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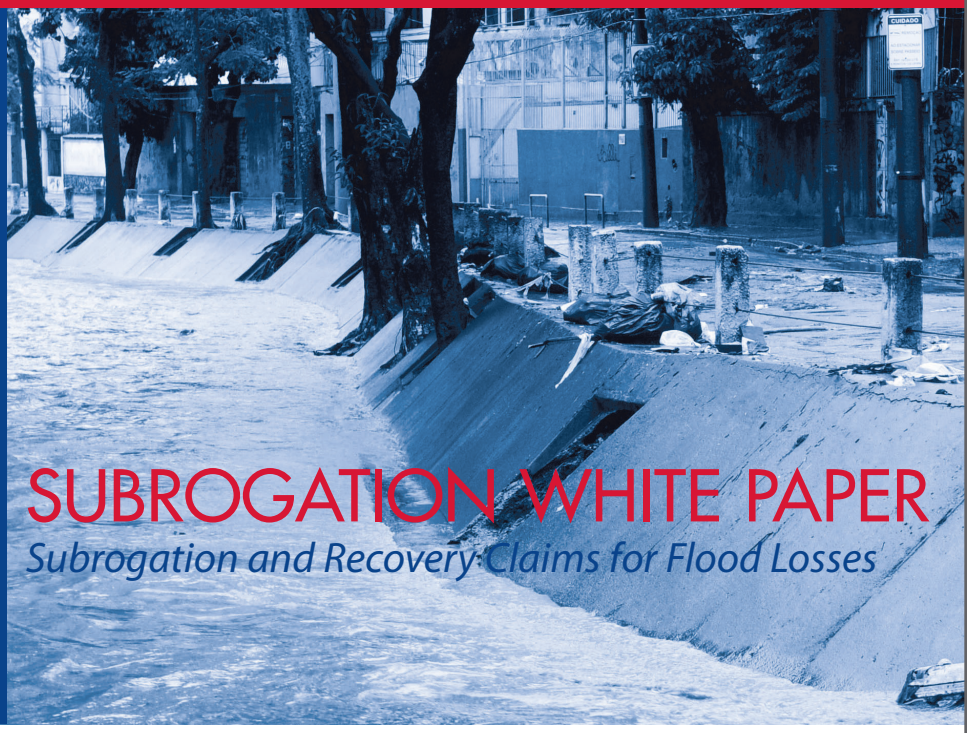

SUBROGATION WHITE PAPER

Subrogation and Recovery Claims for Flood Losses

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INTRODUCTION

A flood caused by an act of God can neither be planned for nor prevented. But a flood caused *or contributed to* by an act of negligence, even if the negligence simply exacerbated the flooding, may present a recovery opportunity. To those skeptics who say that recoveries cannot be made on flood claims, we offer the Hurricane Katrina litigation in the U.S. District Court for the Eastern District of Louisiana as proof that recoveries are possible: the Army Corps of Engineers (ACOE) was held responsible for failing to maintain and operate properly a navigation channel (MRGO). The failure was found by the Court to have been a substantial cause of the failure of the Reach 2 levee which contributed to the flooding of the plaintiffs' properties. The question was not whether the defendant caused the flood, but rather whether the defendant's negligence contributed to the damage to the plaintiff's property. The Act of God defense has limitations.

It seems as though we are seeing more floods and flood claims. According to the National Wildlife Federation, global warming is partly to blame for these heavy rainfall events. Because warmer air can hold more moisture, heavier precipitation is expected in the future. In the Midwest and Northeast, storms that historically would be seen only once every 20 years are projected to happen as often as every four to six years by the end of the 21st century. At the same time, shifts in snowfall patterns, the onset of spring, and river-ice melting all may exacerbate flooding risks.

Floods are a common cause of property damage in the United States. Since the year 2000 the National Flood Insurance Program has paid out over $25 billion in claims, and claims are expected to grow in size and number. While flood claims present challenges for all insurance professionals, they also present recovery opportunities. Some simple, commonsense guidelines will enhance recovery potential for flood subrogation claims.

The initial investigation is important. The adjuster may need the help of an expert such as a hydrologist. Making the investigation investment is an important step in identifying and understanding the design criteria for waterways and surrounding structures, and in determining if these designs were adequate. Stream gauges, rain gauges, flood maps, and a variety of other resources are available and necessary to understand floods and their causes. Much of this information is available on the Internet.

The Internet is an excellent source of free, accurate and timely information about floods. There are numerous websites such as the Army Corps of Engineers (www.nap.usace.army.mil), FEMA (www.fema.gov), U.S. Geologic Survey (water.usgs.gov), local water authorities and YouTube (www.youtube.com) which chronicle and evaluate floods and their causes. The National Oceanic and Atmospheric Administration maintains two services: the National Weather Service; and the National Environmental Satellite, Data, and Information Service (NESDIS); both have a wealth of weather related information which is useful in evaluating flood related claims against either public or private entities. The National Weather Service data is available at www.weather.gov, and the NESDIS's National Climatic Data Center is available at www.ncdc.noaa.gov.

As a practical matter it is important to identify the source of the flooding and whether it was caused by a restriction or obstruction in a waterway causing a water backup (a downstream problem) or excess water supply causing increased water flow (an upstream problem). Responsibility may rest with local governments and governmental entities which are obligated to upkeep and maintain waterways and appurtenant structures. All states have statutes governing immunity, recovery caps, notice requirements and statutes of limitations for these claims. These statutes easily can compromise an otherwise viable recovery claim and therefore must be carefully considered.

INVESTIGATION

With regard to the recovery aspects of a flood claim, an adjuster's first responsibility is to evaluate the viability of the flood recovery case through the available information and determine if an engineer and/or lawyer should be involved. Was the flood caused solely by an act of God, thereby foreclosing recovery or was some or all of the flood damage caused or contributed to by the negligence of some person or entity? Was the storm foreseeable, and could it have been planned for or (the results) prevented, or was it impossible to predict, plan for, or prevent?

While a determination in this regard may be difficult, some things to look for are: a difference between the rainfall and the rise in the water level or stream flow; flooding which seems to be out of proportion to the rainfall; flooding in one area and not in another that received similar rainfall; and obstructions in the waterway. Typically, media reports exaggerate rainfall data. Headlines claim that a storm was the largest storm ever recorded. Only a careful scientific evaluation of the rainfall and stream flow data can determine if the damage was the result of rainfall or the combined effects of rainfall and bad planning. If the flood causes significant damage to insured property, there is little downside in involving an engineer or other recovery professional.

As with other recovery cases, time is critical because evidence and opportunity can be lost if decisions are not made promptly. The best time to measure the water and its effects is during or shortly after the storm and flood. Witness recollections regarding the details of the flood fade over time, and the sequence and timing of events can be important. For example, when did the water reach a certain level, when did a particular structure fail, what time was it when a particular event occurred, and what was the sequence of events leading up to a failure or collapse? These factors can be important evidence of the cause of floods and failures. The rainfall and stream flow data can be gathered later as it is compiled and archived in various databases such as FEMA and the National Weather Service, but prompt on-the-scene investigation can provide valuable factual details that can help prove a case years later.

Flood cases present challenges not found in the typical property loss case. Many times, the causes and effects of the flood loss are difficult to determine and understand, and the science involved may be novel and complicated. It is easy to attribute flood damage to excess rain but often floods are caused by subtle problems with bridges, streambed maintenance, or in changes in upstream land use. Catastrophic property damage can be the result of an inch of water in the wrong place at the wrong time; reaching a hospital's technical center, or a computer data center for a manufacturing facility.

There may be several distinct engineering disciplines requested to conduct a flood investigation. Bearing in mind the Daubert[1] case in federal court and its various state permutations, the selection of an expert is an important step. Most important is the hydrologist. A hydrologist is trained in evaluating the movement, distribution, and quality of water throughout the earth. For our purposes, a hydrologist can calculate, measure, and evaluate rainfall and stream flows, in order to determine the size and intensity of storms and their contribution to floods. Hydrologists understand and can use sophisticated computer programs and models (*e.g.* HEC-RAS, National Streamflow Statistics (NSS), TUFLOW©, Soil and Water Assesment Tool (SWAT) and others) to predict stream flow and water elevations based upon one or more variables. They can calculate peak water discharges (water volume) gauged and ungaged, and determine watershed flood flows by analyzing precipitation runoff.

Hydrologists also interpret and extrapolate data. Often information is needed about specific locations on a stream or river which may not have rain or stream gauges. The hydrologist can evaluate data from nearby gauges and predict what the levels would be in the area of interest. This process of spatial or linear interpolation[2] compares, for example, rainfall data for numerous gauged locations adjacent to an ungauged area and allows the hydrologist to offer an opinion as to the rainfall in the ungauged area of interest. The hydrologist can verify the rainfall prediction by comparing the gauged rainfall data to gauged stream data (rainfall and stream flow should correlate) and offer an opinion as to the rainfall and stream flow in the area of interest through the process of interpolation. These calculations and opinions are based upon accepted scientific principals and theories and should be admissible in court.

The hydrologist also can test different variables in channel configurations, including channel width and depth and bottom surfaces, to evaluate stream bed maintenance. It also is necessary to consider the addition or removal of obstructions such as bridges, highways, or utility conveyances to determine their impact on water flow and elevation. The engineer must be experienced, well qualified, and able to evaluate and explain complicated topics in

1 In an effort to eliminate speculative expert testimony from the courtroom based on "junk science," the U.S. Supreme Court has established a "gate keeping" role for the trial court judge with regard to the admissibility of expert testimony. Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 589 (1993). Under Daubert and Federal Rules of Evidence 702 and 703, the trial judge must preliminarily assess the reasoning or methodology underlying the proposed expert testimony to test both its scientific validity and whether such testimony can be applied to the facts at issue.

2 Linear interpolation is a simple technique used to estimate unknown values that lie between known values. Also, see the Cressman and Weaver analyses. International Research Institute for Climate and Society website.

an easy to understand way. It is best if the expert deals with these complicated issues on a routine basis. An effective hydrologist can describe in vivid but concise detail what caused the water to enter the specific property and how changes (sometimes minor) in a stream bed or watershed could have prevented the damage.

This process is based upon accepted mathematical models, formulas, and computer programs that have stood the test of time and are widely accepted in the scientific community.[3] Examples include the U.S. Soil Conservation Service (SCS) empirical mathematical model for calculating effective rainfall,[4] and the SCS calculation referred to as TR55, which is a "simplified" procedure to calculate storm runoff value, peak rate of discharge, hydrographs, and storage volumes required for floodwater reservoirs. The TR55 uses SCS's runoff equation to predict runoff rates. These accepted scientific formulas, many of which were developed by government agencies, are routinely referred to in learned engineering treatises and are basic course work in all engineering schools. The defense will no doubt feature prominently pictures and video of rushing water and inundated schools and churches suggesting that the storm was an act of God. The hydrologist, in the proper case, can explain the nuances of the flood and the role of the defendant played in causing it.

Other scientific disciplines may be implicated in flood litigation. While the hydrologist is undoubtedly the team captain, other important players might include a meteorologist who can testify about weather patterns and rainfall levels; a surveyor who can verify site lines, elevations, and verify the water elevations taken in the field by the hydrologist; and a municipal liability expert who is knowledgeable about the standards for maintenance of creeks and streams. In other cases, experts with specific areas of expertise might be retained such as civil engineers for dam and obstruction cases, and a zoning expert in cases involving over-development of the watershed. Geotechnical engineers may be called upon to testify regarding dams, levees, and earth movement. Often we utilize models and animations in trials of these cases requiring technologists. Our task is to coordinate all of these specialties and develop and present a coherent and concise case.

DETERMINING THE SOURCE OF WATER

The threshold determination is to understand the source of the flood water at the particular property. This may seem straightforward and obvious but many floods have multiple sources and multiple causes. *The focus must be on the insured property and the source of the water that damaged it.* Did the water come from a nearby creek, stream, or river? Did it originate at an overflowing sewer system, municipal water supply, or a broken water main? Does the municipality have a combined sanitary/storm drain system that contributed to the flooding? Was the flood the result of too much rain in the storm system resulting in an overflow and/or backup? Did a local water authority (or the Army Corps of Engineers) release water from a retention pond, catch basis, or reservoir? Did a dam leak or break, or was it intentionally relieved? Did a land developer neglect to install proper water retention facilities, causing excess water to run-off land adjacent to a water way? There are hundreds of similar questions that need to be raised for every flood loss.

In addition to on the scene observations of water level, depth, and flow, resolution of issues like these usually involves utilization of complicated data bases such as those found on the U.S. Geologic Survey or the FEMA websites. Rainfall and stream flow data, although easy to obtain, can be difficult to understand and interpret. The analysis often involves the utilization of hydrologic formulas and computer models best left to the engineering expert. The HEC-RAS model developed by the Army Corps of Engineers is essential in evaluating floods. While it is available free of charge on the ACOE website it is designed for engineers.

DETERMINING THE CAUSE OF FLOODING

To a property owner with six inches of water in his property, the difference between a 500 year flood and a 1,000 year flood is academic. The owner wishes that either his building was six inches higher or the water was six inches lower. If the property happens to be a bank or a hospital or a data center with advanced computers, servers, and

3 For example Manning's coefficient is used to calculate the effects of different "roughness" creek bottoms as part of Manning's formula which is used to calculate velocity flow of water in an open channel.
4 $Q(t)=(P(t)-Ia)2/(P(t)+S-Ia)$

other high tech equipment on the first floor, the difference in not just six inches but potentially millions of dollars in equipment and business losses. Even if the flood is a 1,000 year flood, if it is proven that the defendant's negligence caused the flood to be six inches higher, our clients may recover for some of the damage caused by the flood event.

Once the source of the water is identified, the cause can be evaluated. Was there a waterway restriction (downstream problem) or excess water supply (upstream problem)? Restrictions can be caused by blockage of the waterway, a lack of waterway maintenance resulting in an inability of the channel to carry water, poor design of bridges or roadways, or waterway construction resulting in a blocked or restricted channel. Anything that impedes the flow of water can contribute to flooding conditions upstream of the restriction.

Sometimes the restrictions are obvious; trees growing in streambeds or channels filled with sediment, impeding water flow. Other times the restrictions are less apparent; for example the failure to maintain stream beds to pre-designed and agreed upon dimensions, or the failure to install catch basins or retention ponds on adjoining land, causing erosion and flooding conditions. There are cases in which the negligence of adjoining property owners causes bridges to collapse into dam streams, resulting in flooding. Stream bed maintenance claims are complicated and require careful analysis and expert involvement.

Maintenance of streambeds may be the responsibility of the local municipality or water authority. To establish a lack of maintenance, it is necessary to establish the level of maintenance which the municipality or agency agreed to undertake, and to establish the standard of care to which the municipality will be held. The municipal liability expert can testify regarding the applicable standard. For example, the municipality may agree to maintain a specific channel width and depth that have been configured by a third party, such as a civil engineer or the Army Corps of Engineers. Sometimes these plans are designed to a particular return period: 50, 100, or 500 year flood. The plans might call for maintenance of the waterway so that it can handle water from a particular storm (a 100 or 500 year storm, for example). Once we establish a standard, our hydrologist can evaluate the condition of the stream bed at the time of the flood and determine if the stream was properly maintained before the flood.

The hydrologist will need to inspect the streambed (ideally, shortly after the flood) to evaluate the conditions of the channel, including the dimensions, the roughness of the channel (see footnote 2, i.e. is there vegetation, sediment, scour, etc.), and the banks of the channel to determine the slope, height, and general condition. The hydrologist then will be able to prepare mathematical models of the stream using various digital tools including the ACOE software HEC-RAS (http://www.hec.usace.army.mil/software/hec-ras). HEC-RAS is a universal engineering tool which is used in virtually every marine design and evaluation project. All competent hydrologists are knowledgeable in the nuances of this software and can use it to evaluate channel design and existing conditions.

For our purposes, HEC-RAS and other modeling programs are utilized to sample and test alternative conditions and determine how they affect water flow and elevation. For example, the engineer can manipulate the configuration of the channel (width, depth, roughness, bank slope, etc.) to determine how a change in variables affects the water level at the insured property. He can determine if the channel was maintained properly, and if not, demonstrate how the lack of maintenance affected the water level at the insured property. The hydrologist can prepare a computer model of the channel as it was found after the flood and graphically demonstrate how the flood occurred. He can overlay the dimensions of the channel as it was supposed to have been maintained, and then illustrate how proper maintenance would have changed the water elevation at the insured property. We have used these tools to successfully demonstrate, even in 500 year storms, how a lack of maintenance caused the flood waters to be several inches higher at an insured property causing significant damage.

The hydrologist also can use historic data to evaluate floods. FEMA prepares Flood Insurance Studies (FIS). These are typically completed in conjunction with FEMA's Flood Insurance Rate Maps (FIRMs) for the National Flood Insurance Program. According to FEMA, the FIS is "a book that contains information regarding flooding in a community and is developed in conjunction with the Flood Insurance Rate Map (FIRM). The FIS, also known as a flood elevation study, frequently contains a narrative of the flood history of a community and discusses the engineering methods used to develop the FIRMs. The study also contains flood profiles for studied flooding sources and can be used to determine Base Flood Elevations for some areas." The hydrologist can obtain the FIS for the areas in which we are interested.

Based upon the FIS, the hydrologist will have information regarding the expected water levels and stream flows for various return periods (50, 100, or 500 year floods). The FIS will typically indicate how high the water will be and how much water would flow for a particular flood. He can gather actual field information about a flood of interest, such as water levels, stream flow rates and compare them to the information in the FIS to make an independent determination regarding the return period for the flood of interest. If there is no specific information available for the flood of interest in a particular area, he can interpolate data from nearby stream gauges and then compare this to the FIS data.

For example, if we know that a property was flooded by water from a particular stream and the hydrologist hypothesizes that the cause was lack of maintenance in a particular area of the stream, he can gather historic information about that area from an FIS. He knows what the water elevation and flow will be for particular types of floods. He then can determine, based upon his field measurements of the water levels at the time of the flood, if it was a 100 year or 500 year flood. He also can use his computer models to calculate the stream flow given the water levels (there is a correlation between water level and stream flow) at a particular location and also can calculate what the levels and flow would have been if the channel was maintained differently. He then is able to opine how the change in water level resulting from different creek maintenance would have affected water levels at the insured property, or how a different channel width, depth or roughness would have changed the water level at the insured property.

Then the idea of the return period, whether it is a 100 or a 500 or a 1,000 year flood, becomes academic. The significant fact is the water level at the insured property. In this way, we are able to prove the relationship between channel geometry and maintenance, on the one hand, and water level at a given location, on the other. We also can compare the conditions found with the conditions that were supposed to have been maintained. Often the maintenance plan will call for fulfilling certain hydraulic specifications such as passing a specified maximum amount of water of a certain water level. The hydrologist is likewise able to calculate the effect that other obstructions have had on elevation and flow.

Often during litigation, we obtain information regarding specific flooding and drainage problems. Sometimes we obtain specific maintenance plans and reports outlining problems and proposed solutions. These can include acknowledgements that particular areas and even specific properties are prone to flooding, and proposed plans to remediate the flood risks. It is not unusual for a municipality to conduct post-flood evaluations regarding the causes of the flooding with in-depth historical references to prior floods and remediation efforts. We have seen cases where the municipality even presented a self evaluation at a public meeting which was video taped and published on the municipal site. All of this corroborates and substantiates the work of our retained experts and helps us prove our case.

Streambeds are supervised by state, local, and federal authorities to ensure that they are properly maintained and that alterations and construction are carefully monitored. When structures are being built in and around waterways, various state, local, and federal requirements are implicated. Often the ACOE will be involved in the permitting, design, and planning stages. This process is important in evaluating flood liability in the event that permits were not obtained or the permitting requirements were not complied with. This can be evidence of negligence in claims against permit holders, developers, or governing agencies. Typically stream obstructions (bridges, highway abutments, railroad trestles, and utility crossings) are designed to the 100 year recurrence interval or return period (100 year storm) standard. If the obstruction causes or contributes to a flood then it either was not designed properly or the storm/water flow exceeded the design specifications.

According to the U.S. Geologic Survey, a recurrence interval or return period is the statistical probability of the occurrence of a given precipitation event or a particular flow of water in a stream. These evaluations are based upon a “frequency analysis” of historical data. Based upon this data a 100 year storm is a storm which drops rain at a particular location in a particular time period for which there is a 1 percent chance. A 50 year storm drops rain that has a 2 percent chance, and so on. A hydrologist can provide details on specific geographic areas and their expected return periods. For example a hydrologist can offer an opinion as to how much rainfall in a given area in a given time period would be calculated as a 100 year storm. Likewise, the hydrologist can determine how much water would be expected to flow through a given stream as a 100 year stream flow, and how high a 100 year flood would be in a given area. Used in conjunction with the ACOE HEC-RAS computer model, a hydrologist can offer an

opinion as to whether a particular storm should have caused a particular geographic location to flood, and can offer opinions regarding additional causes of flooding.

The significance of the return or recurrence period concept is that most construction is based upon the 100 year return period. If a storm is less than a 100 year storm and still floods then either the storm calculations are inaccurate, or the particular area flooded because of improper design, construction, or maintenance. Floods and stream flows also can be analyzed using a frequency analysis in the same way. The 100 year storm is a statistical device used to assist in design and construction projects and as a way to classify storms and floods so that they can be compared to other storms. It is important to understand the design criteria used and to determine if a particular storm or flood exceeded the design. If a storm did exceed the standard, then a claim against the owner, designer, or other contractors will be complicated. If the storm did not exceed the parameters, and there still was a flood or failure, there may be a solid basis to pursue a recovery claim.

Excess supply can be as simple as a historic rainstorm that overwhelmed all the systems. Or excess supply can be the result of upstream development such as box store parking lots, apartment buildings, or other institutional development that alters local drainage patterns. Typically a combination of factors, including historic rainfalls and negligent construction and maintenance, contribute to flooding. The development of the upstream watershed is usually carefully monitored by the local zoning authorities. Even small changes in the watershed can have an impact on the amount and intensity of storm water runoff. Replacing soil, grass, and brush with impermeable asphalt, blacktop, buildings, parking lots, and swimming pools changes the drainage characteristics of the watershed. Such development must be monitored and controlled, with corresponding changes in the watershed. The enlightened view is that storm water runoff is an asset, a natural resource that has to be managed rather than a problem to be avoided. (See Pennsylvania's Water Management Plan).

In Pennsylvania, for example, the Stormwater Management Act was intended to address this issue. While Pennsylvania's zoning requirements are a hodgepodge, largely left to local governments, the Stormwater Management Act makes it clear that the watershed must be managed on an intergovernmental basis with cooperation from the state, federal, and local governments. Against this backdrop, the hydrologist will identify and evaluate the watershed to determine if storm water runoff contributed to the insured's flooding. If so, then he will evaluate watershed development to identify specific violations of the local ordinance or zoning laws. If violations are identified there may be claims against the landowner, developer, and their design and construction professionals for zoning violations and against the local zoning authority for failing to properly regulate the development of the watershed. Watershed surcharges can also result from agricultural uses such as damming fields. If watershed excess is suspected, the entire watershed must be evaluated to identify potential contributors. These are difficult cases to develop and litigate but they should be considered, even if only in anticipation of the "overdeveloped watershed" defense being used as an alternative explanation for the flood.

We also have seen cases where upstream dams and reservoirs were relieved, leaked, or broke and contributed to downstream flooding. The hydrologist will routinely consider excess upstream supply as an alternative in the appropriate case. He can, for example, evaluate rainfall upstream and downstream of a dam or reservoir to determine unusual stream flow patterns. If the rainfall is the same on both sides of the dam or reservoir but the stream flow is significantly greater on the downstream side then there is reason to suspect a release. Typically these facilities are owned or operated by local utilities, authorities, or municipalities. Information about water releases is routinely published.[5] As with the watershed cases, dam and reservoir release cases are difficult because of immunity issues. Typically the facility is relieved to prevent more serious problems such as a break or leak.

If the dam or reservoir breaks or leaks, there also may be claims for negligent maintenance of the facility.

POTENTIALLY RESPONSIBLE PARTIES

Potentially responsible parties include *municipalities* or other *government agencies* that are responsible for maintenance of waterways, flood plains, watersheds,6 or water storage facilities. A confluence of federal, state,

5 For example, see the Providence (RI) Water Supply Board (www.provwater.com) which owns and operates the Scituate Reservoir and dam. This website also provides information about watershed use and regulation.
6 According to the EPA, a watershed is the area of land where all of the water that is under it or drains off of it goes to the same place.

and local laws regulate water policy including watershed development and storm water management.[7] In recognition of the need for a comprehensive integrated water policy, the trend is to marshal various governmental assets in an effort to pool resources and oversight responsibilities. The Pennsylvania State Water Plan is an example (http://www.pawaterplan.dep.state.pa.us). This plan coordinates all aspects of water policy in Pennsylvania and is relevant to a discussion of flood claims because it identifies potentially responsible parties and discusses many of the flood risks we are considering.

The report acknowledges that "Local government plays a dominant role in both floodplain and storm water management," and "[certain]… municipalities must adopt such floodplain management ordinances as are necessary to comply with the National Flood Insurance Program." The municipality is empowered to regulate land use activities that affect runoff and storm water impact by the authority of the Act of October 4, 1978, P.L. 864 (Act 167) as amended, the "Stormwater Management Act," 32 P.S. § 680.1 et seq., provisions of the Pennsylvania Clean Streams Law 35 P.S. § 691.1 et seq., Pennsylvania Sewage Facilities Act, 35 P.S. §750.1 et seq., Pennsylvania Municipalities Planning Code 53 P.S. §10101 et seq. and generally by the provisions of the Second Class Township Code, 53 P.S. § 65101 et seq. In most states, municipalities similarly are responsible for storm water and floodplain management. Such responsibility includes ensuring that waterways are properly contoured and maintained. Once undertaken, the failure to maintain these facilities properly may result in legal liability.

Other potentially responsible parties include *contractors* who negligently develop land or buildings in the floodplain, waterway, or watershed; *engineers* who may have contributed to the negligent design or maintenance of a waterway, waterway obstruction (such as a bridge),[8] or watershed development; railroads which might have taken part in negligently designing, constructing, or maintaining a bridge or other structure which might have obstructed a waterway or floodplain;[9] and *highway departments* that negligently designed highways, highway ramps, highway bridges, or highway support structures that obstructed waterways or adversely impacted watersheds.

The *Army Corps of Engineers* participates in one way or another in most major water projects in the United States. Claims against the ACOE may be difficult, since the ACOE often is protected by immunity. Section 3 of the Flood Control Act of 1928, 33 U.S.C. § 702c, immunizes the United States and its agencies from liability for any damage resulting from river floodwaters or the operation of a flood control project. The Federal Tort Claims Act also offers the federal government protection. The discretionary function exception to the Federal Tort Claims Act (FTCA) (28 U.S.C. § 2680(a)) precludes the courts from exercising subject matter jurisdiction over most flood claims. The Mississippi Flood Control Act of 1928. See 33 U.S.C. § 702c provides in relevant part that "[n]o liability of any kind shall attach to or rest upon the United States for any damage from or by floods or flood waters at any place." Id. Although the Act pertains to flood control along the Mississippi River, its grant of immunity extends to all federal flood control projects nationwide.

In the Katrina litigation, U.S. District Judge Stanwood Duval held that the ACOE was not immune from claims that it failed to properly maintain and operate a navigation channel (MRGO) which was not a flood control project. It was a cause of the failure of the levee. The opinion (http://www.laed.uscourts.gov/CanalCases/Orders/19415.pdf.) discusses in detail federal immunity, expert testimony, and many theories of flood liability and is recommended reading for anyone involved in flood litigation.

KATRINA LITIGATION

Hurricane Katrina was the costliest, most destructive, and one of the deadliest hurricanes in the history of the United States. The details of Katrina are almost legendary; 1,836 dead, Category 5 storm, sustained winds of 175

7 For example, see the Federal Clean Water Act, 33 U.S.C. 1251 et seq, the Pennsylvania Clean Streams Law, 35 P.S. S.691.1.et.seq. the Pennsylvania Stormwater Management Act, 32 P.S. S. 680.1 et.seq.

8 Obstructions such as bridges may be subject to a state's statue of repose limiting the time period in which a claim can be brought against a design professional.

9 Contractors, including engineers and private companies such as railroads, may be immune from suit pursuant to the government contractors defense. This defense extends governmental immunity to private entities in privity with a government entity. Boyle v. United Techs. Corp., 487 U.S. 500 (1988)

mph, eight to 10 inches of rain in the eastern part of Louisiana with the highest rainfall approximately 15 inches, storm tide in excess of 14 feet and a storm surge recorded at 12 feet. In some neighborhoods of New Orleans, 81 percent of the housing units were destroyed. And yet, U.S. District Judge Judge Stanwood Duval found the Army Corps of Engineers responsible for the negligent maintenance and operation of a shipping channel which contributed to the breach of the Reach 2 levee and thus to the disaster in New Orleans.

In Katrina, as in many cases, in the final analysis the severity of the storm has little bearing on the liability of the defendant. It is obviously a concern and a graphic problem that has to be dealt with but the focus has to be on the specifics of the claim rather than the weather event. The focus in Katrina is on the channel design and the ACOE's agreement to maintain and operate the channel per that design. The court held that the ACOE was not responsible for claims that the channel was negligently designed and constructed but only for negligent maintenance and operation. These are subtle but very important distinctions.

PROBLEMS

Most states have ***statutes of repose*** that protect design professionals and contractors. Statutes of repose are different than statutes of limitations. Statutes of repose act as an absolute bar to claims after a certain period of time. The time starts to run typically when the project is "substantially completed." Statutes of repose can expire even before a property loss occurs.

A typical example of a statute of repose is found in the Washington, D.C., Code, D.C. Code Ann. S. 12-310 which provides in substantial part that any action for property damage arising out of a defective or unsafe improvement to real property is barred if the action is not brought within 10 years of substantial completion of the improvement. In the flood litigation context, a statute of repose can apply to bridges, highway construction, watershed improvements, dams, dikes, and other structures. The statute of repose limits a plaintiff's ability to bring claims against design and construction professionals for loses that result from defects in design and construction that was completed, in the case of D.C., 10 years prior to the event.

Many states require that a plaintiff file a ***notice of claim*** as a prerequisite to filing a lawsuit. For example New York's General Municipal Law 50-e (S.50-e, subd 1, par[a]) requires that a notice of claim be filed, in any case founded upon tort against a public corporation, within 90 days after the claim arises. The statute specifies the form and content of the notice and the individual upon whom it is to be served. Indiana Code 34-13-3-6, 8 and 9 provides that notice of claims against the state must be filed with the attorney general or the state agency involved within 270 days after the loss occurs. Minnesota requires that a notice of claim be served within 180 days of the event. See: Minn. Stat. S. 3.736 (5) and Minn. Stat. S. 466.05(1). As in New York there are form, content, and service requirements. Not all states have such specific notice requirements but in those that do, the claim can be barred for failure to comply.

Some states have unique ***statutes of limitation*** for claims against governmental entities. New York's General Municipal Law 50-i requires that a notice of claim be filed, that 30 days from the filing of the notice elapse, that payment has been "neglected or refused," and the action be commenced within *one year and 90 days* of the happening of the event. The New York statute of limitations for tort claims against non-governmental entities is three years. While Indiana does not have a separate statute of limitations for claims against government entities, the notice statute requires that 90 days pass from the time notice of claim is given. In Indiana, lawsuits cannot be filed before filing a notice of claim. If a plaintiff files the notice of claim within 90 of the running of the statute of limitations the statute could expire before the running of the 90 day notice period.

Some states have ***liability caps*** for claims against states or state entities. Many consider the cap to be a quid pro quo for the waiver of immunity. For example, Indiana Code 34-13-3-4 limits claims for injury to or death of one person to $700,000 for claims that accrue after January 1, 2008. This statute only applies to claims for injury or death of a person and not to property damage claims. For claims arising after July 1, 2009, Minnesota limits liability to $500,000. Rhode Island limits damages for claims against the state or any political subdivision thereof to $100,000 for "any tort action," but the limitation does not apply if the state was acting in a *proprietary function*.

R.I.G.L.9-31-2, 2.1.[10] There are questions regarding the applicability of the caps to property damage cases. Most states have some cap on state and municipal liability. It is important to evaluate the applicability of the caps to the flood claim before too much time and money are spent on the investigation.

Some states, as part of tort reform initiatives, have adopted ***certificate of merit*** statutes. (See the American Institute of Architects Certificate of Merit State Statute Compendium at http://www.aia.org/aiaucmp/groups/aia/documents/pdf/aias078840.pdf). These statutes require that a plaintiff who intends to sue a professional (architect, engineer, accountant, lawyer, or doctor) for negligence have the proposed claim peer reviewed by a professional in the same field to verify that the claim is meritorious.[11] Some statutes require an expert report or affidavit (Arizona Rev. Stat. 12.2601, Texas; Tex. Civ. Pra. 150.001). Others require that the attorney certify that the case is meritorious (California; Cal. Civ. Proc. 411.35, Pennsylvania; Pa. R. Civ. Pro. 1042.1). The timing and content of these filings differ state to state. Some states have even enacted legislation requiring a plaintiff to file the claim with a screening panel before filing in court, though the constitutionality of such legislation is questionable. These statutes apply to professional negligence flood claims against design professionals. Non-compliance could lead to dismissal of plaintiff's lawsuit.

Many of these defenses are part of a state's ***sovereign immunity*** scheme. Sovereign immunity is typically codified in one or more statutes commonly known as Tort Claims Acts (eg. North Carolina's State Tort Claims Act N.C.G.S 143-291, Kansas Tort Claims Act KSA 12 -105a, California Tort Claims Act, Gov. Code 814). Immunity statutes evolved from the idea that the state cannot commit a legal wrong and is therefore immune from suit.

Like most states, the U.S. government has immunity unless it is waived. There is a limited waiver in the ***Federal Tort Claims Act*** (FTCA), 28 U.S.C. 1346(b) (for a good discussion of the FTCA see the Katrina Opinion starting at page 90). The FTCA allows private parties to sue the United States in federal court for torts committed by persons acting on behalf of the government. It is limited because it does not allow claims for discretionary functions or other specified conduct. (See section 28 U.S.C. 2680 for a list of the 14 categories of exceptions to the waiver of federal immunity). The ***Tucker Act***, 28 U.S.C. 1491 waives federal immunity for breach of contract claims, and constitutional claims, particularly taking of property by the government and refund of taxes paid. Tort suits are explicitly excluded. The federal government also has immunity under the Flood Control Act of 1928, 33 U.S.C. § 702c.

Unless they agree, states can not be sued in federal court. "The Eleventh Amendment renders the States immune from 'any suit in law or equity, commenced or prosecuted . . . by Citizens of another State, or by Citizens or Subjects of any Foreign State.'" Tennessee v. Lane, 541 U.S. 509, 517 (2004). Although the 11th Amendment expressly refers to suits by citizens of "another State," the Supreme Court has repeatedly held that this immunity "applies to unconsented suits brought by a State's own citizens." Id. Moreover, "[a]lthough the language of the Eleventh Amendment refers only to 'States,' the Supreme Court has held that the immunity extends to entities that are considered arms of the state." Bowers v. Nat'l Collegiate Athletic Ass'n, 475 F.3d 524, 545 (3d Cir. 2007). In short, a state entity is considered an "arm of the state" where judgment against the entity "would have essentially the same practical consequences as a judgment against the State itself." Id. At 545-46 (quoting Fitchik, 873 F.2d at 659).

Most states' tort claim acts outline the manner in which a state and its agencies can be sued. These statutes (see for example Indiana Code 34-13-1, Pennsylvania Immunity statute, 42 Pa.C.S.A. § 8521, Minnesota, Minn. Stat. S. 3.736 (5) and others) typically include notice requirements, statutory caps, statutes of limitations, and the exceptions to immunity. For example Pennsylvania's legislative scheme starts with 1 Pa.C.S.A. § 2310 which provides, in relevant part "Pursuant to section 11 of Article 1 of the Constitution of Pennsylvania, it is hereby declared to be the intent of the General Assembly that the Commonwealth, and its officials and employees acting within the scope of their duties, shall continue to enjoy sovereign immunity and official immunity and remain

10 The distinction between governmental and proprietary functions is important in the context of sovereign immunity and the application of statutory caps. The caps may not apply when the government is acting in a proprietary capacity. The U.S. Supreme Court wrestled with and rejected as unworkable the distinction between the two in Garcia v. San Antonio Metropolitan 469 U.S. 528 (1985).
11 In the recent New Jersey case of Paragon Contractors, Inc. v. Peachtree Condominium, et. al. (A-41-2009) decided June 28, 2010, the defendants brought a third-party claim against a design professional without the required certificate of merit. The lower court dismissed the third-party complaint. However, the New Jersey Supreme Court reversed, noting the confusion surrounding the procedural protocols attendant to the filing of certificate of merit.

immune from suit except as the General Assembly shall specifically waive the immunity . . . .” 42 Pa.C.S.A. § 8521 provides, in relevant part: “Except as otherwise provided in this subchapter, no provision of this title shall constitute a waiver of sovereign immunity for the purpose of 1 Pa.C.S. § 2310 (relating to sovereign immunity reaffirmed; specific waiver) or otherwise . . .. Nothing contained in this subchapter shall be construed to waive the immunity of the Commonwealth from suit in Federal courts guaranteed by the Eleventh Amendment to the Constitution of the United States.”

While the 11th Amendment and Pennsylvania statutes unquestionably prohibit federal lawsuits against Pennsylvania, other portions of the statute waive immunity for the Commonwealth and its municipalities. As a general rule, states enjoy limited immunity, unless waived, for governmental functions but not for proprietary functions. Proprietary functions are typically considered to be business type activities as distinct from governmental functions. Pennsylvania’s legislative scheme provides immunity to the Commonwealth through the Sovereign Immunity Act, 42 Pa.C.S. 8521 and extends immunity to local municipalities through the Municipal Tort Claims Act 42 Pa.C.S. 8541. They are fairly standard immunity statutes, generally providing state and local government units with immunity except in certain situations where specifically waived (such as vehicular liability, care of real property, highway maintenance, etc.). The Municipal Tort Claims Act waives immunity for municipal units for dangerous conditions in water systems owned by local agencies. The act also bars subrogation claims, by specifically requiring that the amount of insurance payments be deducted from any recovery by the claimant. Each state’s legislative approach is distinct with different requirements and exceptions. Each statutory scheme must be carefully studied and evaluated to determine the impact on flood litigation in that particular state.

CONCLUSION

Flood cases are challenging. The key, as with any property loss case, is to promptly and completely evaluate the recovery potential. Effective allocation and utilization of recovery resources will enhance the recovery potential.

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