

Lake Powell Pipeline

Draft Air Quality Work Plan

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Section 1 Introduction

The purpose of this work plan is to define the procedures for analyzing impacts on air quality arising from the Lake Powell Pipeline project. This work plan presents the issues and concerns, defines the impact area and significance area, describes the analysis methodology, reviews existing data and identifies data needs, references an outline for the Air Quality Technical Report, and identifies dependency items and relationships to other resources.

Section 2 Issues

Air quality related issues and concerns identified during the formal scoping process will be addressed in the analysis for the LPP alternatives. Related questions raised during the informal scoping process have been consolidated into the following issue(s).

- What impacts would occur on air quality from construction and operation of the LPP?
- What impacts would occur on air quality from fugitive dust emissions?
- What impacts would occur on air quality from construction equipment emissions?

Additional issues that arise during the formal scoping process, or during the preparation of the analysis, will be added and addressed.

Section 3 Impact Topics

Two air quality impact topics have been identified and will be addressed in the analysis.

- Construction air quality
- Operational air quality

Section 4 Impact Area and Significance Criteria

4.1 Impact Area

The impact area would include the following:

- Construction corridors consisting of areas within ½ mile of pipeline alignments and other project facilities for each project alternative

- Operation corridors consisting of areas within ½ mile of pipeline alignments and other project facilities for each project alternative

4.2 Significance Criteria for Each Impact Topic

The following air quality impacts would be considered significant.

- Construction activities result in a short- or long-term violation of any federal, state or local ambient air quality standard or Prevention of Significant Deterioration (PSD) class designation
- Operation activities result in a short- or long-term violation of any federal, state or local ambient air quality standard or Prevention of Significant Deterioration (PSD) class designation

These criteria are based on the Clean Air Act, and US Code 40 CFR 50 (general).

Section 5 Methodology

5.1 Introduction and Overall Approach

Air quality impacts will be analyzed for construction and operation activities. Construction activities projected to cause temporary air quality impacts in the project impact area will be analyzed along each pipeline alignment and at each project facility location. Operation activities projected to cause permanent air quality impacts in the project impacts area will be analyzed at each applicable project facility location.

The impact assessment will be performed by estimating the magnitude of construction emissions for a typical construction spread and comparing them with air quality standards. The EPA SCREEN3 model will be used to estimate pollutant emissions under baseline conditions and for each project alternative under construction conditions and operating conditions.

5.1.1 Definition of Baseline Conditions

Baseline conditions will be estimated from existing regional air quality and climate data and using the EPA SCREEN3 model to determine air quality conditions along typical pipeline alignments and at project facility locations.

5.1.2 Analysis of Alternatives

The SCREEN3 model is listed by the EPA's Support Center for Regulatory Air Models as a preferred and recommended air quality screening tool. It is recommended in the Utah Division of Air Quality Modeling Guidelines as an approved screening technique (UDEQ 2000a). It is a screening version of the ISC3 (Industrial Source Complex) Model, which is a preferred and recommended air quality model. SCREEN3 is a single-source Gaussian plume model that provides maximum ground-level concentrations for point, area, flare and volume sources, as well as concentrations in the cavity zone, and concentrations from inversion break-up and shoreline fumigation. Section 4.2.1 of the EPA's Appendix W to Part 51 – Guideline on Air Quality Models (EPA 2001) recognizes screening techniques as an acceptable approach to air quality analyses. The screening model approach was chosen because of the preliminary level of detail and accuracy of the available input data and the typical construction site approach chosen for the

analysis. The screening model provides a conservative, worst-case estimate of pollutant concentrations compared to the refined model.

While the SCREEN3 model has been verified and calibrated, the accuracy of the emissions estimates calculated in the analysis are unknown since most of the input parameters must be assumed. These parameters include the emissions levels from equipment that would actually be used at the site, the actual source release height, and the actual size of the construction area. Conservative estimates will be used in this analysis for each input parameter, and the model is designed to compute a conservative pollutant concentration. Therefore, the calculated emission levels are expected to represent maximum, worst-case emission levels from construction for the assumed meteorological conditions.

Emissions from construction are associated with two primary sources.

- Exhaust from heavy equipment operation
- Construction dust produced during site preparation, excavation, pipe installation, backfill activities, site restoration, and excavated material disposal.

A typical pipeline construction site will be simulated in the SCREEN3 model to represent LPP pipeline construction. In addition, specific pump station, power facility, and transmission line construction sites will be simulated. The construction sites will be analyzed for total emission levels and entered into the model to determine ambient air impacts compared to National Ambient Air Quality Standards (NAAQS).

Data from the U.S. Environmental Protection Agency and the Federal Highway Administration will be used to develop emissions levels for equipment that would be used at a typical LPP construction site.

The main construction phases for a typical pipeline, power facility and transmission line construction site will be identified. The types of equipment required for each construction phase will be identified, and representative pollutant emissions levels for each type of equipment will be obtained. For each construction phase, the total daily emissions for each pollutant will be calculated. An example of this calculation for NO₂ from dump trucks is as follows:

Example daily emission calculation for a Cat 740 dump truck:

Horsepower = 440 hp

Daily Usage = 8 hours/day

NO₂ emissions = 9.6 grams/hp-hour

NO₂ (pounds/day) = 440 hp x 8 hours/day x 9.6 grams/hp-hour x 0.0022 pounds/gram = 74.3 pounds/day

The equipment daily emissions for each pollutant will be added together for each construction phase. The phase that results in the highest emissions will be used as the worst-case, most conservative equipment emissions estimate, and assumed to apply for the duration of construction.

The PM₁₀ equipment and dust emissions estimates will be added together for the construction sites. These numbers will be run in the SCREEN3 model to calculate pollutant concentrations after dispersion from the construction site. This concentration will be added to the background pollutant concentration to calculate the total peak pollutant concentration for comparison with NAAQS.

The urban versus rural analysis available in the SCREEN3 model accounts for the interference of buildings in wind patterns. Air flow over and around buildings and other solid structures may restrict

dispersion of a pollutant source. The modeling analysis will assume urban conditions within city limits and rural conditions outside of city limits.

The 1-hour, 3-hour, 8-hour and 24-hour NAAQSs are based on the average concentration over that particular averaging time. These standards are not to be exceeded more than once per year. The annual standard is the annual arithmetic mean pollutant concentration (Cooper and Alley 1994). Violations of the NAAQS are only measured in the ambient air, with EPA defining ambient air as “that portion of the atmosphere, external to buildings, to which the general public has access. Exemption from ambient air is available only for the atmosphere over land owned or controlled by the source and/or to which public access is precluded by a fence or other physical barriers” (UDEQ 2000a). In this analysis, ambient air is interpreted to mean all areas outside of the construction site boundaries.

Estimating the air quality impacts from operations of facilities such as pumping stations, power generation stations, or other facilities will be determined by estimating the point source emissions of the equipment and comparing them with the NAAQS standards in the same manner as described for estimating construction impacts on air quality. Differences between baseline condition emissions and operating condition emissions will be reported as impacts. Air quality emissions resulting from operation activities that exceed NAAQS standards will be reported as significant impacts.

5.1.3. Analysis of Cumulative Impacts

The air quality cumulative impacts analysis will address the combined impacts of the alternatives and any past or future proposed or planned actions that have or are likely to affect the air quality in the impact area. The following inter-related projects may be analyzed for cumulative impacts.

- Navajo Power Generation Station
- Transportation corridors (e.g., US Highway 89, State Highway 389, etc.)
- Other inter-related projects to be determined

Section 6 Data Needs and Analysis

6.1 Data Needed

The data needed to perform the analysis include:

- Air quality limits within the LPP project area alternatives (if any)
- Construction equipment and likely emissions
- Power generation facility emission data
- Pump station facility emission data
- Detailed emissions inventory from EPA’s AP-42 document for a typical construction spread
- Air quality model results showing impacts for applicable areas in addition to historic climatic parameters
- Air quality attainment status
- Historic ambient air quality for the impact area
- Historic and projected population data will be required from the socio-cultural and economics resources.

6.2 Data Available and Adequacy

The data required to complete the air quality analysis can be acquired from the following identified and existing sources:

- Air quality limits within the LPP project area alternatives (if any) – adequate information is likely available from Federal and State agencies
- Construction equipment and likely emissions – adequate information is available from equipment manufacturers
- Power generation facility emission data – adequate information is available from equipment manufacturers after engineering determination is made as to what type of equipment will be used
- Pump station facility emission data – adequate information is available from equipment manufacturers after engineering determination is made as to what type of equipment will be used
- Detailed emissions inventory from EPA’s AP-42 document for a typical construction spread – adequate information is available
- Air quality model results showing impacts for applicable areas in addition to historic climatic parameters – data may be difficult to obtain
- Air quality attainment status – adequate information is likely available
- Historic ambient air quality for the impact area – adequate information is likely available
- Historic and projected population data will be required from the socio-cultural and economics resources – information is likely available but is an estimate only

6.3 Additional Data Needs

6.3.1 Primary

The following data will be required in addition to the data described in Section 6.2:

- Additional needs may be discovered during plan completion. No additional needs have been currently identified.

6.3.2 Secondary

The following data will be required in addition to the data described in Section 6.2:

- Additional needs may be discovered during plan completion. No additional needs have been currently identified.

Section 7 Procedures for Developing Mitigation

The analysis of impacts on air quality will be based on the standard operating procedures and measures to avoid or reduce impacts, both of which will be included in the project description chapter of the Draft Technical Report. The significance criteria for air quality will then be applied to determine if any impact would be significant. Mitigation measures would then be developed to offset significant impacts. The mitigation measures will be based on applicable state and Federal statutes and regulations, past experience and best professional judgment to either satisfy a legal requirement or to satisfy the public

interest requirement. In some cases significant impacts may not be able to be mitigated. All reasonably foreseeable mitigation options will be evaluated by the Federal Energy Regulatory Commission, Bureau of Land Management, and other responsible federal agencies and factored into the respective decision documents.

Section 8 Technical Report

A technical report will be necessary to document in detail baseline conditions of and potential impacts on air quality. The technical report will follow the resource technical report outline common to all resource work plans (see Resource Technical Report Outline).

Section 9 Dependency Items from Other Resources

The following items are required from other MWH Team resource specialists:

- **(Transportation:)** Information regarding traffic volume anticipated during construction and for normal operations
- **(Hydroelectric:)** List of equipment that will be used and what kind of emissions they create
- **(Cultural Resources:)** Information regarding future development and populations for the areas of concern.
- **(Pumping Facilities:)** List of equipment that will be used and what kind of emissions they create.
- **(Pipelines:)** Description of excavation measures and dust control measures likely to be enacted during construction. List of equipment that will be used and what kind of emissions they create
- **(Tunnels:)** Information regarding the location of anticipated tunneling activities, the types of equipment that will be used, and what kind of emissions they create.