

AACE
INTERNATIONAL
RECOMMENDED
PRACTICE

84R-13

**PLANNING AND ACCOUNTING FOR
ADVERSE WEATHER**

SAMPLE

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AACE® International Recommended Practice No. 84R-13

PLANNING AND ACCOUNTING FOR ADVERSE WEATHER
TCM Framework: 7.2 – Schedule Planning and Development
8.1 – Project Control Plan Implementation

Revised September 15, 2015

Note: As AACE International Recommended Practices evolve over time, please refer to www.aacei.org for the latest revisions.

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Disclaimer: The opinions expressed by the authors and contributors to this recommended practice are their own and do not necessarily reflect those of their employers, unless otherwise stated.

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September 15, 2015

INTRODUCTION

Planning for adverse weather and incorporating that into the project schedule is an essential practice for successful projects. This recommended practice (RP) for adverse weather planning is intended to provide a guideline, not to establish a standard. It provides planning guidelines developed primarily for engineering and capital construction projects but can be adapted to any type of project or program where weather can influence its outcome.

This RP is intended to:

- Identify methodologies for adverse weather planning.
- Provide sources for historical data and provide recommendations for their use.
- Explain and critique weather planning methods.
- Recommend approaches for managing actual weather documentation compared to what was planned.

Positive and negative aspects for each weather planning method should be considered in the context of specific projects elements, including contractual requirements. This RP does not address legal ramifications or forensic schedule delay analysis considerations that may need to be addressed when adverse weather delay is in contention.

This RP serves to provide guidance in the absence of contractual requirements as well as potential guidance in writing specifications for adverse weather planning. If adverse weather planning is addressed in the contract, planning and modeling should be in compliance.

OVERVIEW

Weather is defined as the “state of the atmosphere with respect to heat or cold, wetness or dryness, calm or storm, clearness or cloudiness”^[4]. Weather conditions fluctuate constantly and may not always be considered severe.

The following weather-related terms and definitions are used throughout this RP:

NORMAL WEATHER — Weather that is expected for a period of time based upon the historical weather conditions of a particular locale. Normal weather includes weather that is and is not adverse as would be expected for a particular location.

ADVERSE WEATHER — Normal weather events that negatively affect the productivity of workers and/or which may affect a project’s critical path or consume float. What deems weather as being adverse is defined differently for each project depending on several factors, including location of a project, the project scope, and even the terms of union construction worker labor agreements. The definition of adverse weather cannot be standardized for all projects or locations, but represents conditions that should be expected during project execution that may impact work progress.

SEVERE WEATHER — A weather event, which is in itself severe and can be of violent nature. If the average weather over time is significantly different from the normal then it is said to be other than normal. In either case, if such

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weather affects the job and causes a delay, it may be excusable and form the basis for a contract adjustment for time and possibly money once all relevant contract clauses are considered.

WEATHER EVENT — A storm or significant weather condition that stops or appreciably hinders work until it has passed or the effects of the weather condition have dissipated. This may include rain, rising water, snow, ice, extreme cold, high winds, extreme heat and/or high humidity, or other weather related occurrence. The weather event may not be localized at the site as in the case of flood water from an upstream rain event or preparations for a hurricane that does not actually pass through the site.

WEATHER DAY — A work day that was stopped and/or had appreciably hindered work progress due to a weather event.

PLANNED ADVERSE WEATHER DAY — Expressed as the number of days within a period of time (typically specified month) that a project can be expected to be affected by adverse weather. The number of planned adverse weather days is calculated by a review of historical weather data obtained from a reliable weather source supplemented or validated by actual experience at or near the work site.

UNUSUALLY ADVERSE WEATHER DAY — Expressed as the number of days of unusual adverse weather that stopped or impacted a project above what was originally planned prior to the start of the project. From a contractual delay analysis standpoint, those days are compared to the number of days originally planned for in the schedule to identify excusable time extensions; i.e.: weather that negatively affects the project production in excess of the expected normal or adverse weather.

WEATHER PREPARATION DAY — A day where planned work progress ceases going forward or is significantly impeded while the project makes preparation for an upcoming weather event, e.g. boarding up windows before a hurricane, making the site safe by securing loose materials and unfinished structures and dismantling or securing cranes from expected high winds to mitigate potential damage to the work.

WEATHER RECOVERY DAY — A day where a project is unable to resume work due to the after-effects of a weather event such as excessive flooding and mud after a rain storm. This would also include the time necessary to duplicate the status just prior to the weather event.

Planning for adverse weather consists of:

- Identifying sources for historical weather data applicable to the project site.
- Interpretation of that historical data and rendering it useful for planning and schedule modeling.
- Examining various planning approaches for adverse weather conditions to determine the most appropriate method that models the expected periods and durations of weather events in order to produce reasonable and appropriate dates in the schedule.
- Accounting for actual adverse weather to provide an accurate as-built project schedule as well as the basis for consideration of possible time extensions due to unusually adverse weather.

The purpose of weather planning is to establish a consistent approach to ensure that the as-planned schedule appropriately addresses adverse weather days during project execution. The planned adverse weather days may be based on historical norms, relevant location experience or as may be dictated by a contract condition.

The planner or scheduler provides assistance to the project management team in choosing the appropriate methodology for implementing adverse weather planning. He or she provides input so that the as-planned schedule includes appropriate time allowances for adverse weather to ensure reasonableness, and provides an approach to account for actual adverse weather, allowing for analysis of unusually adverse weather and any entitlement to time extensions due to those unusually adverse weather conditions.

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BACKGROUND

This recommended practice is intended to provide guidance for any project that has scope of work that is subject to delay or disruption due to adverse weather conditions that is not already provided for in the project's contract documents.

Identification of Sources for Historical Data

Historical data includes sources of objective, factual information recording actual weather conditions, generally at least daily, in a widespread range of locations, from professional weather bureaus.

Historical data sources are used to plan for future weather in a schedule under the assumption that the average weather in the past will represent a reasonable model of similar future weather conditions. It is important that legitimate sources of actual weather conditions are used for the basis of planning so the plan will be as realistic as possible.

Further, it is important to document in the schedule basis documentation the data used, the process used to gather the data, any analysis performed, weather calendars used, and assumptions made about the inclusion or exclusion of weather days in the schedule.

From a dispute resolution standpoint, the choice of data sources is important as it may be questioned in the event of a dispute. Use of a less accurate source or questionable data acquisition process could undermine the legitimacy of a time extension request. For that reason, it is important to document the basis and assumptions made during weather planning in the schedule basis documentation.

Historical adverse weather data sources would be used when a project has activities that will be performed that can be influenced by weather conditions. This includes all forms of precipitation including rain, snow, hail, sleet, as well as any other weather influences such as high or low humidity, high winds, high or low temperatures, shortened daylight times, and even airborne particulate conditions such as dust and pollution.

Secondary effects from the primary adverse weather conditions could include a variety of issues such as rising and flooding waters, limited visibility, the effects of changing tides, mud conditions limiting accessibility or halting earthwork operations, mold or mildew conditions requiring abatement, snow and ice removal needs, masonry, concrete, or roofing work stoppages due to low temperatures, and reduced crane operating hours due to high winds. These secondary effects can create conditions that cause the same lost time as primary conditions and, as such, should be included as part of the adverse weather planning.

Adverse weather is variable based on locations, time of year, and other local conditions (natural and man-made). Since weather is locality driven, the adverse weather planning data should be captured from a source that experienced weather conditions similar to that expected at the project's location.

Within the project's critical path method (CPM) model, those activities that are weather dependent or related should be identified such that they can be filtered out separately from the non-weather related activities. This will allow weather planning to be applied only to the activities that are likely to suffer from adverse weather. Extensive weather planning is not normally used for projects that are unlikely to be affected by adverse weather, such as indoor renovation projects, or projects in stable climate regions. Care should be taken in these cases to ensure that no secondary weather conditions might affect the work, such as humidity that could affect indoor finish work. It is important to note in the schedule basis document any assumptions or exclusions concerning planning for adverse weather.