

November 14, 2014
Water Docket
U.S. Environmental Protection Agency
Mail Code 2822T
1200 Pennsylvania Ave. NW
Washington, DC 20460

Attn: Docket ID No. EPA-HQ-OW-2011-0880

The American Society of Civil Engineers (ASCE) is pleased to offer the following comments on the proposed definition of “Waters of the U.S.” under the Clean Water Act. The proposed rule, released jointly by the U.S. Environmental Protection Agency (EPA) and U.S. Army Corps of Engineers (USACE) was published in the Federal Register on Monday April, 21, 2014. Please consider these public comments as part of the official record, which closes on Friday, November 14, 2014.

Introduction

ASCE was founded in 1852 and is the country’s oldest national civil engineering organization. It represents more than 145,000 civil engineers in private practice, government, industry and academia who are dedicated to the advancement of the science and profession of civil engineering.

The Society’s diverse members are directly and materially affected by the proposed changes to federal water jurisdiction under the Clean Water Act in their professional practice areas, particularly in the fields of environmental engineering, water resources engineering and water resources planning and management. While ASCE supports a rulemaking by the agencies, we cannot

support the proposed rule in its current form. In our comments, we urge review on four major issues; 1) significantly clarify several proposed definitions critical to the rulemaking, 2) exclude or provide guidance on the effect of the proposed rule on municipal separate storm sewer systems, 3) reexamine the rule with a particular eye towards circumstances in the arid West, and 4) consider the impact of the proposed rule on green infrastructure development.

ASCE staff carefully reviewed the rule, met with engaged members and attended multiple stakeholder outreach events conducted by the agencies. We are especially thankful for the stakeholder outreach conducted by the EPA and USACE with ASCE on August 19, 2014. Over 200 members registered for the special webinar and phone conference hosted by ASCE joined by officials from EPA and USACE. Following the call we solicited feedback from our members, which helped inform these comments.

Legislative, Regulatory and Legal Background

The Federal Water Pollution Control Act or Clean Water Act (CWA) is the principal law governing pollution in the nation's stream, lakes, and estuaries. The key water quality provisions of the CWA fall in to three main categories. The federal government is required to set industrywide, technology-based effluent standards for dischargers. All dischargers must obtain a permit issued by the federal government or authorized states that specifies discharge limits under the National Pollutant Discharge Elimination System (NPDES). Finally, the Act requires states to develop plans for the regulation of nonpoint pollution. The CWA also contains a number of other regulatory provisions, the most important of these to civil engineers being section 404, which restricts the dredging and filling of wetlands absent a permit.

Critical to the proposed rule, the CWA applies only to "navigable waters," which is defined expansively by the Act as "the waters of the United States, including the navigable seas".¹ For most of the nation's history, Congress believed that its commerce power, as defined in the Commerce Clause of the United States Constitution, extended only to navigable waterways. For this reason, the nation's

¹ CWA § 502(7), 33 U.S.C. § 1362(7).

first laws governing water, for example, Section 10 of the Rivers and Harbors Act and most other Congressional water legislation assert authority only over “navigable waters.” It’s generally agreed this definition means the water must be navigable-in-fact. When Congress created section 404 of the Clean Water Act it used the same terminology, but in an effort to broaden the stretch of CWA jurisdiction defined the term “navigable waters” to mean “waters of the United States.” The result has led to series of complex and confusing court cases, even from the Supreme Court.

A series of Supreme Court decisions beginning with *United States v. Riverside Bayview Homes, Inc* in 1985, followed by *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers (“SWANCC”)* in 2001, and ending with *Rapanos v. United States* in 2006 muddled the jurisdiction of the federal governments under the Clean Water Act. The decisions of these three cases resulted in the regulating agencies (EPA and USACE) “evaluating the jurisdiction of water on a case-specific basis far more frequently than is best for the clear and efficient implementation of the CWA.”² Therefore, the agencies are proposing a rule to clarify “whether individual water bodies are jurisdictional and discharges are subject to permitting, and whether individual water bodies that are not jurisdictional and discharges are not subject to permitting.”³

The Proposed Rule

EPA and USACE define “waters of the United States” in section (a) of the proposed rule, applying to all sections of the CWA. Section (a) defines “waters of the United States” as:

- (1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- (2) All interstate waters, including interstate wetlands;
- (3) The territorial seas;

² Definition of “Waters of the United States” Under the Clean Water Act; Proposed Rule, 79 Fed. Reg. 22, 188.

³ Id.

- (4) All impoundments of waters identified in paragraphs (s)(1) through (3) and (5) of this section;
- (5) All tributaries of waters identified in paragraphs (s)(1) through (4) of this section;
- (6) All waters, including wetlands, adjacent to a water identified in paragraphs (s)(1) through (5) of this section; and
- (7) On a case-specific basis, other waters, including wetlands, provided that those waters alone, or in combination with other similarly situated waters, including wetlands, located in the same region, have a significant nexus to a water identified in paragraphs (s)(1) through (3) of this section.

Section (b) provides a list of water bodies not regulated under the proposed rule:

- (1) Waste treatment systems, including treatment ponds or lagoons, designed to meet the requirements of the Clean Water Act.
- (2) Prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act the final authority regarding Clean Water Act jurisdiction remains with EPA.
- (3) Ditches that are excavated wholly in uplands, drain only uplands, and have less than perennial flow.
- (4) Ditches that do not contribute flow, either directly or through another water, to a water identified in paragraphs (s)(1) through (4) of this section.
- (5) The following features:
 - (i) Artificially irrigated areas that would revert to upland should application of irrigation water to that area cease;
 - (ii) Artificial lakes or ponds created by excavating and/or diking dry land and used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing;
 - (iii) Artificial reflecting pools or swimming pools created by excavating and/or diking dry land;
 - (iv) Small ornamental waters created by excavating and/or diking dry land for primarily aesthetic reasons;
 - (v) Water-filled depressions created incidental to construction activity;

- (vi) Groundwater, including groundwater drained through subsurface drainage systems; and
- (vii) Gullies and rills and non-wetland swales.

Finally, the proposed rule provides definitions of critical terms used in section (a):

(1) *Adjacent*. The term adjacent means bordering, contiguous or neighboring. Waters, including wetlands, separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like are “adjacent waters.”

(2) *Neighboring*. The term neighboring, for purposes of the term “adjacent” in this section, includes waters located within the riparian area or floodplain of a water identified in paragraphs (s)(1) through (5) of this section, or waters with a shallow subsurface hydrologic connection or confined surface hydrologic connection to such a jurisdictional water.

(3) *Riparian area*. The term riparian area means an area bordering a water where surface or subsurface hydrology directly influence the ecological processes and plant and animal community structure in that area. Riparian areas are transitional areas between aquatic and terrestrial ecosystems that influence the exchange of energy and materials between those ecosystems.

(4) *Floodplain*. The term floodplain means an area bordering inland or coastal waters that was formed by sediment deposition from such water under present climatic conditions and is inundated during periods of moderate to high water flows.

(5) *Tributary*. The term tributary means a water physically characterized by the presence of a bed and banks and ordinary high water mark, as defined at 33 CFR 328.3(e), which contributes flow, either directly or through another water, to a water identified in paragraphs (s)(1) through (4) of this section. In addition, wetlands, lakes, and ponds are tributaries (even if they lack a bed and banks or ordinary high water mark) if they contribute flow, either directly or through another water to a water identified in paragraphs (s)(1) through (3) of this section. A water that otherwise qualifies as a tributary under this definition does not lose its status as a tributary if, for any length, there are one or more man-made breaks (such

as bridges, culverts, pipes, or dams), or one or more natural breaks (such as wetlands at the head of or along the run of a stream, debris piles, boulder fields, or a stream that flows underground) so long as a bed and banks and an ordinary high water mark can be identified upstream of the break. A tributary, including wetlands, can be a natural, man-altered, or man-made water and includes waters such as rivers, streams, lakes, ponds, impoundments, canals, and ditches not excluded in paragraph (t)(3) or (4) of this section.

(6) *Wetlands*. The term wetlands means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.

(7) *Significant nexus*. The term significant nexus means that a water, including wetlands, either alone or in combination with other similarly situated waters in the region (i.e., the watershed that drains to the nearest water identified in paragraphs (s)(1) through (3) of this section), significantly affects the chemical, physical, or biological integrity of a water identified in paragraphs (s)(1) through (3) of this section. For an effect to be significant, it must be more than speculative or insubstantial. Other waters, including wetlands, are similarly situated when they perform similar functions and are located sufficiently close together or sufficiently close to a “water of the United States” so that they can be evaluated as a single landscape unit with regard to their effect on the chemical, physical, or biological integrity of a water identified in paragraphs (s)(1) through (3) of this section.

ASCE Comments on EPA and USACE Rulemaking

Policy at the American Society of Civil Engineers is developed and driven by subject matter expert committees and approved by the Public Policy Committee and Board of Directors. Nearly fifteen years ago, the ASCE Committee on Environment, Energy and Water Policy (EEWPC) recognized the need to clarify federal jurisdiction over waters of the United States. The EEWPC developed a

policy that urges Congress to revisit the Clean Water Act and clarify what has become a complex and confusing area of law and fact. In 2012 EEWPC revised and readopted a policy to clarify jurisdiction over wetlands and in 2013 revised and readopted a policy on clarifying programs administered under the Clean Water Act.

In light of Congress not tackling this difficult task and decisions handed down by the Supreme Court, ASCE believes that the Environmental Protection Agency and Army Corps of Engineers have both the subject matter expertise and legal authority to carry out a rule making. ASCE supports the spirit of the rule, but does not consider it acceptable in current form. ASCE also supports the recommendations and findings of the Science Advisory Board (SAB), namely, that “the available science supports the conclusion that the types of water bodies identified as waters of the United States in the proposed rule exert strong influence on the physical, biological, and chemical integrity of downstream waters.”⁴ While we accept the science that all water is connected, the Society does not believe it was Congress’s intent - nor is the federal government’s prerogative - to exert jurisdiction over the nation’s water to the extent postured in the proposed rule.

ASCE urges the agencies to go back to the drawing board to clarify many of the proposed definitions, delineate jurisdiction over municipal separate storm sewer systems and recycled water use infrastructure, dedicating particular attention in the rule to special circumstances in arid regions of the country and consider the potential impacts to green infrastructure development.

⁴ See Letter to Administrator McCarthy re: Science Advisory Board (SAB) Consideration of the Adequacy of the Scientific and Technical Basis of the EPA’s proposed rule titled Definition of Waters of the United States Under the clean Water Act. (09/17/14).

ASCE National Wetlands Regulatory Policy

Approved by the Energy, Environment, and Water Policy Committee on January 10, 2013

Approved by the Public Policy Committee on March 19, 2013

Adopted by the Board of Direction on July 12, 2013

ASCE Policy Statement 378

First Approved in 1991

Policy

The American Society of Civil Engineers (ASCE) believes Congress must amend the Clean Water Act to clarify jurisdiction over wetlands, establish clearly where states must assume responsibility, and provide appropriate federal oversight.

ASCE recommends legislation that would:

- Maintain federal jurisdiction over all interstate and navigable waters, their tributaries, and all adjacent wetlands under the pre-2001 U. S. Army Corps of Engineers' (USACE) regulatory program under the Commerce Clause in the U.S. Constitution using an unambiguous test for significant nexus to navigable-in-fact waters;
- Clarify state jurisdiction under section 404 of the Clean Water Act over isolated, non-navigable intrastate waters and their adjacent wetlands, including vernal pools, playas, and prairie potholes, considering recent Supreme Court decisions and other jurisdiction based on environmental and wildlife considerations under regulations promulgated by the Department of the Interior or the Environmental Protection Agency (EPA); and
- Amend the Clean Water Act to clarify purely environmental federal jurisdiction over intermittent and ephemeral streams and their adjacent wetlands under section 404 to the USACE, in coordination with the EPA.

Issue

In the Rapanos decision, the controlling opinion of Justice Kennedy stated that “through regulations or adjudication, the USACE may choose to identify categories of tributaries that, due to their volume of flow (either annually or on

average), their proximity to navigable waters, or other relevant considerations, are significant enough that wetlands adjacent to them are likely, in the majority of cases, to perform important functions for an aquatic system incorporating navigable waters.”

Rationale

Clear jurisdictions for national wetlands regulations must emerge from the national legislative and policy-making bodies. A clear jurisdiction for national wetlands policy and criteria is needed to ensure that wetlands' issues are properly addressed in a timely and predictable manner during the project development process.

ASCE Policy Statement 378

First Approved in 1991

ASCE Policy on Clean Water Act Reauthorization

Approved by the Energy, Environment, and Water Policy Committee
on March 22, 2012

Approved by the Public Policy Committee on May 4, 2012

Adopted by the Board of Direction on July 12, 2012

Policy

The American Society of Civil Engineers (ASCE) encourages Congress to reauthorize the Clean Water Act to protect our nation's waters and the beneficial use of those waters. The reauthorized Clean Water Act should:

- Aggressively address non-point sources of pollution from watersheds and point-source pollution from sanitary sewer overflows, combined sewer overflows, and storm sewer discharges.
- Address regulatory and best-practices guidelines to ensure a sustainable, comprehensive, cross media, and holistic approach to the protection of the nation's waters.

- Allow sustainable watershed management approaches that integrate water quantity and quality.
- Utilize the latest tools to develop regulations that are scientifically grounded, cost-effective, site appropriate, and flexible in providing for the use of innovative practices in protecting the beneficial uses of the nation's water, and flexible enough to allow innovative practices and means to achieve these goals.
- Provide meaningful information to the public about water quality in their communities.
- Include sunset provisions in regulations to ensure that existing regulations are reviewed and revised periodically.

Congress should provide funding to implement the Clean Water Act on a consistent basis.

Issue

The Clean Water Act (P.L. 92-500) has not been reauthorized since 1987. Initially identified as the Federal Water Pollution Control Act Amendments of 1972, the act was significantly amended in 1977, 1981 and 1987. Funding authorizations for a number of provisions expired in 1990 and 1991; authorizations for wastewater treatment assistance (\$7.2 billion for 1989-1994) expired in 1994. Since then, the programs have been funded on an ad hoc yearly basis in competition with other national programs. Under this act, the nation has established an effective program of minimizing pollution from wastewater point sources. The prevention of non-point source pollution and prevention of pollution from stormwater point sources has been incorporated under the existing language of the Act. The connection between land use and potential adverse impacts on both surface and subsurface water quality from a water-quality and –quantity perspective needs to be recognized and addressed.

Water quality should be protected at the source through cooperative partnerships that utilize financial incentives or other market based mechanisms. Emphasis needs to be given to protecting water quality and habitat from adverse impacts of wet weather flows including non-point sources, stormwater, and

combined sewer overflows. This should be done in an integrated context that considers all the components of the hydrologic cycle within a watershed. There has been a perception in the past that the Act does not address flows. One of the findings in the National Academies of Science report *Urban Stormwater Management in the United States* (2008) is the need to integrate measures that include considerations of flow and quality to protect waters of the United States.

Greater scientific knowledge about the effects of nutrients and toxic contaminants on water quality and aquatic ecosystems, and the performance of current control measures, should be developed to support implementation of the Clean Water Act and provide guidance to watershed managers on appropriate management practices.

Rationale

Civil engineers are involved in pollution prevention through the analysis, design, and construction of wastewater facilities, wet weather systems and practices to protect the beneficial uses of the nation's waters. Wastewater treatment is now well established throughout the nation. Plants are becoming more complex in design and operation. There is a need for controlling other sources of point source pollution (e.g. stormwater wet weather systems, combined sewer overflows, sanitary sewer overflows, and stormwater discharges), and a much greater effort is needed to control non-point sources of pollution. Quantifying the effects of nutrients as well as toxic pollutants on water quality and ecosystems requires further research, as does research on the longevity and sustainability of our control measures. It is appropriate that the latest analytical tools, including watershed, groundwater, fate and transport, and toxicity models be employed. Watershed approaches to water quality management offers the best way to integrate management of diverse pollution sources with the wide range of water usages seen in the United States.

ASCE Policy Statement 420

First Approved in 1994

ASCE Comments on Definitions in the Proposed Rule

EPA and USACE propose definitions for a number of critical terms used in the proposed rule. We provide the following examples and comments of definitions that are too broad in scope, ambiguous or may require additional revisions.

Tributary: The proposed definition of tributary is too broadly defined. In the proposed rule a tributary is characterized by a bed, bank and ordinary high water mark which contributes flow directly or through other water bodies to a “water of the U.S.”⁵ The proposed rule states that a tributary does not lose its status if there are man-made breaks (such as bridges, culverts, pipes, dams) so long as a bed and can be identified up and downstream of the break. Importantly, a tributary can be a natural, man-altered, or man-made and includes rivers, streams, lakes, impoundment, canals and ditches (unless excluded). Our members have expressed concern that as written the rule may significantly impact municipalities who manage local streets. Taken to the extreme, the question has been posed: are rain gutters subject to jurisdiction? ASCE urges EPA and USACE to consider adding exemptions and clarifications to this definition.

Adjacent: The proposed rule replaces the existing definition “adjacent wetlands” with “adjacent waters”. ASCE’s primary concern with the proposed rule is that adjacent waters may be connected through “surface or shallow subsurface connections.”⁶ ASCE represents members from across the country who expressed concern that “shallow subsurface connections” can have vastly different meanings in a state with karst topography, like Florida to a state with much less permeable subsurface hydrologic features. We encourage EPA and ACE to consider clarifying the definition of “shallow subsurface connections”.

Riparian Areas and Floodplains: Civil engineers are responsible for constructing many features found in riparian areas and floodplains. Many of those larger features, such as dams and levees understandably require a §404 permit. Civil engineers are also responsible for flood plain mapping, levee design, stream

⁵ See Definition of “Waters of the United States” Under the Clean Water Act; Proposed Rule, 79 Fed. Reg. 22, 201.

⁶ Id. at 210.

restoration and a multitude of other engineering activities found in floodplains. We received feedback from engineers who work in these sectors who questioned the reach of floodplains. The proposed rule defines floodplains as: “an area bordering inland or coastal waters that was formed by sediment deposition from such water under present climatic conditions and is inundated during periods of moderate to high water flows.”⁷ We received feedback indicating this definition could extend to far reaches in the Mississippi River Basin and concerns that the term “floodplain” is not tied to the generally understood Federal Emergency Management Agency (FEMA) program that oversees the National Flood Insurance Program (NFIP) in floodplain areas. The rule states that jurisdictional determinations over the extent of floodplains will be decided by the “best professional judgment and experience” of agency staff. Our members urge consistency and transparency in this regard.

Uplands: One of our members presented a situation where an uplands conveyance ditch was constructed - wholly uplands - to remove treated effluent from a wastewater treatment facility, pursuant to a NPDES permit. The effluent creates a perennial flow. Is this ditch excluded from jurisdiction under the wastewater treatment exemption found at (b)(1)?

Perennial Flow: Our members expressed concern that the definition of “perennial flow” may apply to ditches in the arid West. Specifically, there is concern of jurisdictional reach to ditches dug wholly uplands with perennial standing water (but not perennially flowing) due to groundwater intersection/seepage, but which *only* flow into a jurisdictional tributary during rain events. Put another way there is a question about the jurisdiction of standing water, not perennially flowing, but only flowing after a storm event.

Another member inquired about dry weather urban runoff, such as over sprinkling. Is this type of runoff considered perennial flow?

Ordinary High Water Mark: While the definition of OHWM is relatively established in the proposed rule for naturalized streams we believe the definition

⁷ See Definition of “Waters of the United States” Under the Clean Water Act; Proposed Rule, 79 Fed. Reg. 22, 199.

is less clear for OHWM's found on concrete conveyances that may be considered jurisdictional. As we understand, staining is the primary indicator to determine the OHWM in concrete channels, however, our members provided examples of concrete conveyances that flow a few times a year, carrying only sheetflow, which do not leave stain lines. We urge EPA and USACE to revise the definition of OHWM as it relates to concrete conveyances.

Clarify Potential Jurisdiction Over Municipal Separate Storm Sewer Systems (MS4)

Nearly a third of the ASCE members surveyed on the proposed rule expressed significant concern about the potential impacts of the rule on managing Municipal Separate Storm Sewer Systems (MS4's). Nowhere in the proposed rule is the term "MS4" mentioned, yet the rule applies to all sections of the Clean Water Act including the NPDES program. The agencies must address the relationship between MS4 stormwater programs and jurisdiction over ditches. We recommend that the final rule either expressly exclude MS4's from jurisdiction under §(t) or provide additional guidance on their potential jurisdiction. Broadly read, the proposed rule MS4's could qualify as "waste treatment systems" under §(t)(1).

Many of our members manage MS4 systems. There is concern that if a MS4 becomes jurisdictional in addition to the current regulation under 402(p) that locations of outfalls, and therefore the point of regulation could change. MS4 permit holders would then not only be regulated at the point of discharge into a water of the US, but also when a pollutant initially enters the stormwater conveyance system. MS4 systems should continue to be regulated as point sources and not considered "waters of the U.S." since they cannot be both.

Clarify Potential Jurisdiction Over Man-Made Recycled Water Conveyance And Storage Features

Similarly, there are other man-made water conveyance and storage features, such as those used for recycled water management and use, which should be

expressly excluded from CWA jurisdiction. There are instances of recycled water conveyance or storage occurring in natural or previously natural waterbodies that understandably may not warrant exemption. Therefore, the use of “dedicated” and “man-made” in an exemption could provide distinction and clarification. There are instances where recycled water is impounded or conveyed in dedicated man-made facilities that have a bed, bank, and OHWM and contribute flow to waters of the U.S. or meet the proposed rule’s definition of “adjacent” to jurisdictional waters. However, these features these should be expressly exempted from the definition of “waters of the U.S.” Otherwise, the intended uses of these features for which they were built would be severely hindered or possibly abandoned.

Potential Impacts of the Rule on Encouraging Green Infrastructure

Civil engineers build both traditional hard or “grey” infrastructure such as dams and levees, but also actively work to incorporate natural systems into designs. Often times, nature is the best engineer. For the reason, the Society supports the development of “green infrastructure”. Many municipalities are now looking to manage stormwater with the use of bioswales, artificial wetlands, low impact development stormwater treatment systems, green alleys and streets and rain gardens. Green infrastructure uses vegetation, soils and natural processes to manage water and create healthier urban environments. Often these systems are often designed to hold water as it permeates into the soil. There are significant concerns that this holding function could trigger jurisdiction under the proposed rule. It’s also unclear whether a §404 permit will be required for maintenance activities on green infrastructure projects.

ASCE Recommends Improvement to the Economic Analysis

Simply stated, the Economic Analysis provided by EPA and USACE does not sufficiently address the potential economic impacts on MS4’s. In fact the Economic Analysis explicitly states that the agencies do not know what the

economic impact is: “It is unclear specifically how a broader assertion of CWA jurisdiction under this proposed rule would affect MS4 permits.”⁸

Considering the proposed rule affects all sections of the Clean Water Act, and the potential impact on municipalities operating MS4’s is significant, we urge EPA and USACE to revise the Economic Analysis and take a hard look at the costs on MS4 operators.

ASCE Supports Protecting Wetlands

Wetlands provide multiple benefits to the public including flood protection, water filtration and supporting biodiversity. As civil engineers, our goal is to enhance infrastructure and environmental stewardship to protect the public health and safety and improve the quality of life. A primary responsibility of civil engineers is to design and construct dams and levees to control potential flooding. Water affected by the proposed rule provides benefits by storing water and slowing down its movement across the landscape. When natural hydrologic systems no longer perform these functions, potential losses from flooding increase.

Conclusion

ASCE recognizes the issue of federal water regulation is not easy. The engineers we represent work daily to ensure our nation’s infrastructure is safe and reliable, while also serving as stewards of the environment. We applaud EPA and USACE for the time, expertise and effort dedicated to this rule making. However, we encourage the agencies to take a hard look at the proposed rule and associated definitions and provide further clarity. Finally, the agencies must address the absence of MS4 impacts in the proposed rule and consider the unintended consequences of the rule on promoting green infrastructure.

⁸ *Economic Analysis of the Proposed Revised Definition of Waters of the United States*. U.S. Environmental Protection Agency, March 2014, pg. 26.