

BREVARD COUNTY, NATURAL RESOURCES
GRAND CANAL MUCK REMOVAL PROJECT
DEWATERING SITE DETAILS
ATKINS
C-407

EXHIBIT B

LEGAL DESCRIPTION

ALLEN Engineering, Inc.
Cape Kennedy Professional Building
305/783-7443
106 DIXIE LANE, P O BOX 1321 COCOA BEACH, FLORIDA 32931

EXHIBIT "A"

LEGAL DESCRIPTION

ALL THAT PORTION OF GOVERNMENT LOT 2, GOVERNMENT LOT 3 AND THE NORTH 1/2 OF GOVERNMENT LOT 4 ALL IN SECTION 22, TOWNSHIP 26 SOUTH, RANGE 37 EAST, BREVARD COUNTY, FLORIDA LYING WEST OF THE FOLLOWING DESCRIBED LINE: COMMENCE AT THE NORTHWEST CORNER OF TORTOISE ISLAND, PHASE TWO, UNIT TWO, P.U.D., ACCORDING TO THE PLAT THEREOF RECORDED IN PLAT BOOK 26 AT PAGES 84 AND 85 OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA AND RUN S88°51'49"W ALONG THE NORTH LINE OF GOVERNMENT LOT 2 IN SECTION 22, TOWNSHIP 26 SOUTH, RANGE 37 EAST, BREVARD COUNTY, FLORIDA FOR 394.99 FEET; THENCE RUN NORTH FOR 2003.4 FEET TO THE SOUTH LINE OF THE NORTH 1/2 OF SAID GOVERNMENT LOT 4: SAID POINT BEING THE POINT OF BEGINNING: THENCE CONTINUE NORTH FOR 2766.0 FEET TO THE CENTER OF THE BREVARD COUNTY MOSQUITO CONTROL CANAL DESCRIBED IN AN INSTRUMENT RECORDED IN OFFICIAL RECORDS BOOK 555 AT PAGE 228 OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA, SAID POINT BEING THE POINT OF TERMINATION OF SAID LINE.
TOGETHER WITH THAT PART OF GOVERNMENT LOT 2 IN SAID SECTION 22, LYING NORTH OF THE MOSQUITO CONTROL CANAL AS DESCRIBED IN THE INSTRUMENT RECORDED IN OFFICIAL RECORDS BOOK 555 AT PAGE 228 OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA AND WEST OF THE WEST LINE OF WATERWAY ESTATES 4TH ADDITION ACCORDING TO THE PLAT THEREOF RECORDED IN PLAT BOOK 21 AT PAGE 79 OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA; AND SOUTH OF THE EXISTING SOUTHERLY RIGHT OF WAY OF STATE ROAD NO. 404.

549

TEMPORARY USE ACKNOWLEDGMENT
BOARD OF COUNTY COMMISSIONERS OF BREVARD COUNTY

THIS ACKNOWLEDGEMENT, Made this 18 day of, September 2018 by the **BOARD OF COUNTY COMMISSIONERS OF BREVARD COUNTY ("BCC"), FLORIDA,** a political subdivision of the State of Florida, as follows:

1. **TEMPORARY DREDGED MATERIAL DEWATERING ACTIVITIES**

a) In connection with the Grand Canal Muck Removal Project, the County shall utilize a portion of the County's property located in the Planned Unit Development (PUD) zoning classification to temporarily allow the construction and operation of a temporary dredged material dewatering facility in conjunction with temporary parking and storage of construction equipment and materials, if necessary.

b) The purpose is to fulfill the County's obligation to conduct muck dredging along the northern segment of the Grand Canal as part of the County's effort to conduct environmental restoration dredging to improve water quality within the Indian River Lagoon. The project is a direct public benefit by removing nutrient-laden muck material that smothers the natural bottom, clouds the water, prevents the growth of seagrass, and contributes to harmful algal blooms.

c) The temporary dredged material management activities will include (a) clearing of vegetation, (b) site excavation and grading to create staging areas for equipment and materials, drying areas, stormwater swales, an access road, and a containment pond for dredged materials, (c) ingress/egress of highway haul trucks, and (d) loading dredged material onto highway haul trucks. Equipment on-site may include, but is not limited to, front-end loader(s), trackhoe, skid steer, backhoe, and highway haul trucks. Contractor's activities on-site will typically be between the hours of 7:00 AM to 7:00 PM.

d) Upon completion of the dredge activities and the associated dewatering of dredged material the County will require the removal of all equipment and materials from the site. Thereafter site restoration will occur. Site Restoration will include (a) removal of temporary construction access road, (b) restoration of site grades to pre-construction conditions, and (c) planting of the site with a variety of native vegetation including a combination of plants and hydroseed. The site restoration plan is attached hereto and made part hereof as Exhibit "B".

e) The temporary uses described in paragraph (a) above are to be located on the property described by the Brevard County Property Identification Number as 26-37-22-00-3. The legal description is attached hereto and made part hereof as Exhibit "A";

f) This location is no less than approximately 110 feet from the closest property line under different ownership, and no less than 175 feet from the nearest dwelling unit. The temporary dredged material

management area will be buffered from residential property by a 15 foot vegetative buffer and a chain link fence installed with sound dampening material. The temporary use will be subject to the noise limitations prescribed in Chapter 46, Article IV, Sections 46-126 through 46-131 Code of Ordinances of Brevard County, Florida.

g) This temporary use by the County is for a period of one (1) year effective upon execution by Brevard County and the issuance of the Notice to Proceed to the Contractor awarded the construction services contract for the Grand Canal Muck Removal Project.

BREVARD COUNTY BOARD OF
COUNTY COMMISSIONERS

2725 Judge Fran Jamieson Way
Viera, Florida 32940

By: _____
Rita Pritchett, Chair

ATTEST: _____
Scott Ellis, Clerk

As approved by the Board on 9/18/18

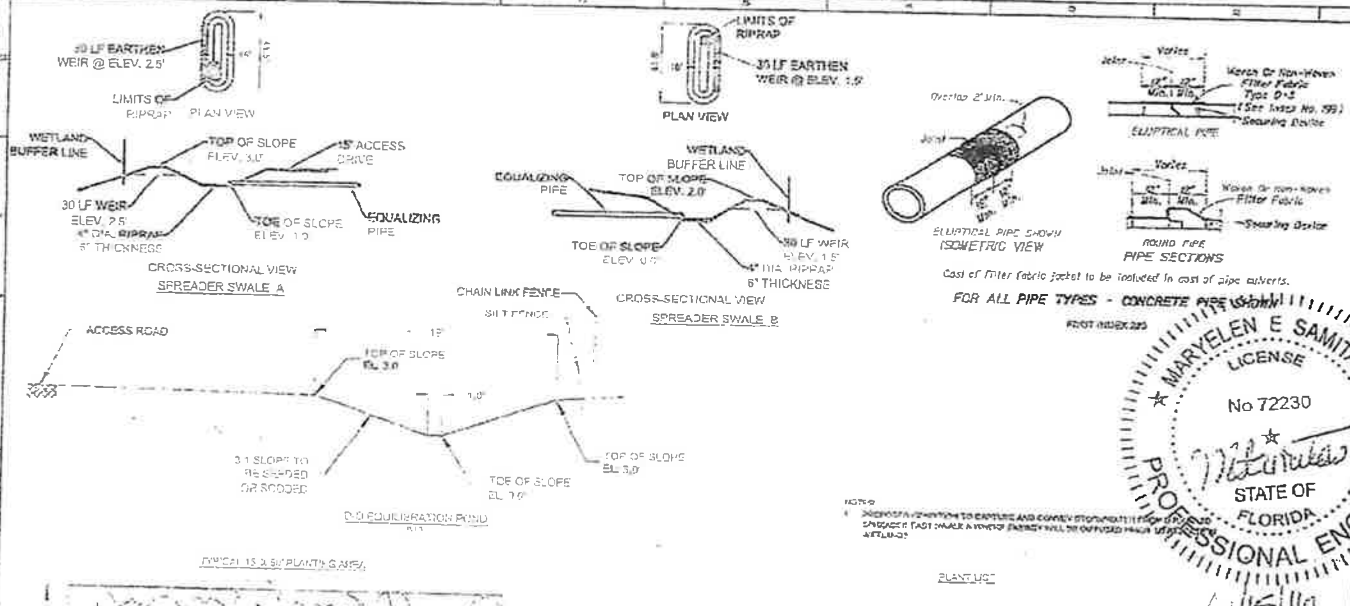
ALLEN Engineering, Inc.
Cape Kennedy Professional Building
305/783-7443
105 DIXIE LANE, P.O.BOX 1321 - COCOA BEACH, FLORIDA 32931

EXHIBIT "A"

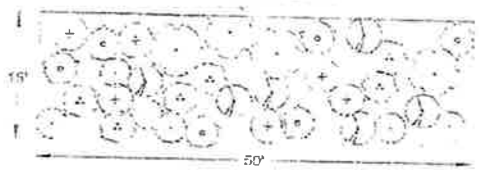
LEGAL DESCRIPTION

ALL THAT PORTION OF GOVERNMENT LOT 2, GOVERNMENT LOT 3 AND THE NORTH 1/2 OF GOVERNMENT LOT 4 ALL IN SECTION 22, TOWNSHIP 26 SOUTH, RANGE 37 EAST, BREVARD COUNTY, FLORIDA LYING WEST OF THE FOLLOWING DESCRIBED LINE: COMMENCE AT THE NORTHWEST CORNER OF TORTOISE ISLAND, PHASE TWO, UNIT TWO, P.U.D., ACCORDING TO THE PLAT THEREOF RECORDED IN PLAT BOOK 26 AT PAGES 84 AND 85 OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA AND RUN S88°51'49"W ALONG THE NORTH LINE OF GOVERNMENT LOT 2 IN SECTION 22, TOWNSHIP 26 SOUTH, RANGE 37 EAST, BREVARD COUNTY, FLORIDA FOR 394.99 FEET; THENCE RUN NORTH FOR 2003.4 FEET TO THE SOUTH LINE OF THE NORTH 1/2 OF SAID GOVERNMENT LOT 4: SAID POINT BEING THE POINT OF BEGINNING: THENCE CONTINUE NORTH FOR 2766.0 FEET TO THE CENTER OF THE BREVARD COUNTY MOSQUITO CONTROL CANAL DESCRIBED IN AN INSTRUMENT RECORDED IN OFFICIAL RECORDS BOOK 555 AT PAGE 228 OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA, SAID POINT BEING THE POINT OF TERMINATION OF SAID LINE.
TOGETHER WITH THAT PART OF GOVERNMENT LOT 2 IN SAID SECTION 22, LYING NORTH OF THE MOSQUITO CONTROL CANAL AS DESCRIBED IN THE INSTRUMENT RECORDED IN OFFICIAL RECORDS BOOK 555 AT PAGE 228 OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA AND WEST OF THE WEST LINE OF WATERWAY ESTATES 4TH ADDITION ACCORDING TO THE PLAT THEREOF RECORDED IN PLAT BOOK 21 AT PAGE 79 OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA; AND SOUTH OF THE EXISTING SOUTHERLY RIGHT OF WAY OF STATE ROAD NO. 404.

OFF. REC. 549 PAGE 0491



PLANT LIST



SHRUBS	QTY	BOTANICAL NAME	COMMON NAME
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	6	LYONIA LUCIDA	FETTERBUSH
	4	MYRICA CERIFERA	WAX MYRTLE
	6	PSYCHOTRIA NERVOSA	[illegible]

PLANTING ZONE 1

QTY.	UNIT	BOTANICAL NAME	COMMON NAME	SIZE
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160	4	MYRICA CERIFERA	WAX MYRTLE	1 GALLON
240	6	PSYCHOTRIA NERVOSA	WILD COFFEE	1 GALLON

NOTES: RANDOM SPACING AND PLACEMENT IN ACCORDANCE WITH THE TYPICAL 15X50' PLANTING AREA PLAN

PLANTING ZONE 2

56	LBS	"CANAL" CUSTOM SEED MIX	(ERNST CONSERVATION SEED INC. OR EQUAL)	TYPE
20%	BY WEIGHT	PANICUM REGIDULUM	REDTOP PANICGRASS	SEED
10%	BY WEIGHT	PANICUM VIRGATUM	SWITCHGRASS	SEED
20%	BY WEIGHT	ELYMUS VIRGINICUS	VIRGINIA WILDRYE	SEED
20%	BY WEIGHT	PANICUM ANCEPT	BEAKED PANICGRASS	SEED
20%	BY WEIGHT	JUNCUS TENUIS	PATH RUSH	SEED

NOTES:
1. APPLY AT 9 POUNDS PER ACRE.
2. INCLUDES ALL UNPAVED LAND WITHIN THE FENCED AREA ABOVE ELEVATION 1.0'.

Brevard

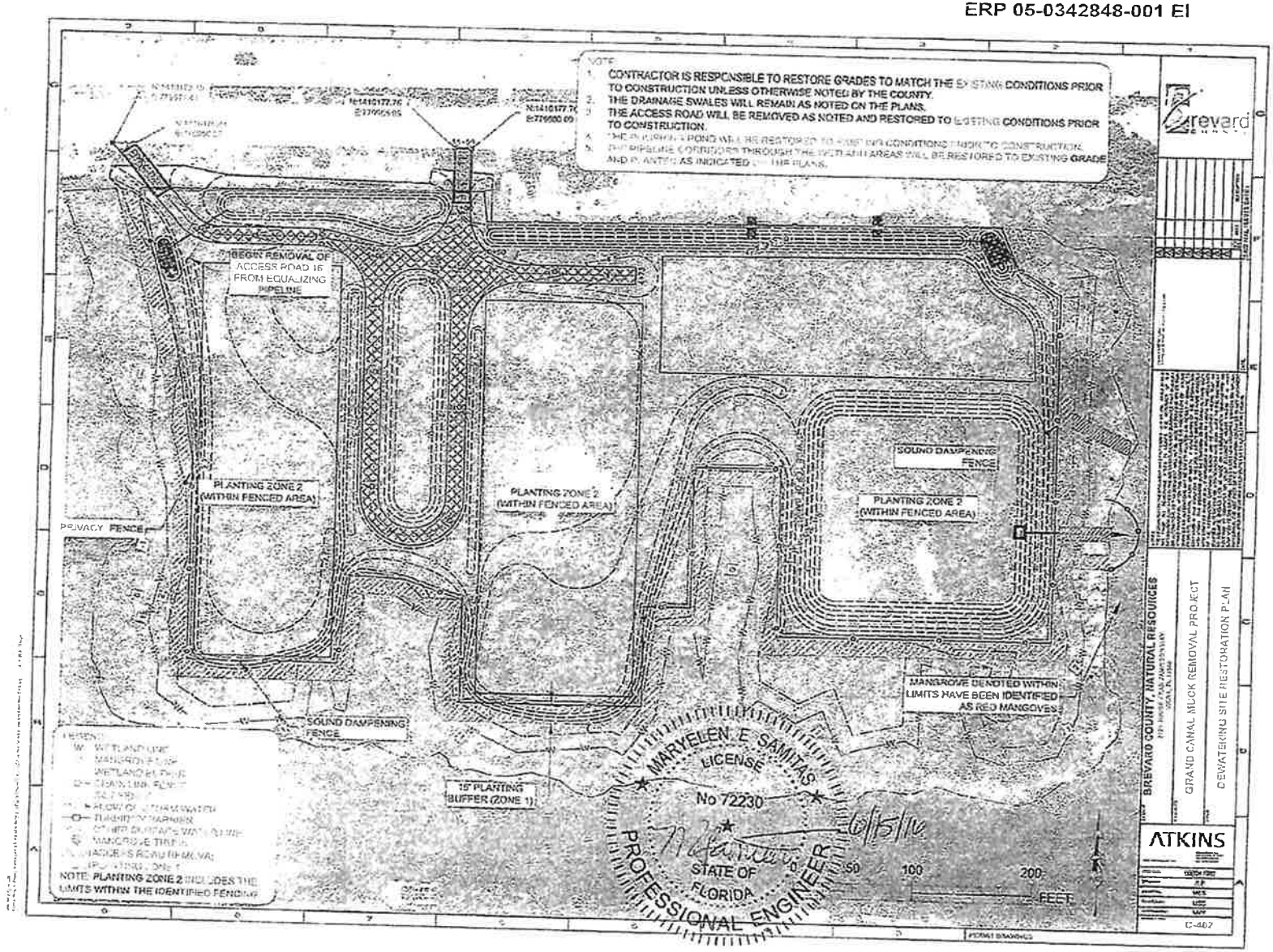
BREVARD COUNTY, NATURAL RESOURCES

GRAND CANAL MUCK REMOVAL PROJECT

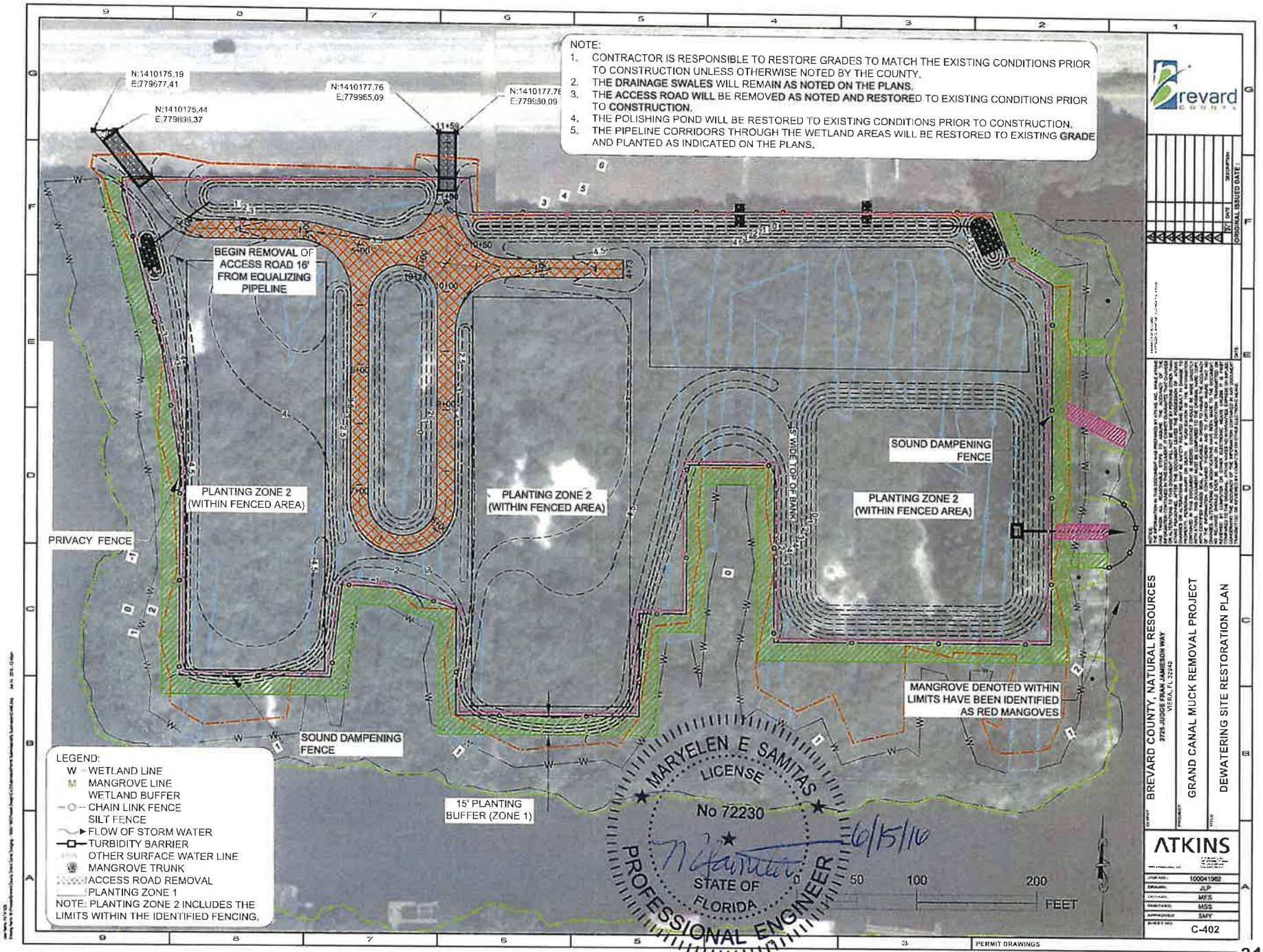
DEWATERING SITE DETAILS

ATKINS

C-407


NOTE
1. CONTRACTOR IS RESPONSIBLE TO RESTORE GRADES TO MATCH THE EXISTING CONDITIONS PRIOR TO CONSTRUCTION UNLESS OTHERWISE NOTED BY THE COUNTY.
2. THE DRAINAGE SWALES WILL REMAIN AS NOTED ON THE PLANS.
3. THE ACCESS ROAD WILL BE REMOVED AS NOTED AND RESTORED TO EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
4. THE PLUNGE POND WILL BE RESTORED TO EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
5. THE PIPELINE CORRIDORS THROUGH THE WETLAND AREAS WILL BE RESTORED TO EXISTING GRADE AND PLANTED AS INDICATED ON THE PLANS.
BEGIN REMOVAL OF ACCESS ROAD 16 FROM EQUALIZING PIPELINE
PLANTING ZONE 2 (WITHIN FENCED AREA)
PRIVACY FENCE
PLANTING ZONE 2 (WITHIN FENCED AREA)
SOUND DAMPENING FENCE
PLANTING ZONE 2 (WITHIN FENCED AREA)
MANGROVE DENOTED WITHIN LIMITS HAVE BEEN IDENTIFIED AS RED MANGOVES
SOUND DAMPENING FENCE
15' PLANTING BUFFER (ZONE 1)
W WETLAND LINE
NOTE: PLANTING ZONE 2 INCLUDES THE LIMITS WITHIN THE IDENTIFIED FENCING
MARYELLEN E SAMITAS
LICENSE
No 72230
STATE OF FLORIDA
PROFESSIONAL ENGINEER
6/15/11
0 50 100 200
FEET
Brevard
BREVARD COUNTY, NATURAL RESOURCES
GRAND CANAL MUCK REMOVAL PROJECT
DEWATERING SITE RESTORATION PLAN
ATKINS
C-467

Attachment D


NOTE:
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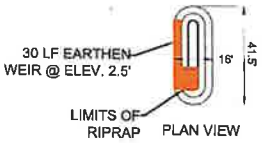
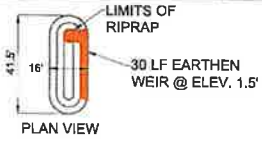
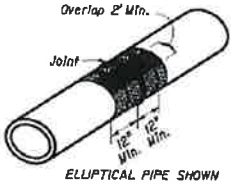
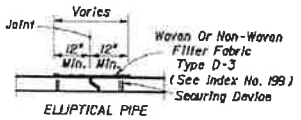
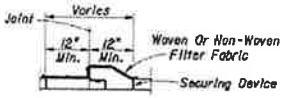
4. THE POLISHING POND WILL BE RESTORED TO EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
5. THE PIPELINE CORRIDORS THROUGH THE WETLAND AREAS WILL BE RESTORED TO EXISTING GRADE AND PLANTED AS INDICATED ON THE PLANS.
N:1410175.19
E:779677.41
N:1410175.44
E:779836.37
N:1410177.76
E:779965.09
N:1410177.76
E:779980.09
BEGIN REMOVAL OF ACCESS ROAD 16' FROM EQUALIZING PIPELINE
PLANTING ZONE 2 (WITHIN FENCED AREA)
PLANTING ZONE 2 (WITHIN FENCED AREA)
PLANTING ZONE 2 (WITHIN FENCED AREA)
SOUND DAMPENING FENCE
PRIVACY FENCE
SOUND DAMPENING FENCE
15' PLANTING BUFFER (ZONE 1)
MANGROVE DENOTED WITHIN LIMITS HAVE BEEN IDENTIFIED AS RED MANGOVES
LEGEND:
W WETLAND LINE
M MANGROVE LINE
WETLAND BUFFER
CHAIN LINK FENCE
SILT FENCE
FLOW OF STORM WATER
TURBIDITY BARRIER
OTHER SURFACE WATER LINE
MANGROVE TRUNK
ACCESS ROAD REMOVAL
PLANTING ZONE 1
NOTE: PLANTING ZONE 2 INCLUDES THE LIMITS WITHIN THE IDENTIFIED FENCING.
MARYELEN E SAMITAS
LICENSE
No 72230
STATE OF FLORIDA
PROFESSIONAL ENGINEER
6/15/10
50 100 200
FEET
BREVARD COUNTY, NATURAL RESOURCES
2725 JUDGE FRAN JAMIESON WAY
VIERA, FL 32940
GRAND CANAL MUCK REMOVAL PROJECT
DEWATERING SITE RESTORATION PLAN
ATKINS
100041962
JLP
MFS
MSS
SMY
C-402
PERMIT DRAWINGS









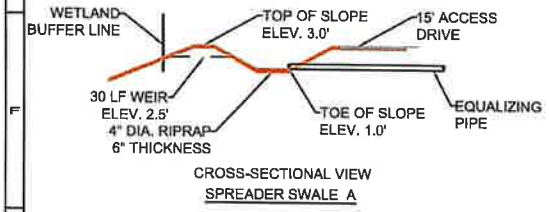


PIPE SECTIONS

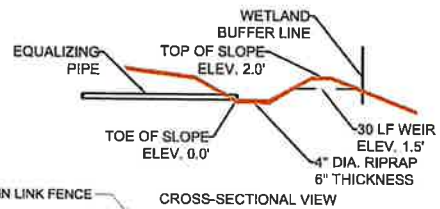
Cost of filter fabric jacket to be included in cost of pipe culverts.

FOR ALL PIPE TYPES - CONCRETE PIPE SHOWN

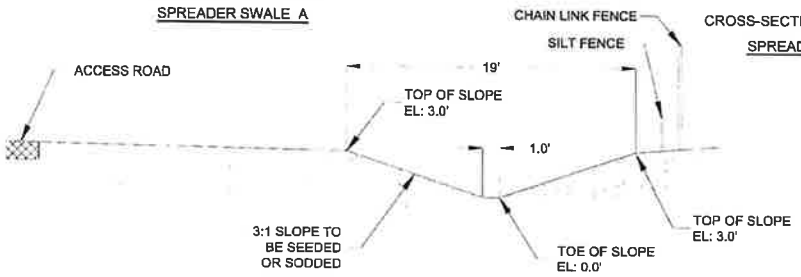
FDOT INDEX 280



CROSS-SECTIONAL VIEW
SPREADER SWALE A



CROSS-SECTIONAL VIEW
SPREADER SWALE B

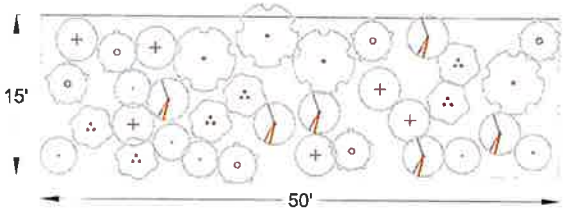


D-D EQUILIBRATION POND
N.T.S.

NOTES:
1. PROPOSED CONDITION TO CAPTURE AND CONVEY STORMWATER FROM D.R. AREA TO SPREADER FAST SWALE B WHERE ENERGY WILL BE DIFFUSED PRIOR TO RELEASE IN WETLANDS.

MARYELEN E SAMITAS
LICENSE
No 72230
STATE OF FLORIDA
PROFESSIONAL ENGINEER
6/15/16

TYPICAL 15' X 50' PLANTING AREA



SHRUBS	QTY	BOTANICAL NAME	COMMON NAME
	6	AGARISTA POPULIFOLIA	FLORIDA LEUCOTHOE
	6	CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH
	6	ILEX GLABRA	INKBERRY
	6	LYONIA LUCIDA	FETTERBUSH
	4	MYRICA CERIFERA	WAX MYRTLE
	6	PSYCHOTRIA NERVOSA	WILD COFFEE

PLANT LIST

PLANTING ZONE 1				
QTY.	UNIT	BOTANICAL NAME	COMMON NAME	SIZE
240	6	AGARISTA POPULIFOLIA	FLORIDA LEUCOTHOE	1 GALLON
240	6	CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	1 GALLON
240	6	ILEX GLABRA	INKBERRY	1 GALLON
240	6	LYONIA LUCIDA	FETTERBUSH	1 GALLON
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NOTES: RANDOM SPACING AND PLACEMENT IN ACCORDANCE WITH THE TYPICAL 15'X50' PLANTING AREA PLAN

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20%	BY WEIGHT	PANICUM REGIDULUM	REDTOP PANICGRASS	SEED
10%	BY WEIGHT	PANICUM VIRGATUM	SWITCHGRASS	SEED
20%	BY WEIGHT	ELYMUS VERGINICUS	VIRGINIA WILDRYE	SEED
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NOTES:
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BREVARD COUNTY, NATURAL RESOURCES
2725 JUDGE FRAN JAMIESON WAY
VIERA, FL 32940

GRAND CANAL MUCK REMOVAL PROJECT

DEWATERING SITE DETAILS

ATKINS

100041982
JLP
MFS
MSS
SMY

C-407

PERMIT DRAWINGS

Attachment E

BOARD OF COUNTY COMMISSIONERS

atural Resources Management Department (NRM)
2725 Judge Fran Jamieson Way
Building A, Room 219
Viera, Florida 32940

April 5, 2024

Dear Property Owner:

The Brevard County Natural Resources Management Department advises you as a property owner within 1,000' of the dewatering site for the Grand Canal Muck Removal Project (unincorporated area), that the County is seeking approval from the Board of County Commissioners for continued temporary use of a parcel owned by Brevard County for completing muck removal from the unincorporated area of the Grand Canal. The property is located approximately 2,500 feet west of South Patrick Drive and abuts the south side of S.R. 404 Pineda Causeway.

Specifically: Brevard County is requesting a new Temporary Use Agreement (TUA) to continue to utilize approximately 6.38 acres of the 18.83 site for temporary muck dredging management activities as part of the Grand Canal Muck Removal Project (unincorporated area). These activities include the continued use for dredge material dewatering, processing dredged material utilizing heavy equipment, and loading dried material into haul trucks for off-site disposal. Construction activities began on the site in August 2019 under a TUA approved by the Board of County Commissioners on September 18, 2018. On July 9, 2020, the Brevard County Board of County Commissioners approved use of the site under the current TUA that expires on July 9, 2024. Due to unanticipated project delays, it is estimated that dredging activities will be complete by the end of the 2027 dredge season. To allow for sufficient time to remove all temporary equipment and supplies, and restore the site, a new TUA, through July 9, 2028, is being requested for Board approval.

A community open house event will be held on April 25, 2024, from 5:00 to 7:00 PM at Trinity Wellspring Church (638 S. Patrick Dr. Satellite Beach, FL 32937). The County will present an overview of the project followed by a question/answer session.

The public hearing will be held at the Brevard County Government Center Commission Chambers, 2725 - Judge Fran Jamieson Way, Bldg. "C", Viera, Florida by the Board of County Commissioners on **May 7, 2024,** beginning at **5:00 PM.** You are invited to attend the public hearing to voice any comments, or you may write to the address shown at the top, or you can telephone inquiries to Jeanne Allen in NRM at **(321) 372-5195.**

The needs of hearing or visually impaired persons shall be met if the Natural Resources Management Department is contacted at least **48 hours** prior to the public hearing.

Attachment: Map of Grand Canal Project Overview

BOARD OF COUNTY COMMISSIONERS

atural Resources Management Department (NRM)
2725 Judge Fran Jamieson Way
Building A, Room 219
Viera, Florida 32940

Grand Canal Project Overview

Phone (321) 633-2069 • Fax (321) 633-2074
Website:www.brevardfl.gov/NaturalResources

Attachment F

Brevard County Attorney
Temporary Use Agreement Approval Sheet

SECTION I

The following information must be completed on all ordinances submitted to the Board:

Temporary Use Agreement For Brevard County	Author: Jeanne Allen	
Division Name: Natural Resources Management Dept.	Mail Stop:	Review Deadline: April 5, 2024
Sent by NRMD: Jeanne Allen		
Dept./Office Director: Virginia Barker		
Meeting Date: N/A	(BCC) May 7, 2024	Advertising Deadline: N/A

SECTION II

COUNTY OFFICE	APPROVAL Yes	No	INITIALS	DATE
County Attorney's Office	✓		HB	2-20-24

SECTION III **Sent for Review**

Land Dev. Prasad, Billy [Digitally signed by Prasad, Billy] ____Y ____N ____N/A

NRM, Env. Resources Management AE Y ____N ____N/A 2/12/24

Other Dept./Office ____Y ____N ____N/A

Comments:

Request Grand Canal Project to Conclude in 2024

As a resident of South Patrick Shores, I hereby request Brevard County Commission to terminate the Grand Canal Project and South Patrick Shores DMAA site at the end of 2024 dredging season. This project was scheduled to conclude in 2022, and given the overage on schedule, our residents respectfully request this be the final year.

Name	Phone	Address	Adult Signature
Veronica Diaz	786.202.1557	280 Lanternback Island Drive	
Jeremy Kendall	630-337-8804	274 Lanternback Island Dr	
DON Poussard	321-446-9070	448 Thrush Dr Satellite Bch	
Todd Mackey	3214314037	440 Thrush Dr Satellite Bch FL	
Jon Babb	3017049737	437 Thrush Dr Satellite	
Brett Roy	321-779-2923	428 Thrush Dr Satellite Beach FL	
Bill + JoAnn Davis	321-890-7474	402 Thrush Dr, Sat. Bch FL	
Mourad Aboyeller	347-393-0672	268 Lanternback Island Dr. Satellite Beach FL	
Paul Caprario	321-960-9794	250 Lanternback Island Dr	
Mike Feustel	321-213-1334	NAA	
Greg Cole	321-684-3663	232 Lanternback Island Dr	
Lael Woods	(321) 423-1469	233 Lanternback Island Dr	

Please mail this form to: 280 LANTERNBACK ISLAND DR SATELLITE BCH FL 32937

G.1.

Request Grand Canal Project to Conclude in 2024

As a resident of South Patrick Shores, I hereby request Brevard County Commission to terminate the Grand Canal Project and South Patrick Shores DMAA site at the end of 2024 dredging season. This project was scheduled to conclude in 2022, and given the overage on schedule, our residents respectfully request this be the final year.

Name	Phone	Address	Adult Signature
Brent E. Weisner	318-230-1700	220 Lanternback Island Dr. S. Beach FL 32937	
Dave Kornick	3215497545	214 LANTERNBACK ISLAND DR	
M. Coco	321-773-6223	215	
Robert Trevenen Mills	386-689-8806	208 Lanternback Island	
John Van Straaten	612-860-8112	209 Lanternback	
C.K. RODENHURST	3212921292	196 LANTERNBACK	
HAROLD E. BURKE	703-789-7371	436 LANTERN BACK	
Greg Toyler	321-205-7168	322 Lanternback Is Dr	
Erik Kohlen	3109029690	304 Lanternback Is Dr.	

Please mail this form to: 280 LANTERNBACK ISLAND DR SATELLITE BCH FL 32937

March 4, 2020 at 11:50:25 AM
5,898 of 6,613

Edit

WEDA

Western Dredging Association

Dredging 101

Session 2 – Environmental Aspects of Dredging Projects and Operations

Environmental Monitoring during Dredging

- What do we monitor?
  - Water quality (physical and sometimes contaminants at location of dredging and CDF discharge)
  - Biota (benthic, demersal, pelagic)
  - Fauna (e.g., eel grass)
  - Air quality
  - Sound levels (ambient and underwater)
  - Sediment quality

WEDA
Western Dredging Association

EPA Environmental Criteria for Dredged Material Management

- Criteria are intended to assure that disposition will not unreasonably degrade or endanger human health or the marine environment
- Criteria to take into account:
  - The effect upon human health and welfare
  - The effect on marine life, including transfer, concentration, and dispersal through physical, chemical, and biological processes
  - Changes in marine ecosystem diversity, productivity, and stability
  - Species and community population changes
  - Persistence and permanence of effects

Summary

- Dredging for navigation objectives: maintains depth of channels for shipping and recreational boating, and creates deeper channels for the larger vessels now in use.

- Dredging and dredged material: potential for environmental impacts is real.
  - Majority of dredged material is acceptable for open water disposal.
  - Turbidity and suspended solids are created in dredging and disposal actions.
  - Contaminated dredged material: potential for acute and chronic toxicity to fish and benthic organisms and humans.

- Regulatory framework
  - Characterize the dredged material by testing
  - Meet environmental criteria?
  - Identify disposal site or beneficial use alternative
  - Issue permit
  - Monitoring and feedback

Release of H2S During Dredging

BUSINESS & FINANCE (HTTPS://WWW.DREDGINGTODAY.COM/TOPIC/BUSINESS-FINANCE/)

June 23, 2015

The International Association of Dredging Companies (IADC) has just released this new article named 'A Common Sense Approach for H2S Release During Dredging'.

The release of H2S (Hydrogen Sulphide) is a known risk in the dredging industry. It is a highly toxic and flammable gas (flammable range: 4.3-46%).

Being heavier than air, it tends to accumulate at the bottom of poorly ventilated spaces. In addition, it is very pungent at first, but quickly deadens the sense of smell, so that it may easily go unnoticed and victims may be unaware of its presence until it is too late.

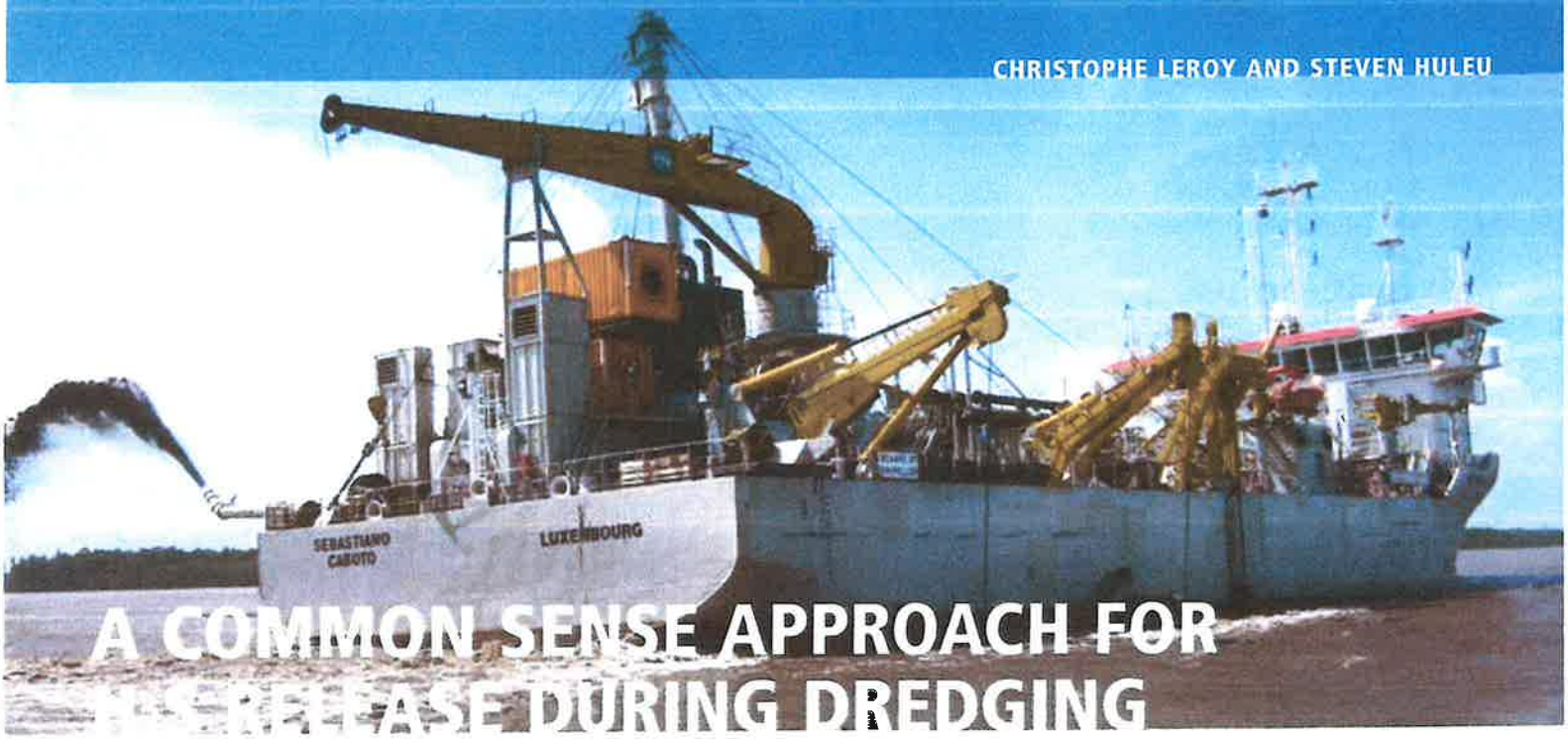
H2S is highly poisonous with both long- and short-term effects similar to those of carbon monoxide.

This article focuses on the H2S exposure which can occur during traditional dredging works and suggests some possible preventive measures such as recognizing the H2S risk during the tender phase and taking measures to minimize it. As well, alerting crews to the risk and training them to prevent H2S risks are crucial.

Authors: Christophe Leroy, Steven Huleu

For the complete article, **click here (https://www.iadc-dredging.com/ul/cms/terraetaqua/document/4/4/1/441/441/1/article-a-common-sense-approach-for-h2s-release-during-dredging-terra-et-aqua-139-1.pdf)**.

CHRISTOPHE LEROY AND STEVEN HULEU



A COMMON SENSE APPROACH FOR H2S RELEASE DURING DREDGING

ABSTRACT

The release of H_2S (Hydrogen Sulphide) is a known risk in the dredging industry. It is a highly toxic and flammable gas (flammable range: 4.3-46%). Being heavier than air, it tends to accumulate at the bottom of poorly ventilated spaces. In addition, it is very pungent at first, but quickly deadens the sense of smell, so that it may easily go unnoticed and victims may be unaware of its presence until it is too late. H_2S is highly poisonous with both long- and short-term effects similar to those of carbon monoxide. This article focusses on the H_2S exposure which can occur during traditional dredging works and suggests some possible preventive measures such as recognising the H_2S risk during the tender phase and taking measures to minimise it. As well, alerting crews to the risk and training them to prevent H_2S risks are crucial.

INTRODUCTION

The first step is to understand Hydrogen Sulphide (H_2S). The release of H_2S is a known risk in the dredging industry. The gas typically accumulates in certain layers of the seabed, where organic material is decomposing in anaerobic (absence of oxygen) conditions. Known H_2S sensitive areas are mangrove ecosystems in river estuaries, harbours with an extensive history of fishing activities and PASS (Potential Acidic Sulphate Soils).

Hydrogen Sulphide is a highly toxic and flammable gas (flammable range: 4.3-46%). Being heavier than air, it tends to accumulate at the bottom of poorly ventilated spaces. Although very pungent at first, it quickly deadens the sense of smell, so victims may be unaware of its presence until it is too late.

Hydrogen Sulphide is considered a broad-spectrum poison, which means that it can poison several different systems in the body, although the nervous system is most severely affected. The toxicity of H_2S is comparable with that of carbon monoxide.

RECOGNISING POTENTIAL H_2S RISKS

Long-term, low-level exposure to Hydrogen Sulphide may result in fatigue, loss of appetite, headaches, irritability, poor memory and dizziness. Short-term, high-level exposure can induce immediate collapse, with loss of breathing and a high probability of death. The recognised effects on the human organism of increasing concentration of H_2S are:

- 0.0047 ppm is the recognition threshold, the concentration at which 50% of humans can detect the characteristic odour of Hydrogen Sulphide, normally described as resembling "a rotten egg".
- 5 ppm is the long-term exposure limit (8 hour time-weighted average).
- 10 ppm is the short-term exposure limit (15min period).
- 10-20 ppm is the borderline concentration for eye irritation.
- 50 ppm is the acceptable maximum peak above the ceiling concentration for an 8 hour shift, with a maximum duration of 10 minutes.
- 50-100 ppm leads to eye damage.
- At 100-150 ppm the sense of smell disappears, often together with awareness of danger.
- 320-530 ppm leads to pulmonary oedema with the possibility of death.

Note that the exposure to H_2S risks in the dredging industry comes in two different forms:

- during traditional dredging works, e.g., dredging by means of a cutter suction dredger (CSD), trailer suction hopper

Above: Dredging with a trailing suction hopper dredger in a direction perpendicular to the wind direction is one way to reduce the risk of H_2S reaching the vessel's interior. The yellow box seen here is an active carbon filter container.

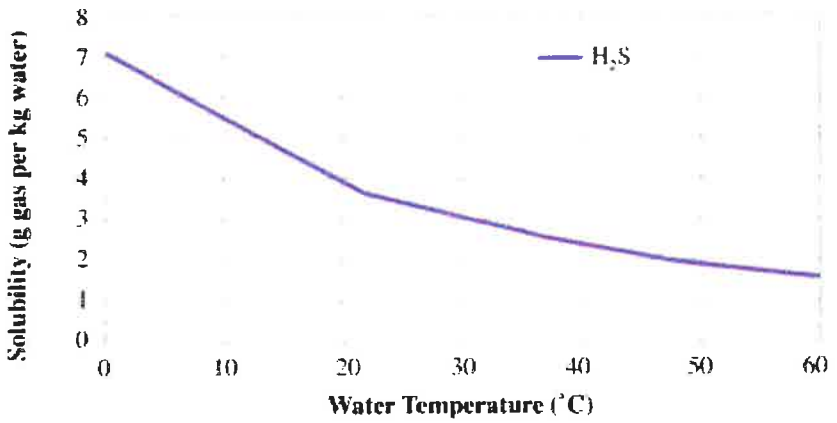


Figure 1. This graph shows the solvability of H_2S gas in water.

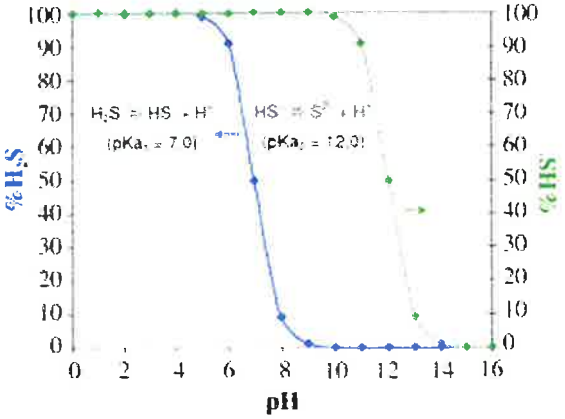


Figure 2. The graph above shows the shifting of the different Hydrogen Sulphide forms according to the pH.

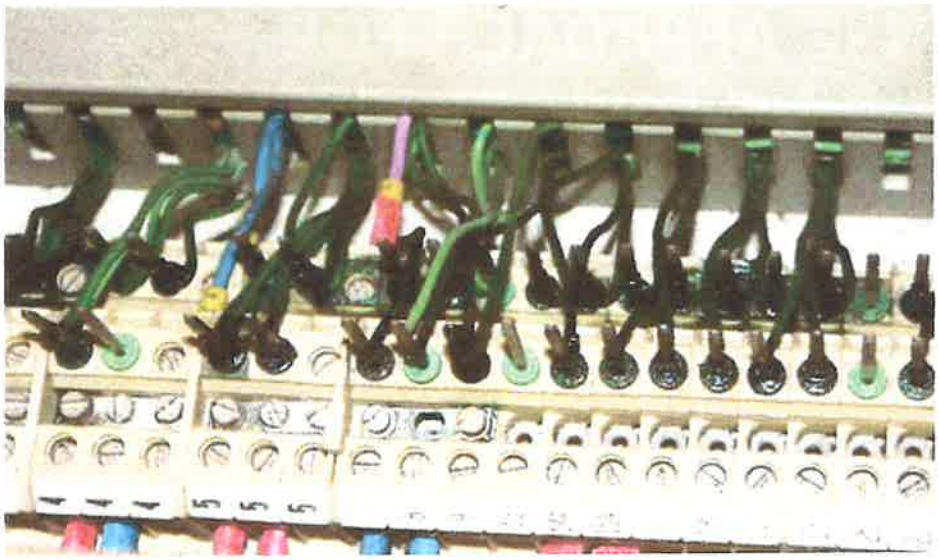


Figure 3. Electrical components that have been affected by H_2S on board the vessel.

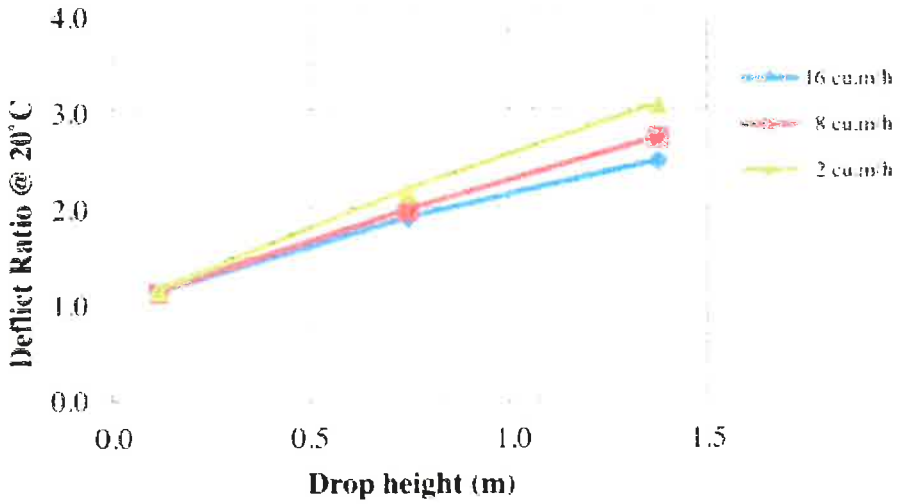


Figure 4. The graph shows the effect of drop height and oxygen absorption.

dredger (TSHD) or backhoe dredger (BHD), the H2S release is caused by the vessel's seabed disturbing activities,
- during works near offshore platforms (e.g., rock installation, cable laying, and such), H_2S release is associated with the client's offshore drilling activities.

This article focusses on the H_2S exposure during the traditional dredging works and possible preventive measures.

Characteristics of H_2S

H_2S is slightly heavier than air (ρ = 1,36 kg/m³), so once released as a result of dredging activities it will descend to the lower parts of the vessel.

H_2S has a moderate solubility in water. Depending on the water temperature, this varies from 7 g/kg at 0 °C to approximately 1.5 g/kg at 60 °C. This means between 7000 ppm to 1500 ppm H_2S is dissolvable in one litre of water (Figure 1).

In the liquid phase, different forms can occur:
- H_2S as the non-dissociated form (volatile);
- HS^- or S^{2-} as the two dissociated forms (non-volatile)

Neutral water has a pH value of 7 and at this value there is equilibrium of 50% H_2S and 50% HS^-. As from pH 5, 99% will be non-dissociated meaning that slightly acid to acid water will contain mainly volatile H_2S (Figure 2).

The stripping effect

A volatile compound is characterised by its

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STEVEN HULEU

joined Jan De Nul in 2005 as QHSSE Advisor for JDN's environmental company, Envisan NV. He quickly focused on occupational hygiene and has worked for almost 10 years in that field, concentrating on all kinds of health-, safety- and environmental-related measurements within the JDN Group. He holds a degree in chemistry and specialises in gas detection, atmospheric air samplings and biological follow-up of workers.

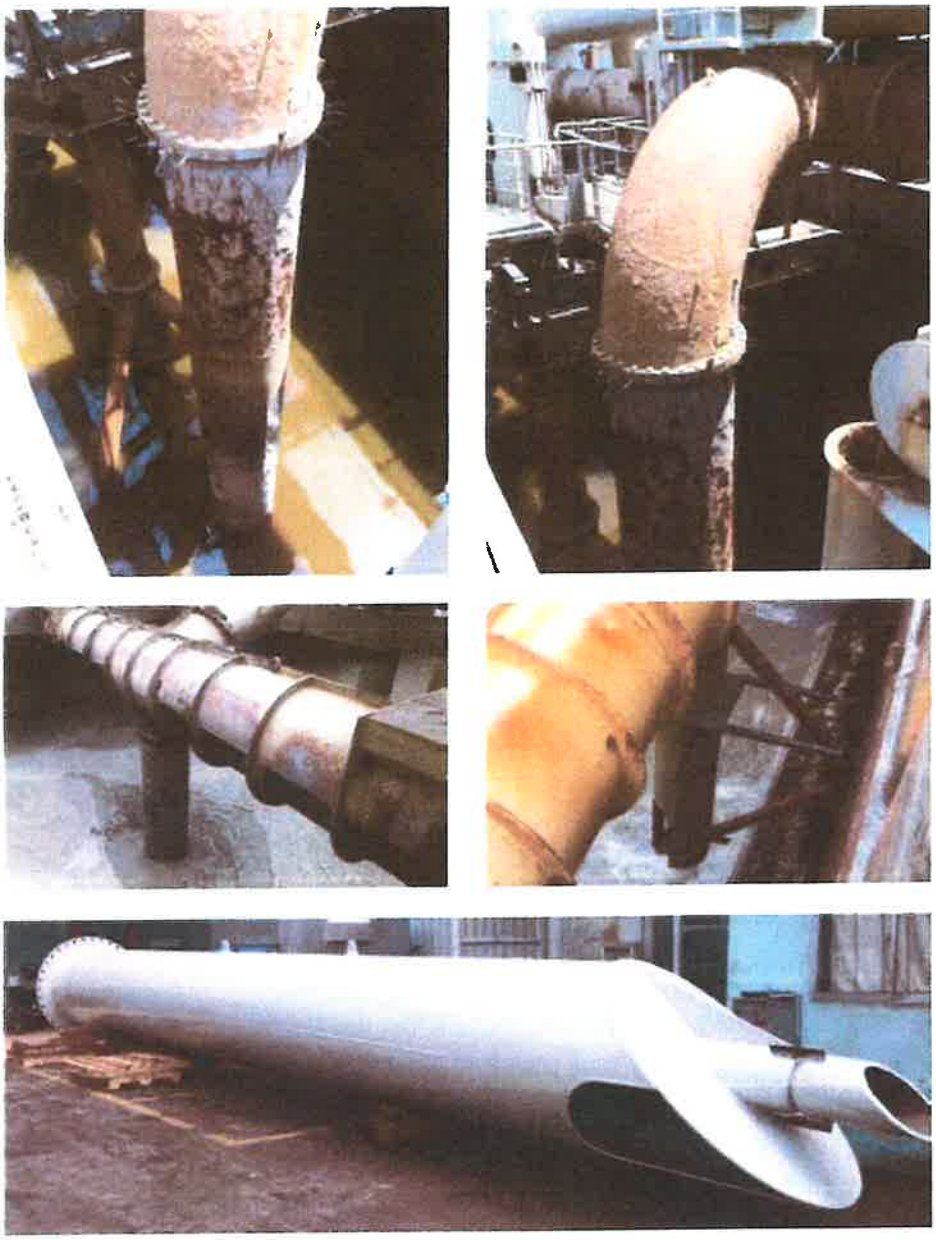

Figure 5. Top photos, installed deep load systems; below, a newly fabricated extended discharge pipe for a TSHD.

Henry's law constant which is a criterion for describing air–water partitioning of solutes such as H_2S (known as the stripping effect). This value will reduce as the water temperature decreases, implying that colder water means less stripping, i.e., H_2S that stays dissolved in liquid condition.

Two other important factors have a significant impact on the stripping effect:

- The amount of H_2S in gaseous condition above the water surface (more H2S in the air results in a reduced stripping effect).
- Contact-surface: increasing turbulence in water holding H_2S means an enlarged contact-surface which results in more H_2S migrating towards the gaseous condition.

H_2S is a very reactive/corrosive gas. It affects metals like copper and brass, causing short-circuits on electrical components. This has been identified as the direct cause of fires on dredging vessels (Figure 3). *Limiting the turbulence inside the hopper (of a TSHD or SHD) is the keystone of the H_2S-preventing strategy on board dredging vessels.*

RECOGNISING POTENTIAL H_2S RISKS ON DREDGING PROJECTS

When a project is being tendered for, the potential for H_2S presence has to be determined. Geographical and geologic information will already give a good indication for potential H_2S presence at the dredging location. Certain eco-systems are more likely to contain large quantities of H_2S piled up in particular layers of the geologic profile. Clay soils pose a higher potential for H_2S risks because its compact/dense structure allows for anaerobic decomposition. Dredging sand almost never releases large amounts of H_2S, as sand is very porous and thus allows gases to migrate.

If not already done on behalf of the client, soil samples can be analysed and scanned for H_2S presence. In the case that the presence of H_2S is indicated, then the project safety plan should define the technical and strategic measures to be implemented, e.g., detection systems and technical adaptions to the vessel. Emergency procedures should include responses to H_2S release and intoxication.

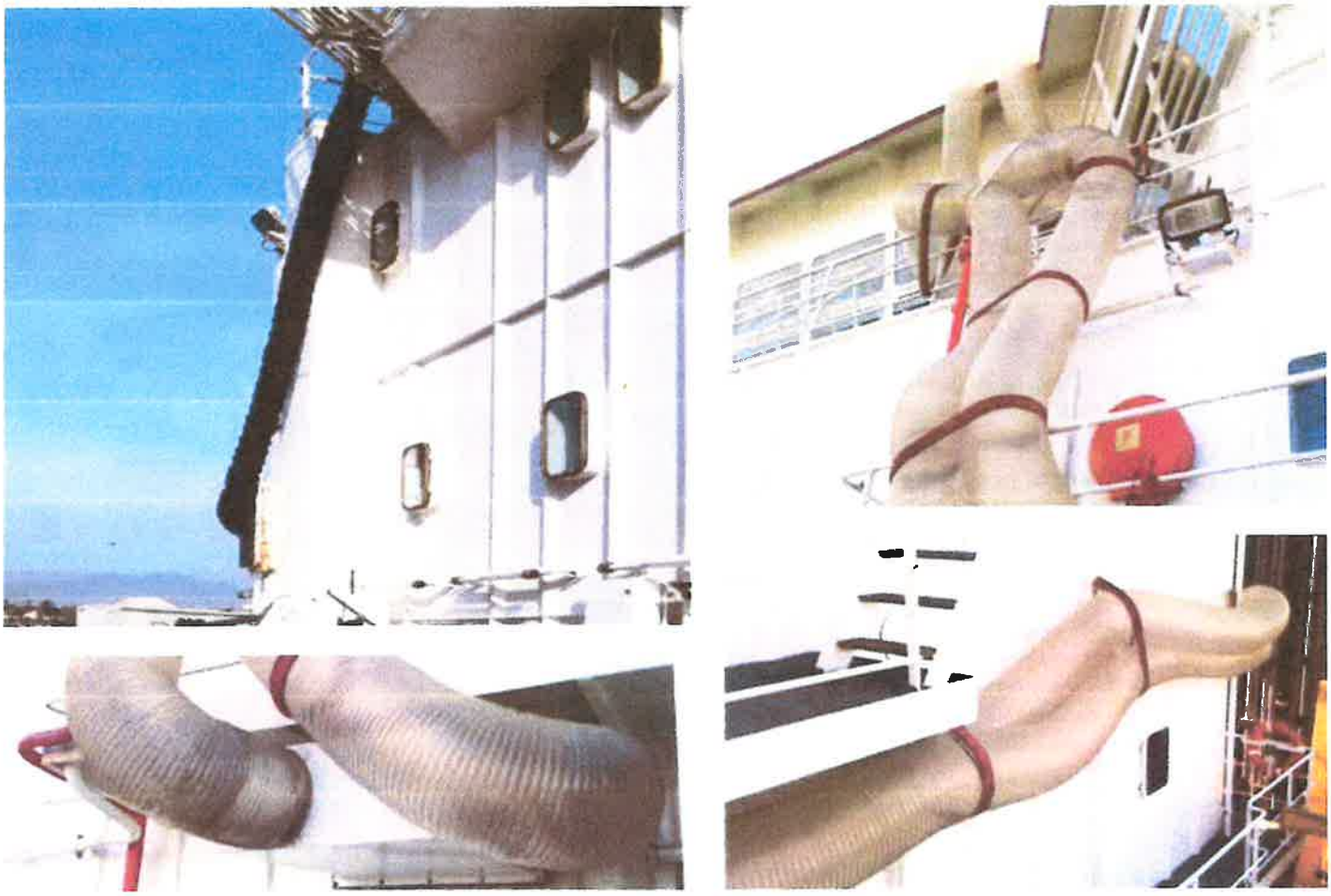

Figure 6. Various ways of diverting the accommodation active carbon (A/C) intake.

LIMITING H_2S RELEASE

Although there are a variety of theoretical options to limit the exposure to H_2S on a dredging vessel, the practical and feasible options are limited to a few engineering and procedural controls. These effective measures to limit a H_2S release are: covering the hopper; limiting the turbulence in the hopper; and diverting the airflow intakes on board.

Covering the hopper

Covering the hopper of a TSHD or SHD with a fabric restricts H_2S from reaching vulnerable areas. When the air above the water is saturated with H_2S gas, no more H_2S can be stripped from the dredged material into the air. In conjunction with covering the hopper, the air below the cover must be discharged at one side of the vessel. Therefore:

- the cover must have proper sized inlet vent(s) to get the hopper in an 'under-pressure' situation (inlet needs to allow a flow of at least 0.5 to 1 m/s);
- the mechanical fans to blow the H_2S containing air form below the cover, must be large enough to keep a sufficient under-pressure;
- mechanical fans and inlet vent(s) need to be of appropriate size; and
- special attention must be given when opening the bottom doors of the hopper as this creates a high under-pressure.

Emptying the hopper at a reduced speed and opening the hopper cover partially are crucial to the process.

Limiting turbulence in the hopper

Dissolved H_2S is released much faster as turbulence increases. Inside the hopper the main sources of turbulence are:

- dropping the dredged material from a high height in the hopper while loading (Figure 4) and
- discharging through the overflow system.

Both features cause agitation on the water surface, air-bubbles in the dredged material and an increasing contact surface between water/air. Dropping the dredged material from a lower height causes less oxygen to get absorbed and thus less stripping of H_2S. The effect of turbulence is further reduced if the discharge takes place below the water surface.

Taking into account the various types of dredging equipment, dredging by means of a backhoe or dipper dredger is considered as the best option to reduce H_2S release as the dredged material is not subjected to heavy turbulences and it can be kept in underwater or submerged conditions.

During loading of a TSHD or SHB, the use of a "deep load installation" strongly reduces the H_2S stripping effect. Lowering the discharge point to +/- 2 m from the bottom (preferably

Figure 7. Details of custom-made active carbon filters (above) and their installation on a TSHD (left).

below water surface from the start) at the centre of the hopper is most effective. Keeping a certain space between the bottom of the hopper and the discharge point, prevents the pipe from getting clogged-up by solid materials.

Also limiting the discharge velocity prevents H_2S stripping. This can be achieved by using a larger pipe diameter and/or making certain adaptations to the end discharge point of the pipe.

The pictures in Figure 5 illustrate adaptations made on board of TSHDs. They range from simple modifications of the discharge pipe (extending + metal diagonal insert) to placement of a complete "deep load installation".

AVOIDING THE ENTRANCE OF H_2S GAS INTO THE INTERIOR SPACES OF THE VESSEL

Through the air intakes (e.g., air supply for the air-condition system) or simply through door and hatch openings, H_2S gas can easily migrate from the exterior towards the inside of the vessel. Two proven methods to avoid H_2S being sucked into the vessel's interior spaces through air intakes are diverting air intakes to locations where H_2S is not present and filtering of the A/C intake by means of active carbon filters. In addition to these measures, all other openings such as doors and hatches shall be kept closed during dredging.

Diverting the active carbon (A/C) intake(s)

With large flexible or hard ducts it is possible to divert the active carbon (A/C) intake to known places with much less H_2S (fore ship, monkey bridge, behind accommodations and such). Below mentioned measures can further reduce the risk to H_2S reaching the vessel's interior:

- Dredging with a TSHD in a direction perpendicular to the wind direction
- Providing an A/C system with adjustable intake positions
- When filling up the hopper the A/C shall be switched to recirculation
- Keeping all exterior doors, hatches and windows closed during dredging.

Figure 8. The multi-gas detector QRAE II.

Note that based on this understanding, the standard position of accommodation A/C intake on new vessels is located at the side or front of the vessel instead of above the hopper (Figure 6).

Filtering the A/C intake(s)

There are various techniques available on the market to filter the accommodation air. Only a few however are feasible on board a dredging vessel. The most interesting technique is adsorption of H_2S by a suitable adsorbent, such as NaOH, KOH or K_2CO_3 impregnated active carbon. By utilising custom-made filters, the air can be purified prior to entering the accommodation (Figure 7).

MONITORING H_2S RELEASE

Having proper gas detection on board is essential to monitoring H_2S release. Measurements can be personal or on fixed places on board the vessel. All gas detection equipment has built-in alarms according to Time Weighted Average (TWA) and Short Term Exposure Level (STEL) values, defined by European legislation:

- TWA* = Time Weighted Average = long term exposure = 8h period = 5ppm
- STEL = Short Term Exposure Level = 15min period = 10ppm

*Other ways to express TWA are MAC (Maximum Acceptable Concentration) or TLV (Threshold Limit Value).

Personal detectors

To warn crew for H_2S, small single gas detectors such as type ToxiRAE III can be used. Single gas detectors are mostly non-pumped and do not have the capability to log the measured data. Multi-gas detectors such as type QRAE II can also be provided with an H_2S sensor and have an in-built pump, which makes it's more suitable for outdoor measurements. The QRAE II does data-logging (Figure 8).

Fixed detection

A fixed detection system consists of multiple detectors which are strategically placed (in the hopper, A/C inlets, ER, ECR,...). These fixed detectors are connected to each other and are communicating with a central alarm box (often placed on the bridge). The connections can be either wireless or via fixed cabling. The advantage of wireless systems is that they can be easily relocated from one vessel to another (e.g., after a project is finished) but they have a limited battery life which is regarded as a disadvantage. H_2S Meshguard system kits are another system being used on various vessels.

Default the kit comes with 6 H_2S detectors, a router (signal seeker/enhancer) and an FMC2000 controller/alarm box. A Meshguard network can be established and expanded up to 26 detectors.

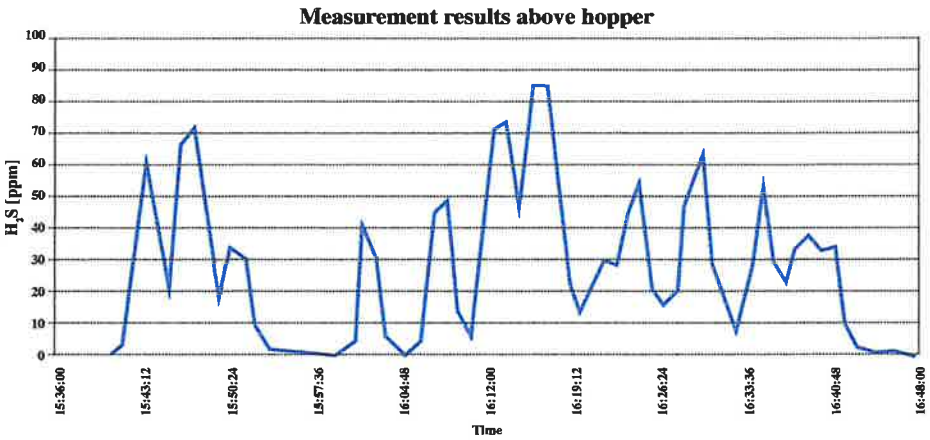

Figure 9. A measurement graph from on board a hopper dredger. The typical work rhythm can be identified: high peaks (going up to 100 ppm) during filling hopper and the obvious decrease of H_2S measured during sailing.

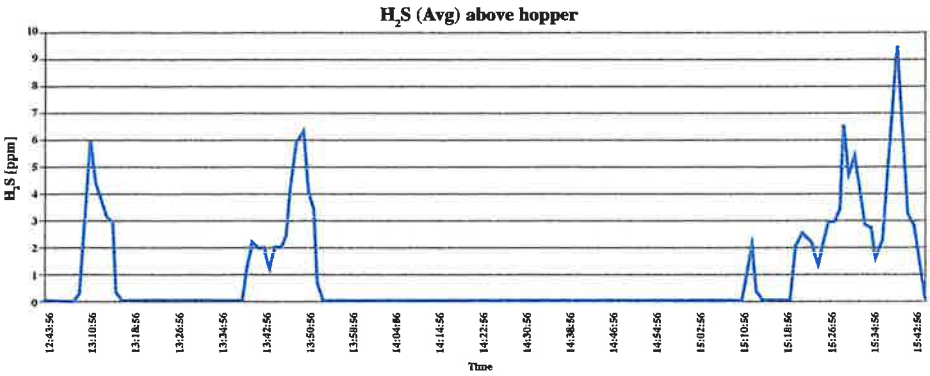

Figure 10. Reading on board a split barge, during the loading process with a cutter dredger. Again, the work rhythm can be identified (minor H_2S peaks during loading barge).

Data logging

When using devices that have data logging, it is possible to monitor certain locations on board for longer periods or even on a permanent basis. The portable QRAE II devices can be connected to a computer and by using the provided software and measured data can be consulted for interpretation. Via the internal modem, the wireless Meshguard H_2S sensors are sending their data to the central controller on the bridge, where it is stored on an SD memory card. Depending on the used detection mode, this can be either 24/7 or with a pre-set interval (default every ½ min) and/or whenever an alarm value is detected (Figures 9 and 10).

CONCLUSION

The release of H_2S (Hydrogen Sulphide) is a known risk in the dredging industry. It is a highly toxic and flammable gas and can cause debilitating health conditions. The exposure to H_2S risks in the dredging industry comes in two different forms, during traditional dredging works and as a result of the client's offshore drilling activities. The situation addressed here was that caused by traditional dredging. In this case recognising the H_2S risk during the tender phase is essential and possible.

Knowing the risk early on allows the contractor to prepare a safe work environment and to include the costs for required measures such as detection systems in the price offer. Also, if an increased H_2S risk is determined, the initial dredging method can be substituted by a safer method (e.g., backhoe dredger) or engineering controls can be put in place, e.g., by installing a deep load box on a TSHD within a reasonable timeframe.
When a risk is possible, use of gas detection equipment on board to measure H_2S is crucial. It helps to monitor the effectiveness of the H_2S prevention measures and gives timely warning to the crew when these are failing. And last but not least: Every crewmember needs to be made aware of the H_2S risk and trained in preventive measures including the use of specific personal protective equipment (PPE).

Hydrogen sulfide is recognizable by its distinctive rotten egg odor. Hydrogen sulfide, H2S, is formed by the breakdown of organic materials and is typically found near agricultural locations, wastewater treatment systems and industrial sites.

Many sources of hydrogen sulfide exist in North Carolina: intensive swine operations, paper and pulp mills, asphalt plants, slaughterhouses and rendering plants, municipal waste landfills and sewage treatment plants and the collection systems that feed them. Hydrogen sulfide is one of the most common toxic air pollutants. In North Carolina alone about 12 million pounds of this toxic gas are released into the air annually. (1)

The N.C. Division of Air Quality estimates that the typical hot-mix asphalt emits hydrogen sulfide at 0.7 pounds/hour. (2) There are about 140 asphalt plants located across the state, and about 3,600 plants in the United States.

"H2S poisons the brain, and the poisoning is irreversible"

-Kaye Kilburn, Ph.D., University of Southern California School of Medicine

Recent medical research reveals that permanent central nervous system damage may occur at levels of H2S exposure found at common industrial facilities such as intensive livestock operations and asphalt industry sites. (3)
Dr. Neil Carman, former Texas environmental official and clean air director for the Lone Star Chapter of the Sierra Club, states that hydrogen sulfide is similar to cyanide in toxicity. (4) He cites studies which found that H2S interferes with a cell's ability to use oxygen (5, 6).

Low Concentrations of Hydrogen Sulfide Can Cause Lasting Damage

Lower levels of hydrogen sulfide are now known to cause serious health effects. The N.C. Scientific Advisory Board reports that "symptoms such as headache, nausea and eye and throat irritation" are found in communities with ambient levels "as low as 7 to 10 parts per billion" associated with periodic fluctuations at higher levels. (7) The province of Alberta, Canada has adopted a 10 parts per billion (ppb) standard for hydrogen sulfide.

California evaluated hydrogen sulfide effects on children and found that that state's one hour standard of 30 parts per billion was too high. They found chronic exposure to 8 ppb caused observable effects on sensitive body tissues. California's experts concluded, "neither of these two benchmark levels should be exceeded by the properly averaged concentration." (8)

According to Dr. Carman, "Demonstrable systems of chronic exposure include pronounced deficits in balance and reaction time, we well as such ailments as dizziness, insomnia, and overpowering fatigue." (4)

The Danger to Children from Exposure to Hydrogen Sulfide

"The effects of toxic pollution such as H2S on growing children are recognized by experts as particularly severe." Dr. Carman explains, "Children are more vulnerable than adults to hydrogen sulfide, first because they breathe more rapidly, taking in significantly more pollution per pound of body weight than do adults. A resting infant, for example, inhales twice as much, relative to its size as does a resting adult. Second, national data show that children spend an average of about 50% more time outdoors than adults. Third, children are three times more active while outdoors than adults as they are

engaged in sports and other vigorous activities; this increased activity raises breathing rates and significantly increases inhalation and in some cases swallowing pollutants. Fourth, children are particularly susceptible to toxic substance because their bodies are immature and rapidly growing. Fifth, children are in their prime learning years and H2S exposure causes brain damage. The impairment of mental faculties in a child amounts to a lifetime of harm." (4)

"Public health scientists now recognize that hydrogen sulfide is a potent neurotoxin, and that chronic exposure to even low ambient levels causes irreversible damage to the brain and central nervous system. Children are among the most susceptible to this poison gas. It is unacceptable for communities to have to continue suffering the ill effects of H2S when the technology to control H2S emissions is available and affordable".

-Neil Carman, Ph.D

Symbols and abbreviations

H2S: chemical symbol for hydrogen sulfide
ppb: parts per billion
ppm: parts per million

References

1. Schliesser, S., Engineering Assessment of Hydrogen Sulfide Issues, NC DAQ, February 12, 2003.

2. NC DAQ Air Toxics Analytical Support Team Investigation No. 01007 and 01008, April 30, 2002

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6. Smith, RP, and RE Gosselin: 1979, J Occupational Medicine 21:93-7.

7. Hayward, J., Summary of toxicity assessment of hydrogen sulfide conducted by the Secretary's Scientific Advisory Board on Toxic Air Pollutants Report, October 2, 2001.
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October 20, 2003, L. Zeller

HYDROGEN SULFIDE

The Human Health Effects of a Toxic Pollutant

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October 20, 2003, L. Zeller

BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE

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www.BREDL.org

Hydrogen Sulfide - ToxFAQs™

CAS # 7783-06-4

This fact sheet answers the most frequently asked health questions (FAQs) about hydrogen sulfide. For more information, call the CDC Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Hydrogen sulfide occurs naturally and is also produced by human activities. Just a few breaths of air containing high levels of hydrogen sulfide can cause death. Lower, longer-term exposure can cause eye irritation, headache, and fatigue. Hydrogen sulfide has been found in at least 34 of the 1,832 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is hydrogen sulfide?

Hydrogen sulfide is a flammable, colorless gas that smells like rotten eggs. People usually can smell hydrogen sulfide at low concentrations in air ranging from 0.0005 to 0.3 parts per million (ppm).

Hydrogen sulfide occurs naturally in crude petroleum, natural gas, volcanic gases, and hot springs. It can also result from bacterial breakdown of organic matter. Bacteria found in your mouth and digestive tract produce hydrogen sulfide during the digestion of food containing vegetable or animal proteins. Industrial sources of hydrogen sulfide include petroleum refineries, natural gas plants, petrochemical plants, coke oven plants, food processing plants, and tanneries.

It is used primarily in the production of sulfur and sulfuric acid.

What happens to hydrogen sulfide when it enters the environment?

- Hydrogen sulfide can be released into air, water, and soil at places where it is produced or used.
- It is released primarily as a gas and spreads in the air. It can remain in the air from 1 to 42 days, depending on the season.
- In air, it can change into sulfur dioxide and sulfates.
- Levels in water are very low because it readily evaporates.
- In soil, hydrogen sulfide will be consumed by bacteria and changed to sulfur.

How might I be exposed to hydrogen sulfide?

- You might be exposed to hydrogen sulfide from breathing contaminated air or drinking contaminated water.
- People living near a wastewater treatment plant, a gas and oil drilling operation, a farm with manure storage or livestock confinement facilities, or a landfill may be exposed to higher levels of this chemical.
- You can be exposed at work if you work in rayon textiles, petroleum and natural gas drilling and refining, or wastewater treatment industries. Workers on farms with manure storage pits or landfills can be exposed to higher levels of hydrogen sulfide.
- A small amount of hydrogen sulfide is produced by bacteria in your mouth and digestive tract.

How can hydrogen sulfide affect my health?

Studies in humans suggest that the respiratory tract and nervous system are the most sensitive targets of hydrogen sulfide toxicity.

Exposure to low concentrations of hydrogen sulfide may cause irritation to the eyes, nose, or throat. It may also cause difficulty in breathing for some asthmatics. Respiratory distress or arrest has been observed in people exposed to very high concentrations of hydrogen sulfide.

Exposure to low concentrations of hydrogen sulfide may cause headaches, poor memory, tiredness, and balance problems. Brief exposures to high concentrations of hydrogen sulfide can cause loss of consciousness. In most cases, the person appears to regain consciousness without any other effects. However, in some individuals, there may be permanent or long-term effects such as headaches, poor attention span, poor memory, and poor motor function.

Air Monitoring for Hydrogen Sulfide

While there are no regulatory exposure limits outside of the workplace for hydrogen sulfide (H_2S), there are exposure guidelines to which any monitoring data will be compared. The Center for Disease Control and Prevention's Agency for Toxic Substances and Disease Registry (ATSDR) has established an acute Minimal Risk Level (MRL) for H2S. A MRL is an estimate of the daily human exposure to a hazardous substance that is likely to be **without appreciable risk of adverse health effects** over a specified duration of exposure.[1]

The Acute MRL for continuous exposure from 1 day to 14 days is 0.07 parts per million (ppm), which is equal to 70 parts per billion (ppb). The daily monitoring reports will show one day (24 hour) time-weighted averages in parts per billion (ppb).

Part per billion (ppb) equivalents are shown on this page because other data related to this investigation has been expressed in these units. It is critical that the units of measurement between monitoring results and the exposure guidelines match. For example, both should be in either parts per million (ppm) or parts per billion (ppb). It is easy to convert one to the other. 1 ppm = 1000 ppb, so to go from ppm to ppb, multiply by 1000; and to go from ppb to ppm, divide by 1000.

It is important to understand units of measurement when looking at monitoring results. A part per billion (ppb) is the equivalent of a penny in a ten million dollars. See Table 1. Below for a perspective.

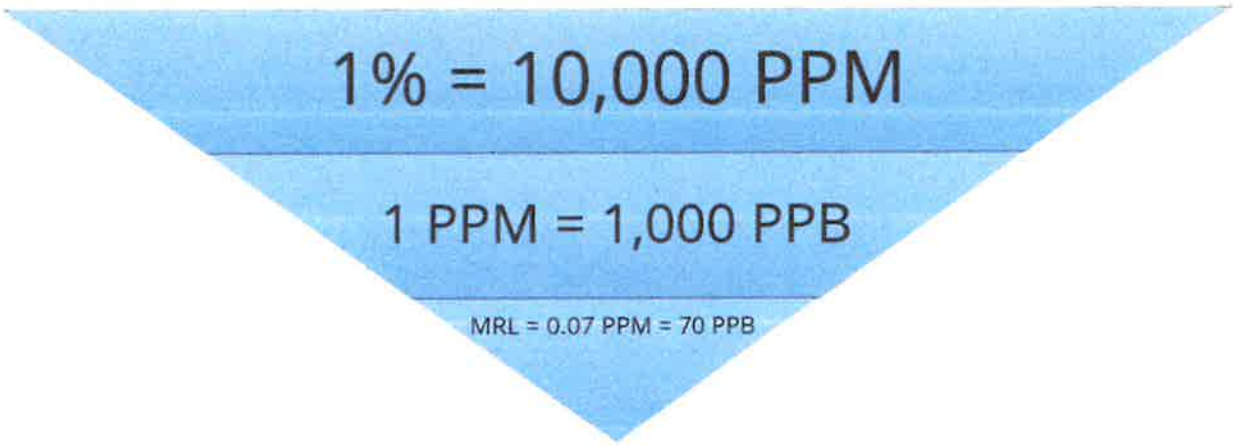


Table 1

The instruments being used for the monitoring done by DHEC can measure down to 1 part per billion (ppb) up to 10 parts per million (ppm).

The odor threshold range for hydrogen sulfide is 0.0005 to 0.3 ppm (0.5 to 300 ppb).

Additional exposure guidelines: Acute Exposure Guideline Levels (AEGLs) were developed by the National Advisory Committee for Acute Exposure Guideline Levels for Hazardous Substances. These levels represent exposure limits for the general public for periods of time ranging from 10 minutes to 8 hours. Three levels – AEGL-1, AEGL-2 and AEGL-3 are established for each of five exposure time periods shown in the table below. Values are shown for concentration in both ppm and ppb.

Hydrogen Sulfide[2]

Classification	10 min	30 min	1 hour	4 hour	8 hour
AEGL-1 (Nondisabling)	0.75 ppm **750 ppb**	0.60 ppm **600 ppb**	0.51 ppm **510 ppb**	0.36 ppm **360 ppb**	0.33 ppm **330 ppb**

Classification	10 min	30 min	1 hour	4 hour	8 hour
AEGL-2 (Disabling)	41 ppm 41000 ppb	32 ppm 32000 ppb	27 ppm 27000 ppb	20 ppm 20000 ppb	17 ppm 17000 ppb
AEGL-3	76 ppm 76000 ppb	59 ppm 59000 ppb	50 ppm 50000 ppb	37 ppm 37000 ppb	31 ppm 31000 ppb

[1]ATSDR Toxicological Profile on Hydrogen Sulfide: **https://www.atsdr.cdc.gov/ToxProfiles/tp114-a.pdf** <https://www.atsdr.cdc.gov/toxprofiles/tp114-a.pdf>

[2]AEGL for Hydrogen Sulfide: **https://www.epa.gov/aegl/hydrogen-sulfide-results-aegl-program** <https://www.epa.gov/aegl/hydrogen-sulfide-results-aegl-program>

How do I Interpret the Daily Reports?

At the top of each daily report you will find the date and the 24-hour time period for each report (midnight to midnight).

Air Monitoring Summary Tables

This table summarizes monitoring data collected using DHEC monitors and EPA's Viper wireless remote monitoring system

Project Name: **H_2S in South Carolina**

From: **9/28/21 12:00 AM** *To:* **9/28/21 11:59 PM**

Tom Stevens Rd

Instrument	Analyte	ATSDR MRL Exceedance?	Number of Readings	Number of Detections	Concentration Range	Period Average	ATSDR MRL
SPM Flex 1	H2S	No	3020	1118	0 - 11 ppb	0.88 ppb	70 ppb

Catawba River

Instrument	Analyte	ATSDR MRL Exceedance?	Number of Readings	Number of Detections	Concentration Range	Period Average	ATSDR MRL
SPM Flex 2	H2S	No	3016	1413	0 - 11 ppb	1.35 ppb	70 ppb

Catawba Express

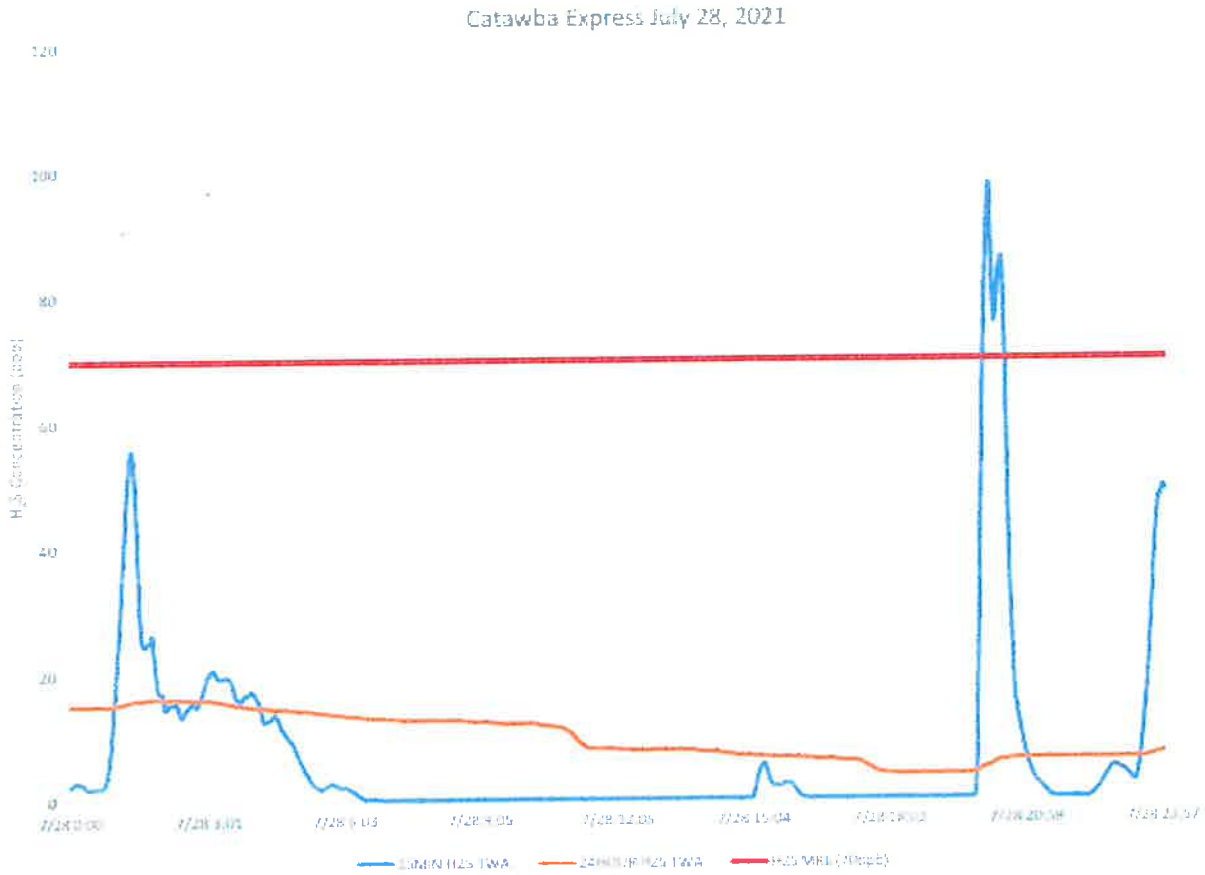
Instrument	Analyte	ATSDR MRL Exceedance?	Number of Readings	Number of Detections	Concentration Range	Period Average	ATSDR MRL
SPM Flex 3	H2S	No	3014	171	0 - 5 ppb	0.14 ppb	70 ppb

Notes about the monitoring period will be put at the top of the page. For example if a monitor failed (could be a battery issue or an issue with a sensor) or if an error was made in a report, this section will contain an explanation of the correction.

A map with locations of the facility as well as monitor locations is also part of each report. There will be a description of the prevailing wind direction during the monitoring period just before the charts.

Monitors operated by DHEC take a reading every 30 seconds - that is the Number of Readings. A detect is defined as a measurable concentration during one of those 30 second readings. There are columns in the report for number of readings and number of detections.

The graph below shows a peak around 1:30 AM at ~50 parts per billion. The 30-minute average level at which health effects are expected is 600 ppb (0.6 ppm) (See AEGL-1 description on the monitoring landing page.) The 70-ppb red line is not a health standard but is a level that indicates further investigatory actions are warranted. The peak concentration recorded about 7PM exceeded the level of the 70 ppb Standard, but for less than an hour.



The red line is the 24-hour exposure guideline to which monitoring results are compared. Exposure guidelines have two components, concentration AND time. See the Acute Exposure Guideline table on the air monitoring page for exposure guidelines over shorter time periods.

While we have seen brief periods of time with concentrations above the red line at several locations, we have not come close to exceeding the guideline over the time period used for comparison. The 70 ppb is an acute Minimum Risk Level (MRL) set by the Centers for Disease Control and Prevention as a level that warrants additional investigation should it be exceeded.

Wind Forecast

The daily Wind/Odor Forecast will be discontinued after the weekend forecast provided Friday, December 11. An authoritative hourly forecast is available from the National Weather Service for the area of the facility at this **link**.

DHEC Daily Reports

The current onsite monitoring reported by the facility and boundary monitoring conducted by DHEC have documented the significant reduction in concentrations of Hydrogen Sulfide (H2S) near the facility and the continued reduction in intensity, frequency, and duration of H2S concentrations near the facility. Since September,2021, there haven't been any instantaneous detections of H2S at any of DHEC's continuous monitors at the facility boundary above 10% of the level of the most protective Acute Exposure Guideline (AEGL). This doesn't mean there will not be odors detected offsite; it means the concentrations are consistently well below published health and safety guidelines.

Since monitored concentrations have been well below these established guidelines and New Indy must continue to report results from their current monitoring and the additional monitoring required by the Order, DHEC will suspend facility boundary monitoring and reporting in mid-August, 2023 unless there is a change in activity at the facility. DHEC's monitoring may resume if there is an increase in on-site monitored concentrations or a significant change in operations associated with potential odor sources.

June 29, 2021

</sites/default/files/media/document/h2s%20data%20summary%20report%20062921.pdf>

June 30, 2021

</sites/default/files/media/document/h2s%20data%20summary%20report%2000630 21.pdf >

July 2021 Reports

</sites/default/files/media/document/newindy_dhec_h2sjulyreports%20combined.pdf >

August 2021 Reports

</sites/default/files/media/document/newindy_dhec_h2saugustreports%20combined.pdf>

September 2021 Reports

</sites/default/files/media/document/newindy_dhec_h2sseptemberreports%20combined.pdf>

October 2021 Reports

</sites/default/files/media/document/newindy_dhec_h2soctoberreports%20combined.pdf >

</sites/default/files/media/document/h2s%20data%20summary%20report%20092421.pdf>

November 2021 Reports

</sites/default/files/media/document/newindy_dhec_h2snovemberreports%20combined.pdf>

December 2021 Reports

</sites/default/files/media/document/newindy_dhec_h2s_december21_reports%20combined.pdf >

January 2022 Reports

</sites/default/files/media/document/newindy_dhec_h2s_january22_reports%20combined.pdf >

February 2022 Reports

</sites/default/files/media/document/newindy_dhec_h2s_february22_reports%20combined.pdf>

March 2022 Reports

</sites/default/files/media/document/newindy_dhec_h2s_march22_reports%20combined.pdf>

April 2022 Reports

</sites/default/files/media/document/newindy-dhec-h2s-april22-reports-combined.pdf>

May 2022 Reports

</sites/default/files/media/document/newindy_dhec_h2s%20_may22reports%20combined.pdf>

June 2022 Reports

</sites/default/files/media/document/newindy_dhec_h2s%20_june22reports%20combined.pdf>

July 2022 Reports

</sites/default/files/media/document/newindy_dhec_h2s%20_july22reports%20combined.pdf>

August 2022 Reports

</sites/default/files/media/document/newindy_dhec_h2s%20_aug22reports%20combined.pdf>

September 2022 Reports

</sites/default/files/media/document/newindy_dhec_h2s%20_sep22reports%20combined.pdf>

October 2022 Reports

</sites/default/files/media/document/newindy_dhec_h2s_oct22%20reportscombined.pdf>

November 2022 Reports

</sites/default/files/media/document/newindy_dhec_h2s_nov22%20reportscombined.pdf >

December 2022 Reports

</sites/default/files/media/document/newindy_dhec_h2s_dec22%20reportscombined.pdf >

January 2023 Reports

</sites/default/files/media/document/newindy_dhec_h2s_jan23%20reportscombined.pdf>

February 2023 Reports

</sites/default/files/media/document/newindy_dhec_h2s_feb23%20reportscombined-1.pdf>

March 2023 Reports

</sites/default/files/media/document/newindy_dhec_h2s_mar23%20reportscombined.pdf>

April 2023 Reports

</sites/default/files/media/document/newindy_dhec_h2s_apr23%20reportscombined.pdf>

May 2023 Reports

</sites/default/files/media/document/newindy_dhec_may23%20reportscombined.pdf >

June 2023 Reports

</sites/default/files/media/document/newindy_dhec_h2s_jun23%20reportscombined.pdf >

July 2023 Reports

</sites/default/files/media/document/newindy_dhec_h2s%20_july23reports%20combined.pdf>

August 2023 Reports

</sites/default/files/media/document/newindy_dhec_h2s%20_aug23reports%20combined.pdf>

September 2023 Reports

</sites/default/files/media/document/newindy_dhec_h2s%20_sep23reports%20combined.pdf>

October 2023 Reports

</sites/default/files/media/document/newindy_dhec_h2s_oct23reportscombined.pdf>

November 2023 Reports

</sites/default/files/media/document/newindy_dhec_h2s_nov23reportscombined.pdf >

December 2023 Reports

</sites/default/files/media/document/ni_dhec_h2s_dec23reportscombined.pdf>

January 1, 2024

</sites/default/files/media/document/h2s%20data%20summary%20report%20010124.pdf>

January 2, 2024

</sites/default/files/media/document/h2s%20data%20summary%20report%20010224.pdf >

January 3, 2024

</sites/default/files/media/document/h2s%20data%20summary%20report%20010324.pdf>

January 4, 2024

</sites/default/files/media/document/h2s%20data%20summary%20report%20010424.pdf>

January 5, 2024

</sites/default/files/media/document/h2s%20data%20summary%20report%20010524.pdf>

January 6, 2024

</sites/default/files/media/document/h2s%20data%20summary%20report%20010624.pdf>

January 7, 2024

</sites/default/files/media/document/h2s%20data%20summary%20report%20010724.pdf>

January 8, 2024

</sites/default/files/media/document/h2s%20data%20summary%20report%20010824.pdf>

EPA Reports

May 2021 Reports - Combined

</sites/default/files/media/document/newindy_epa_h2smayreportscombined.pdf>

June 2021 Reports - Combined

</sites/default/files/media/document/newindy_epa_h2sjunereportscombined.pdf>

Downloads & Links

New Indy Odor Investigation </environment/environmental-sites-projects-permits-interest/new-indy-odor-investigation>

Air Monitoring for Hydrogen Sulfide </environment/environmental-sites-projects-permits-interest/new-indy-odor-investigation/air-monitoring-hydrogen-sulfide>

New Indy Reports & Documents </environment/environmental-sites-projects-permits-interest/new-indy-odor-investigation/new-indy-weekly-update-reports>

Frequently Asked Questions </environment/environmental-sites-projects-permits-interest/new-indy-odor-investigation/new-indy-frequently-asked-questions>

S.C. Department of Health and Environmental Control

1:35

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	Speed (MPH)	Wind Direction
TUE 30	12	From the SE
40%	Wind Gusts: 19	
WED 01	8	From the SSE
20%	Wind Gusts: 15	
THU 02	7	From the SE
20%	Wind Gusts: 16	
FRI 03	9	From the ESE
10%	Wind Gusts: 19	
SAT 04	11	From the ESE
	Wind Gusts: 19	

Satellite Beach, FL

78°
now

79°
2p

71°
7a

40%

WED	THU
81° 70°	81° 73°