The attached report was submitted by CH2MHILL on behalf of Exelon Generation Company, LLC
Under U.S. Department of Energy
Cooperative Agreement: DE-FC07-02ID14314
Study of Potential Sites for the Deployment of New Nuclear Power Plants in the United States.

F I N A L R E P O R T

Site Selection Evaluation for Pebble Bed Modular Reactor (PBMR) Generating Unit

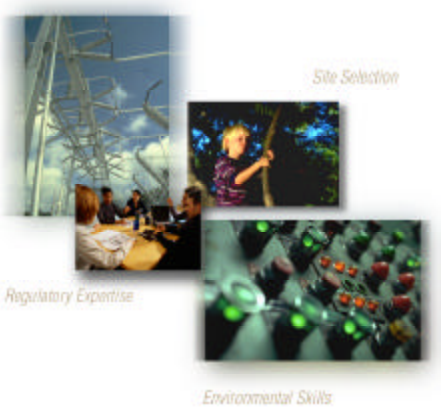
Clinton, Illinois

Idaho National Engineering and Environmental Laboratory, Idaho

Prepared for the DOE

by Exelon Generation Company, LLC.

August, 2002



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Executive Summary

Exelon Generation Company LLC is leading a new opportunity for advanced nuclear reactors to generate electric power in the United States. As the electric utility industry has and will continue to evolve, Exelon believes nuclear power will play an important part and that it is in the national interest to maintain a nuclear generation option. To that end, Exelon has been investigating an advanced gas-cooled reactor design known as the Pebble Bed Modular Reactor (PBMR).[1]

As part of its activities, Exelon has been in open discussions with the United States Nuclear Regulatory Commission (NRC) on a number of topics pertaining to licensing and permitting an advanced reactor. These discussions have been ongoing since January 2001 under the "pre-application" phase of the licensing process. In addition, Exelon has been participating in the Nuclear Energy Institute's Early Site Permit Task Force. The charter of this Task Force is the early identification of generic problematic topic areas associated with the preparation of an Early Site Permit (ESP) application and discussions with the NRC to develop workable solutions that result in a consistent path forward amongst all utilities pursuing an ESP.

Title 10 of the Code of Federal Regulations (CFR), Part 52, Subpart A was promulgated by the NRC in 1989 to address industry concerns with the licensing process under 10 CFR Part 50: a licensing process requiring large expenditures of time and money by utilities even before key environmental and site suitability issues could be resolved. Exelon's pre-application Combined Operating License discussions with the NRC are premised on the use of the Part 52 regulations. This Site Selection Evaluation Final Report is premised only on the PBMR design. However, Exelon's actual ESP application, should it decide to submit one, will likely be premised on other reactor types as well. As envisioned, the ESP process is meant to resolve the key environmental and site suitability issues without actually having selected a single design for construction or basing the ESP application on a certified design(s).

In its ongoing activities associated with the PBMR, Exelon has engaged CH2M HILL's services to examine various siting options, develop cost estimates for non-safety related construction suitability at selected sites, and estimate the time and cost for filing an ESP, including NRC review and approval. CH2M HILL developed a comprehensive approach to rapidly examine siting issues and develop meaningful cost estimates and schedule expectations. Various CH2M HILL subject matter experts joined with site-specific local project teams (referred to collectively herein as the Project Team) to collect,

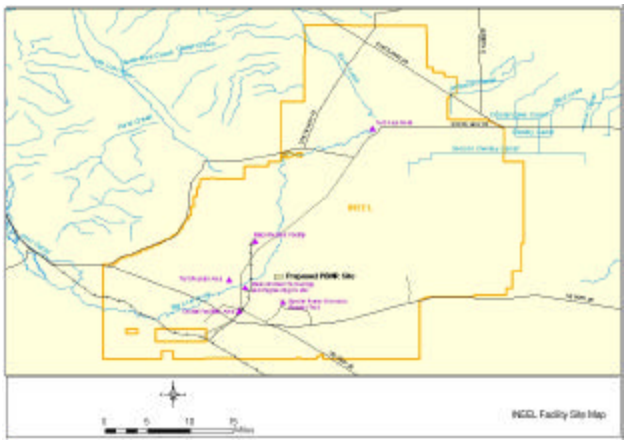
[1] Certain discussion contained herein pertaining to Exelon's involvement in PBMR (PTY) LTD, was prepared prior to Exelon's announcement advising of its decision to no longer participate as an investor in the South African venture.

catalog, evaluate, and report on available technical information pertinent to the site selection and ESP process.

Exelon directed CH2M HILL to evaluate two sites:

- An area within the boundaries of the Idaho National Engineering and Environmental Laboratory (INEEL) site in Idaho Falls, Idaho (shown in Exhibit ES-1)
- An area adjacent to the Clinton Nuclear Power Plant in Clinton, Illinois (shown in Exhibit ES-2).

ES-1. INEEL FACILITY SITE MAP



ES-2. CLINTON FACILITY SITE MAP

These two sites were selected from a much larger set of options available to Exelon within its general service areas from government property and from private property. Both the INEEL and Clinton sites reflect areas of the country where electric generation using nuclear power has been proven safe and cost effective over an extended period of time.

Viability of the INEEL and Clinton Sites to Qualify for the ESP Process

CH2M HILL evaluated an extensive set of data sources pertaining to the INEEL and Clinton sites from a wide array of information sources. (References appear in Section 6.0.) These evaluations were undertaken to determine any significant difference between the sites relative to site characteristics and to compare the site characteristics against the regulatory requirements for siting a nuclear power plant under the ESP process. The site characteristics were scored according to a set of 39 criteria, listed in the below text box, while the regulatory requirements were classified under 10 CFR, Part 52, as well as other referenced regulations.

At the INEEL facility, CH2M HILL conducted a review of alternative locations within the 890 square mile boundary. From this review, and after discussions with Exelon, it was decided the New Production Reactor (NPR) location should be used as the comparable site to Clinton. While further detailed site evaluations may provide a more optimum INEEL site location, the NPR location is representative of general facility characteristics.

Results from the site selection evaluation showed no remarkable overall ranking difference between the two locations. In the Comparative Analysis, no statistical difference was obviously evident between the sites. As far as scoring and overall ranking the two sites both rated "good" and would qualify under an ESP. This "good" rating equates to a score of "4" on a scale of 1 to 5, with 5 being excellent.

The results from the site selection evaluation demonstrated that other factors would determine which of the two sites might be more preferable for the ESP application. These other factors would include capital cost considerations,

Exclusionary & Non-Exclusionary Criteria

Engineering and Economic Criteria

General
Transmission System (E)
Site Size (E)
Site Topography (E)
Environmentally-Sensitive Areas (E)
Water Rights and Air Permits (E)
Regulatory (E)
Emergency Planning/Population Density
Labor Supply
Transportation Access
Security
Collocated or Nearby Hazardous Land Uses
Ease of Decommissioning
Site Development Costs
Schedule

Seismology/Geology
Geologic Hazards (E)
Site-Specific SafetyShutdown Earthquake (E)
Capable Faults (E)
Liquefaction Potential (E)
Bearing Material (E)
Near-Surface Material

Hydrology
Flooding Potential (E)
Cooling Water Source (E)
Groundwater
Ice Formation

Meteorology
Temperature and Moisture Content
Winds
Rainfall
Snow
Atmospheric Dispersion

Environmental
Terrestrial Habitat
Terrestrial Vegetation
Aquatic Habitat/Organisms
Groundwater
Population

Sociological
Land Use (E)
Demography (E)
Historic and Archaeological Sites (E)
Agricultural/Industrial
Aesthetics
Transportation Network

project schedule, market revenue potential, availability of project development subsidies, operations and maintenance costs, and sociopolitical considerations.

Cost and Schedule Estimate for Site Construction Suitability

One feature of the ESP process allows for certain limited non-safety related construction activity of a permitted location prior to the issuance of a construction permit or a combined operating license. Under its Task 2 activities, CH2M HILL determined that the cost of these construction activities could show a significant difference between the INEEL and Clinton sites. As seen in the following table, the INEEL site would require nearly $6.9 million more than the Clinton site.

Construction Suitability Cost Estimate	
INEEL Site	$8,437,370
Clinton Site	$1,581,173
Difference	$ 6,856,197

There are several mitigating factors for the higher costs at the INEEL. The principal cost is associated with the distance, about 2.5 miles, needed to access the selected location at the former NPR area. Closer proximity to the INEEL infrastructure could result in a savings of more than $1.87 million per mile. At the INEEL, the actual site development cost will depend on how much of the footprint needs to be prepared and the distance from the existing infrastructure.

At both the INEEL and Clinton sites, the time to complete site development activities is about nine months. While the INEEL site may take an additional 30 to 60 days, that time is reflected primarily in the added length of site access and the need to clear and level for the PBMR footprint.

Early Site Permit Application Cost Estimate and Schedule

As seen in Exhibit ES-4, the baseline case costs for an ESP application were estimated to be about $3 million for the Exelon contracted work to prepare the application, $8.54 million to defend and project manage the application preparation and approval process, and about $5.3 million for the NRC effort. These costs take the ESP process up to the public hearing that would occur after the final environmental impact statement (EIS) and draft Safety Evaluation Report had been issued by the NRC.

EXHIBIT ES-4. SUMMARY COSTS FOR THE ESP APPLICATION

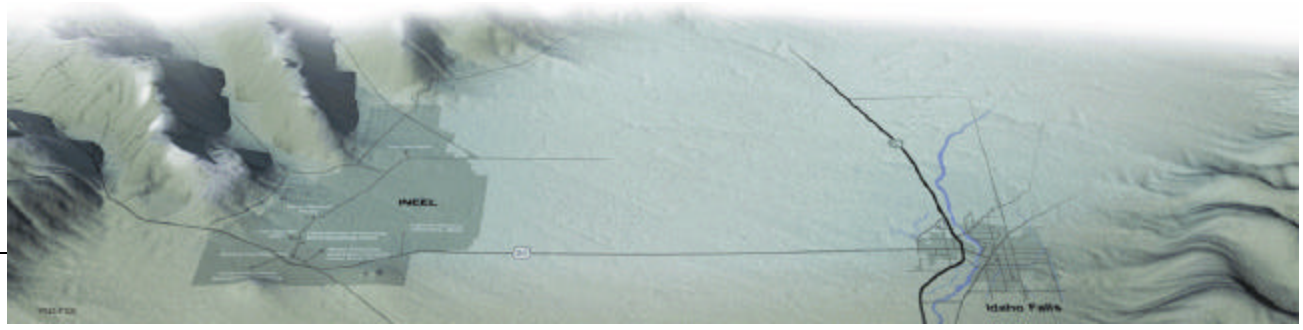
The Site Safety Analysis Report represents the most significant effort for an ESP Application

Work Breakdown Structure and Description	INEEL	Clinton
010101 ESP Application	$11,885	$16,252
010102 Environmental Report	$861,564	$850,991
010103 Site Safety Analysis Report	$1,403,974	$1,468,388
010104 Emergency Plan	$190,161	$132,916
010105 Redress Plan	$16,690	$16,869
010106 Management and Administration	$347,164	$430,989
Grand Total	$2,831,438	$2,916,405

The baseline case considers:

- Only one round of questions and comments (the request for additional information, or RAI phase) from the NRC on the Site Safety Analysis Report , the Environmental Report and the Emergency Plan
- A limited number of RAIs for each of the three reports
- A shorter duration in the NRC report writing activities
- Limited comments (about 3,000) from the public during the draft EIS public comment period
- A response to RAIs and public comments of 60 days
- No significant delays in obtaining plant parameter envelop data from the reactor vendors.

Under a more complex case, the Project Team assumed two rounds of RAIs with a higher number of comments and questions and an extensive number of comments during the draft EIS public comment period. The schedule for the time period matching the baseline case cost estimate is 34 months. This includes 11 months for the ESP application and about 19 to 23 months for the downstream activities up to the safety evaluation report public hearing. For the complex case, the ESP application time was held constant and the downstream activities were estimated to increase from 23 months to 31 months.



List of Exhibits

Executive Summary

1.0 Introduction

2.0 Approach to Work

4.0 Task 2: Construction Suitability Estimate and Schedule

5.0 Task 3: ESP Estimate and Schedule

List of Acronyms

Advisory Committee on Reactor Safeguards	ARCS
Code of Federal Regulations	CFR
Combined Operating License	COL
Construction Permit	CP
Department of Energy	DOE
Early Site Permit	ESP
Emergency Plan	EP
Emergency Planning Zone	EPZ
Environmental Impact Statement	EIS
Environmental Justice	EJ
Environmental Report	ER
Exclusion Area Boundary	EAB
Future Licensing and Inspection Readiness Assessment	FLIRA
Idaho National Engineering and Environmental Laboratory	INEEL
Idaho National Technical Engineering Center	INTEC
Modular High Temperature Gas Reactor	MHTGR
National Pollution Elimination Discharge Permit	NPDES
New Production Reactor	NPR
NRC Regulatory Guides	RGs
NRC Technical Reports	NUREGs
Nuclear Energy Industry	NEI
Nuclear Regulatory Commission	NRC
Operations and Maintenance	O&M
Pebble Bed Modular Reactor	PBMR
Plant Parameter Envelope	PPE
Point of Contact	POC
Project Data Management System	PDMS
Request for Additional Information	RAI
Safety Evaluation Report	SER
Site Safety Analysis Report	SSAR
Safety Shutdown Earthquake	SSE
Subject Matter Expert	SME
Top Level Regulatory Criteria	TLRC

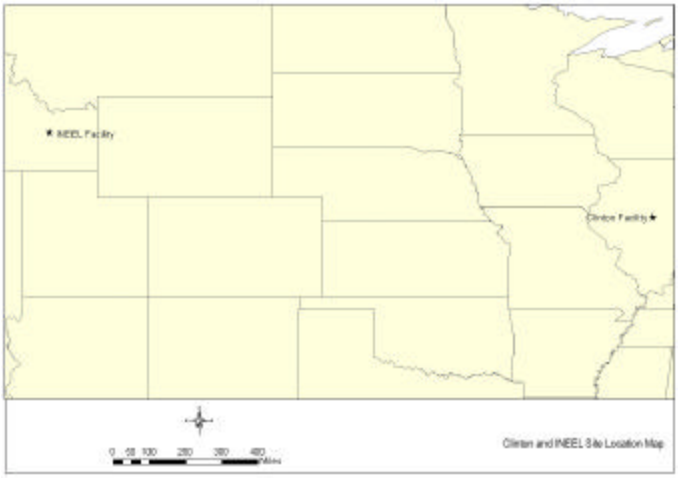
1.0 Introduction

Exelon selected CH2M HILL to assist in the continuing activities necessary to site, permit, construct, and operate a pebble bed modular reactor (PBMR) in the United States. One facet of Exelon's ongoing effort focuses on selecting a site and estimating the cost and schedule for non-safety related pre-construction preparations and an Early Site Permit (ESP) application. This report captures the work in the areas of site selection and cost and schedule development. While the PBMR was the assumed reactor design for this Site Selection Evaluation Report, the ESP may consider other reactor types that fit within a plant parameter envelope (PPE) that will bound the design that forms the basis of the application.

After preliminary screening, Exelon narrowed the scope of the site scoping study to two locations that it felt would qualify for an ESP from the U.S. Nuclear Regulatory Commission (NRC). As shown in Exhibit 1-1, one of those two sites is in the general area of the Clinton Nuclear Power Station in Clinton, Illinois (referred to as the Clinton site in this report); the other is on the Idaho National Engineering and Environmental Laboratory (INEEL) near Idaho Falls, Idaho. Using a pre-selected set of criteria furnished by Exelon, CH2M HILL evaluated and compared the siting features of each of these two sites from an environmental, engineering, economic, and sociological perspective.

For both sites, CH2M HILL also developed an estimated cost and schedule for construction activities that would prepare the site for full PBMR plant construction and for preparing an ESP application that would be submitted to the NRC. The ESP application cost and schedule includes the estimated time and cost for the NRC to reach the first public hearing phase. All of the above activities were implemented to supply Exelon with additional information on the merits of the two sites for construction and operation of a PBMR following the NRC permitting process.

EXHIBIT 1-1. CLINTON AND INEEL SITE LOCATION MAP



This report is structured to present the detailed findings and observations of the Project Team for the three tasks described in Section 2.0 below. The following sections summarize the ESP regulations applicable to the PBMR siting and permitting objectives, along with the general PBMR information CH2M HILL used in the evaluations.

1.1 Early Site Permit Regulations

The ESP regulations were promulgated by the NRC in 1989 to resolve many of the environmental and safety issues associated with the construction of a nuclear reactor. Regarded as a tool that electric utilities could use to "bank" permitted sites for future development, the ESP was designed to be issued separate from

the filing of an application for a construction permit or a combined license. The primary regulations governing ESPs are codified in Title 10 Code of Federal Regulations (CFR) Part 52, Subpart A, and a number of other CFRs referenced therein. These regulations offer a framework for resolving safety and environmental issues with finality before large capital financial commitments are made.

As set forth in the regulations, an applicant for an ESP needs to demonstrate that the proposed site is suitable for the construction and operation of a single or multiple reactor design. An application that seeks approval of multiple designs may present the multiple designs in a manner that bounds pertinent design parameters. The industry refers to these pertinent design parameters are as the plant parameter envelope (PPE). The PPE is the set of plant design parameters used to characterize the PBMR for selecting a site and developing the ESP. Typically, the PPE approach is typically used when the full and complete design details of the examined reactor are not available, such as with advanced or evolutionary reactor designs.

When submitted to the NRC, the ESP application must contain sufficient information to support sound judgments of environmental impacts that could result from siting the proposed facility. In addition, the ESP application should contain enough information to lead to evaluations and determinations of safety impacts. The ESP application process is also meant to enable the public, as well as state and local agencies, to participate effectively in the proceedings.

To grant an ESP, the NRC must conclude that the proposed reactor design can be constructed and operated on the site without undue risk to public health and safety, or the environment. The ESP regulations were structured for the early siting of reactor designs for which:

- Specified features for major structures, systems, components, and plant parameters are well defined
- Potential event scenarios that could result in consequences to the public are substantially understood.

The underlying regulatory criteria provided in NRC Regulatory Guides (RGs) and technical reports (NUREGs) are primarily intended for construction permit or operating license applications for light water reactors. As such, the RGs and the NUREGs do not offer specific guidance for the preparation or review of an ESP application or for the NRC review of the proposed PBMR (gas reactor) technology. There is also no regulatory precedent to guide the preparation or review of an ESP application.

1.2 Pebble Bed Modular Reactor Project

The PBMR was the reactor technology considered for the Site Selection Evaluation Final Report, although other technologies will be considered in the ESP. Based on the proprietary information Exelon supplied to CH2M HILL, the PBMR project is in varying stages of conceptual design. PBMR plant

parameters, source terms, system descriptions and interactions, and event sequences that require analysis are not fully defined.

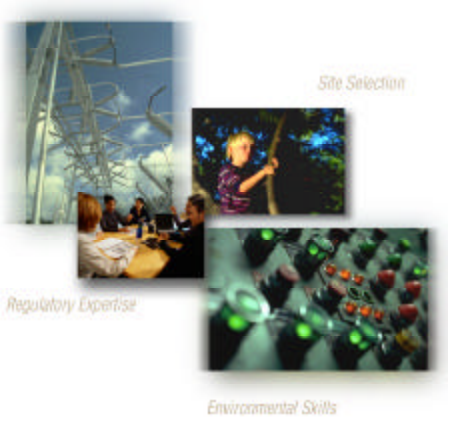
CH2M HILL is aware that Exelon is addressing major policy and technical issues that affect siting of the proposed PBMR through ongoing interactions with NRC staff, such as:

- Selection of events to be considered in design
- Calculation and use of a mechanistic siting source term
- Adequacy of fuel as fission product containment
- Reduced emergency planning requirements.

Although the NRC staff has some previous experience with review of a technology similar to the PBMR design (1980's U.S. Department of Energy [DOE] Modular High Temperature Gas Reactor [MHTGR]), the above major issues are likely to impact the preparation and review of an ESP application for the PBMR.

CH2M HILL is also aware of Exelon's interactions with the NRC staff on other issues of critical importance to the economic viability of the PBMR as a merchant plant. These issues include operator staffing, environmental impacts of the fuel cycle and transportation, financial qualifications, decommissioning funding, antitrust reviews, the number of licenses for modular reactors, annual fees, and financial protection.

In preparing the ESP estimate, CH2M HILL has made assumptions or provided recommendations that reflect Exelon's concerns for maintaining the economic viability of constructing and operating a new power plant.



2.0 Approach to Work

This section describes the scope of work and methodology CH2M HILL followed in the performance of its work. Generally, the scope of work and methodology followed was set forth in the proposal CH2M HILL submitted to Exelon and in the agreements reached at the kickoff meeting between Exelon and CH2M HILL. As the project moved forward, minor changes were made in the approach to compensate for data gathering results and early site criteria evaluation. The discussion of methodology provided below captures those minor changes, all of which were reviewed in advance with Exelon.

2.1 Scope of Work

The scope of work for this project applies to both candidate sites and is captured in the following three tasks:

1. Task 1: Complete merit calculation sheets[1] for each of the sites using pre-selected criteria[2] to:
   a) Determine suitability of the two sites for the proposed PBMR
   b) Identify the existence of any significant deviations to site characteristics from original site or construction permit conditions
   c) Evaluate the pre-selected criteria to determine the suitability to the site selection process
   d) Conduct a comparative analysis on the merit sheet calculations for each site and compare the scores of the two sites.
2. Task 2: Prepare a cost estimate to develop each site for construction suitability and provide contingency analysis for the estimates. At the INEEL site, supply a rough-order of magnitude estimate for bringing in full capacity transmission lines for the 1250 MWe of the proposed PBMR.
3. Task 3: Furnish a cost estimate to complete an ESP application, including the estimated cost for the NRC staff's review of the application. Develop a regulatory criteria matrix down to the second level[3] to demonstrate those regulations potentially applicable to the ESP application.

Each of these tasks were integrated to ensure efficient use of information provided by the Exelon points of contact (POC) for the INEEL and Clinton sites. As an intermediate deliverable under Task 1, CH2M HILL provided recommendations for improving the selection criteria, as well as an array of references to be used under all three tasks.

[1] Merit Calculation Sheets are provided in Appendices A and B.
[2] The criteria are identified in detail in Appendices C, D, E, and F.
[3] Details regarding the levels of regulatory criteria appear in Appendix J.

2.2 Methodology

The following sections describe the methodology CH2M HILL used to perform the activities necessary to complete the scope of work. The methodology is an important aspect of this work because it provides an insight into the processes and steps used to develop the information and produce the results. The Task 1 activities are also important, as they formed the basis of information sources and data storage techniques for other tasks.

2.2.1 Task 1: Site Criteria Evaluation

This section describes the approach used for evaluating both of the sites considered for siting a PBMR. The sites Exelon proposed for consideration included one location near an existing nuclear power plant, the Clinton Station east of Clinton, Illinois, and a second location at the INEEL. The evaluation and analysis of the two sites proposed were evaluated according to 44 separate criteria applied in two phases. First, working from a preliminary list of several locations consisting of government, brownfield (i.e., sites where a nuclear facility currently exists and in which Exelon has an ownership interest), and greenfield sites (either owned by Exelon or sites offered by third parties), Exelon narrowed the list to two. The initial qualitative screening conducted by Exelon, which resulted in the identification of the two sites addressed herein, was based on the framework that future generation would be premised on a "merchant power generator" philosophy, and was not necessarily intended to be the basis for compliance with the "alternate site" evaluation currently called for in Federal environmental regulations. The method used to narrow the list consisted of generally examining the proposed site using Exelon proprietary market electricity pricing analysis and a simplified and qualitative application of three general socioeconomic factors. Therefore, Exelon's initial site screening used four criteria:

1. Electricity and service market projections
2. Socioeconomic benefits
3. Stakeholder support
4. Environmental justice.

The second phase consisted of performing an in-depth examination of the two sites using the remaining 40 criteria. The 40 criteria were separated into two categories: exclusionary or "fatal flaw" criteria that would exclude a site from further consideration, and non-exclusionary or "discretionary" criteria that would be used, in addition to the exclusionary criteria, to rank and compare the sites that were not excluded based on a number of engineering, safety, environmental, and socioeconomic factors. One of the criteria, geologic hazards, is not scored at the site evaluation phase, although it is used for exclusionary screening. Accordingly, this scoping study examined the suitability of the Clinton and INEEL sites based on an analysis of each site against 39 criteria.

Exhibit 2-1 shows how the evaluation process used the criteria and considered the separation of criteria into the functional categories. The 15 exclusionary criteria are summarized in Exhibit 2-2. The 24 non-exclusionary criteria are summarized in Exhibit 2-3.

EXHIBIT 2-1. EVALUATION PROCESS

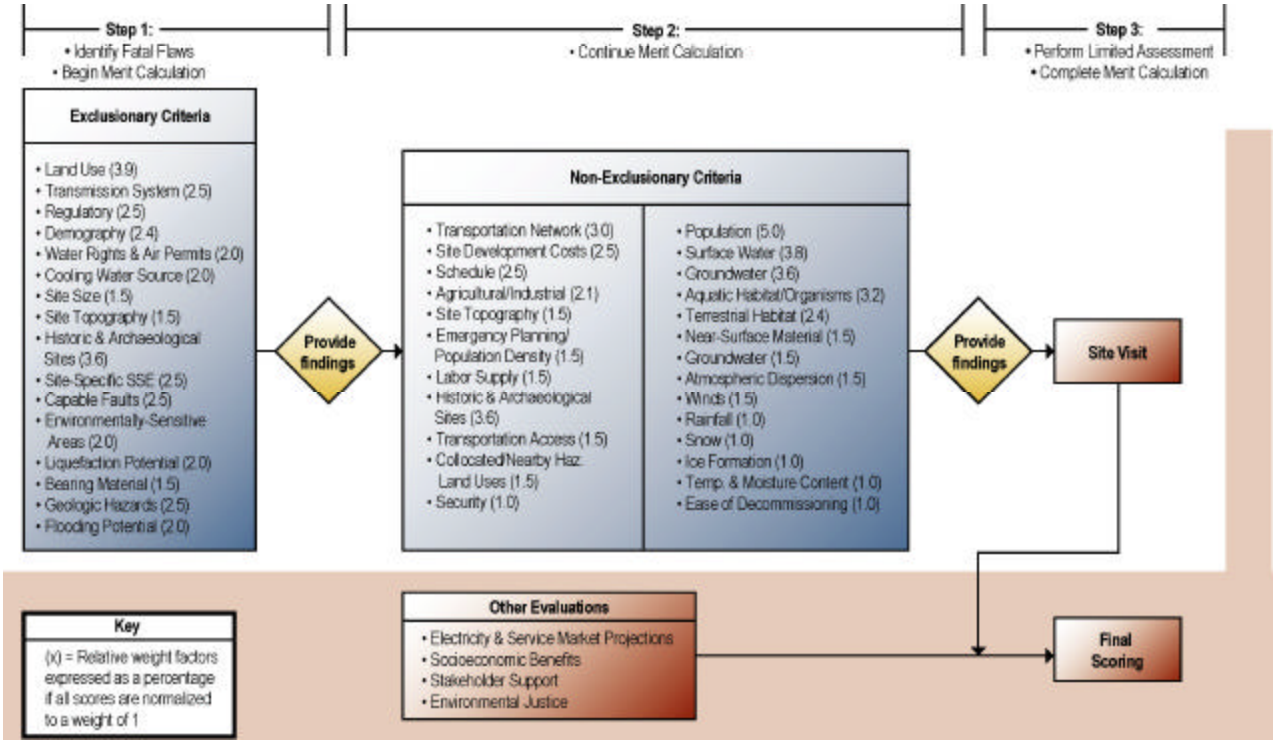


EXHIBIT 2-2. EXCLUSIONARY CRITERIA SUMMARY

Criterion	Objective of Criterion
Engineering and Economic Criteria	
General	
3.1.2 Transmission System	Provide access to transmission and distribution
3.1.3 Site Size	Provide adequate area for construction
3.1.4 Site Topography	Construct on level area
3.1.5 Environmentally Sensitive Areas	Minimize impacts to environmentally sensitive areas
3.1.13 Contamination and Regulatory Constraints	Avoid significant regulatory constraints and contamination issues
Seismology/Geology	
3.1.16 Geologic Hazards	Avoid geologic hazards
3.1.17 Site-Specific Safe Shutdown Earthquake (SSE)	Result in the ability to design for specific geologic criterion
3.1.18 Capable Faults	Avoid constraints from faults

EXHIBIT 2-2. EXCLUSIONARY CRITERIA SUMMARY (CONTINUED)

Criterion	Objective of Criterion
3.1.19 Liquefaction Potential	Avoid areas exceeding liquefaction threshold
3.1.20 Bearing Material	Meet construction requirements
Hydrology	
3.1.23 Flooding Potential	Avoid construction in flood prone areas
3.1.25 Cooling Water Source	Select area with adequate water supply and thermal assimilative capacity
Socioeconomic Criteria	
3.3.1 Land Use	Site in areas with compatible land use
3.3.2 Demography	Reduce impacts on local growth patterns
3.3.6 Historic and Archaeological Sites	Avoid areas of significant historical or archeological importance

EXHIBIT 2-3. NON-EXCLUSIONARY CRITERIA SUMMARY

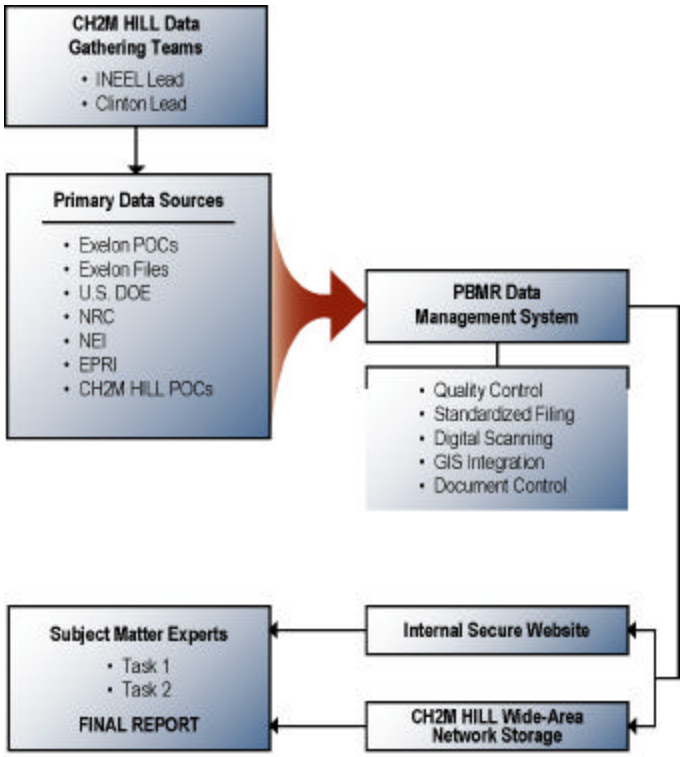
Criterion	Objective of Criterion
Engineering and Economic Criteria	
General	
3.1.6 Emergency Planning/Population Density	Minimize impediments to the development of emergency plans and impacts on design and operating criteria resulting from surrounding population
3.1.7 Labor Supply	Provide sufficient labor with appropriate skills for construction, operation, and decommissioning
3.1.8 Transportation Access	Provide adequate transportation access for construction, operation, and decommissioning
3.1.9 Security	Minimize impediments to the development of adequate security plans and measures
3.1.10 Collocated or Nearby Hazardous Land Uses	Minimize adverse effects on safe operation of the PBMR resulting from nearby hazardous industrial, transportation, or military installations
3.1.11 Ease of Decommissioning	Minimize impediments to decommissioning and eventual dismantling of the facility
3.1.14 Site Development Costs	Minimize impacts to costs for site development, licensing, permitting, operation, and maintenance
3.1.15 Schedule	Minimize schedule to complete site development, licensing, and permitting
Seismology/Geology	
3.1.21 Near-Surface Material	Provide adequate stability of the excavation for the PBMR and support for the other structures
Hydrology	

EXHIBIT 2-3. NON-EXCLUSIONARY CRITERIA SUMMARY (CONTINUED)

Criterion	Objective of Criterion
3.1.22 Groundwater	Minimize groundwater-induced hydrostatic loading on subsurface structures
3.1.24 Ice Formation	Minimize potential for ice formation that can affect plant design and operation
Meteorology	
3.1.26 Temperature and Moisture Content	Minimize impacts on plant design resulting from extreme ambient conditions
3.1.27 Winds	Minimize impacts on design load resulting from wind conditions
3.1.28 Rainfall	Minimize impacts on design resulting from rainfall and Probable Maximum Precipitation
3.1.29 Snow	Minimize impacts on design resulting from snow
3.1.30 Atmospheric Dispersion	Conduct adequate atmospheric dispersion modeling allowed by terrain and separation distance
Environmental Criteria	
3.2.1 Terrestrial and Wetlands Habitats	Minimize impacts on populations of important species or ecological systems
3.2.2 Terrestrial Natural Areas	Minimize impacts on terrestrial ecology
3.2.3 Aquatic Habitat/Organisms	Minimize impacts on aquatic ecology
3.2.4 Groundwater	Minimize impacts to the public and environment from groundwater pumping and potential exposure pathway
3.2.6 Population	Minimize impacts to human, animal, and aquatic populations
Socioeconomic Criteria	
3.3.4 Agricultural/Industrial Productivity	Consider the effects on local agricultural and/or industrial productivity
3.3.5 Aesthetics	Minimize the view of the plant and transmission lines from nearby valued cultural, historic, scenic, park, and recreation areas
3.3.7 Transportation Network	Minimize adverse effects on existing transportation networks

Task 1 served an additional function in the site selection process: the collection, evaluation, and cataloging of all project data. As shown in Exhibit 2-4, the data gathered for the Task 1 effort also served as the basis for information for Tasks 2 and 3.

EXHIBIT 2-4. DATA GATHERING PROCESS



The Project Team established two primary POCs for the INEEL and Clinton sites. Team subject matter experts (SMEs) were directed to contact these individuals, who then sent staff members to local libraries, regulatory agencies, government bodies, and the Exelon POC to obtain the information requested. All information was collected within the confidential framework agreed to by CH2M HILL with Exelon.

All information collected by the local teams was then entered into the Project Data Management System (PDMS). All the material was digitized, set up in the PDMS, and made immediately available to the project SMEs. An internal Web page was created to allow inquiries and access to the data. The Web page also contains a listing of SMEs and the NRC regulatory criteria. The list of references in Section 6.0 is a complete inventory of the data and information sources used to produce the findings contained in this report and estimate.

Sites Considered for Evaluation

Exelon's preliminary screening of a number of sites identified two locations that would likely qualify for the ESP process: one at the INEEL in Idaho and the other at Clinton, Illinois (see Exhibit 1-1 in Section 1.0). These two locations are shown in greater detail in Exhibits 2-5 and 2-6.

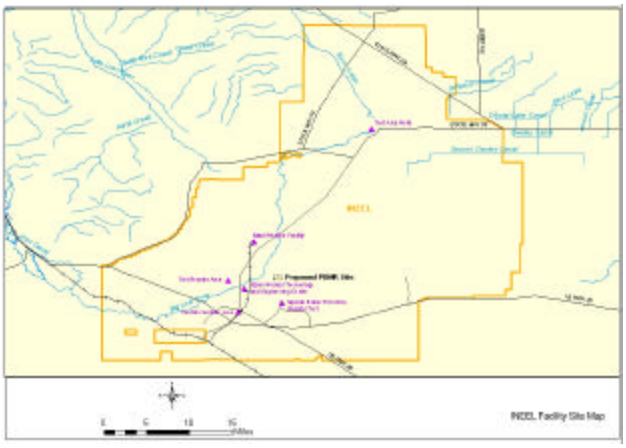
EXHIBIT 2-5. INEEL SITE LOCATION MAP

EXHIBIT 2-6. CLINTON SITE LOCATION MAP

Because of the extensive area that could be reasonably considered at both Clinton and INEEL, it was necessary to eliminate large areas from further consideration. By selecting defined areas within each site, the Project Team could more specifically apply the exclusionary criteria using location-specific data. For each site, it was assumed that these criteria would be applicable for a radius of 5 miles around the proposed site.

EXHIBIT 2-7. CLINTON FACILITY SITE MAP

EXHIBIT 2-8. INEEL FACILITY SITE MAP



At Clinton, as seen in Exhibit 2-7, the site considered was in the general location that had been previously selected for a second unit, immediately adjacent to the existing facility. This site avoids large areas that are actively used for public recreation and also has access to water, infrastructure, and other resources that will be important for future construction.

For the INEEL facility, as seen in Exhibit 2-8, CH2M HILL's site screening assessment determined that the location proposed for the New

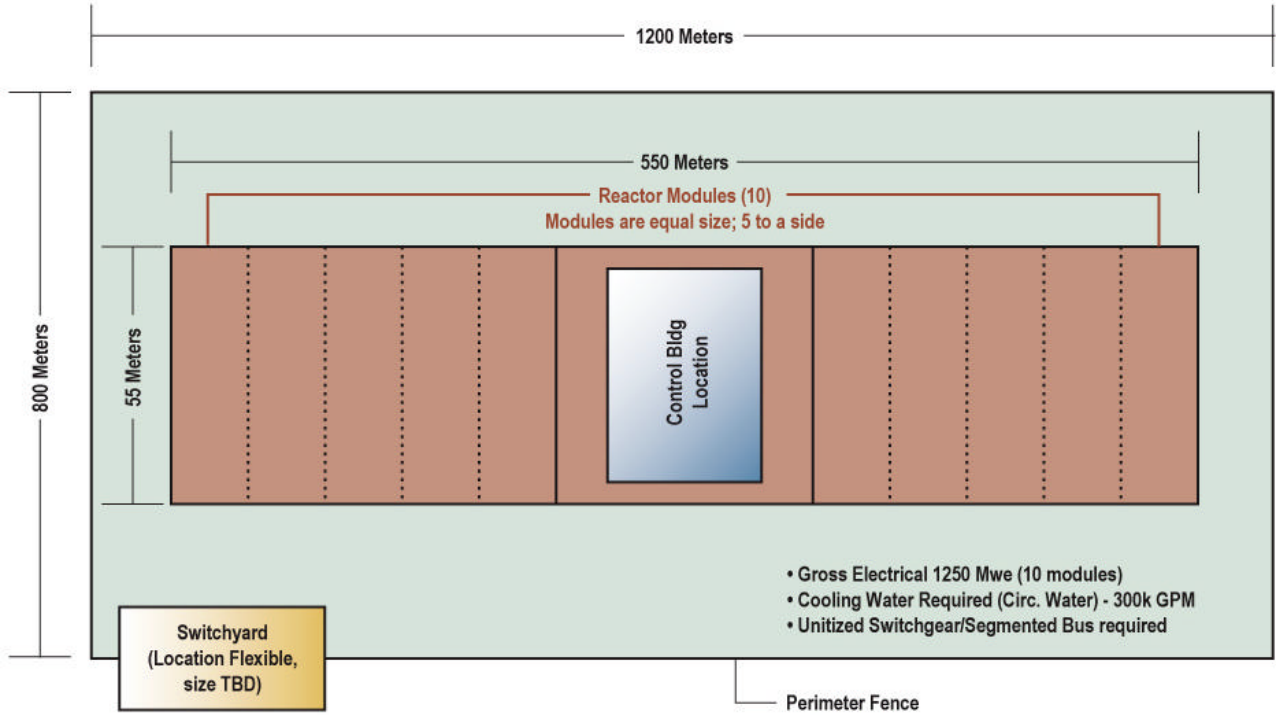
Production Reactor (NPR) would have the most beneficial features. The selection of the NPR location is for the general site selection activities. A more cost-effective location may be determined in closer proximity to the INEEL existing infrastructure. In conducting the site screening analysis at the NPR location, CH2M HILL avoided areas near known contaminated sites or publicly accessed highways, or those that have high potential for flooding.

Project Assumptions Used in Evaluation

The applied site selection criteria required a number of assumptions about certain elements of the proposed PBMR facility. Exelon furnished some of the assumptions; others were developed based on knowledge of other power generating facility requirements. The Exelon information assumed:

- The PBMR would consist of 10 modules with a total generating capacity of 1250 MWe.
- The footprint of these reactors, including the Control Building, would be 550 meters by 55 meters, as shown in Exhibit 2-9.
- The secured area enclosed by the perimeter fence, which would include all other required structures for the PBMR would be 1200 meters by 800 meters.
- The volume of water required for circulating water systems would be 300,000 gpm, which is equivalent to 668 cfs or 483,900 acre feet per year.
- A unitized switch gear/segmented Bus would be required.

EXHIBIT 2-9. PBMR FOOTPRINT



Data Collection and Analysis

As requested by Exelon, the data to be used in the evaluations were collected in a manner that maintained the confidentiality of the project. The data were obtained from a number of sources, including the Internet, published resources made available to CH2M HILL by Exelon staff or representatives at Clinton and INEEL, and Intranet access CH2M HILL has to the INEEL facility. Included in the data collection were all relevant regulations, nuclear regulatory guidance documents, and other technical resources relating to the siting and documentation requirements applicable to obtaining an ESP.

Following data collection, all the material was entered into the CH2M HILL PDMS, then posted to a secure Web site for access by the Project Team SMEs. Using this information, the SMEs conducted analyses in each of the technical areas relating to the siting criteria for evaluation. As data gaps were identified, local teams in Idaho and Illinois pursued additional data collection to eliminate these gaps.

Project Team members conducted site visits at INEEL and Clinton to verify information and obtain additional knowledge and understanding. At both sites, the Project Team was met by the Exelon POCs and other staff familiar with site conditions and features critical to site selection and ESP application.

At the INEEL site, the Exelon POC arranged for meetings with the DOE and representatives of the various facilities operating at INEEL. An extended site tour of the INEEL site included a visit to the NPR location. At Clinton, the Exelon POC arranged for station staff to present details on those items involved

in the pre-construction activities and site selection. Experts from the Power Station were on hand to discuss the transmission system and its availability for the PBMR and clarify issues associated with the existing cooling lake.

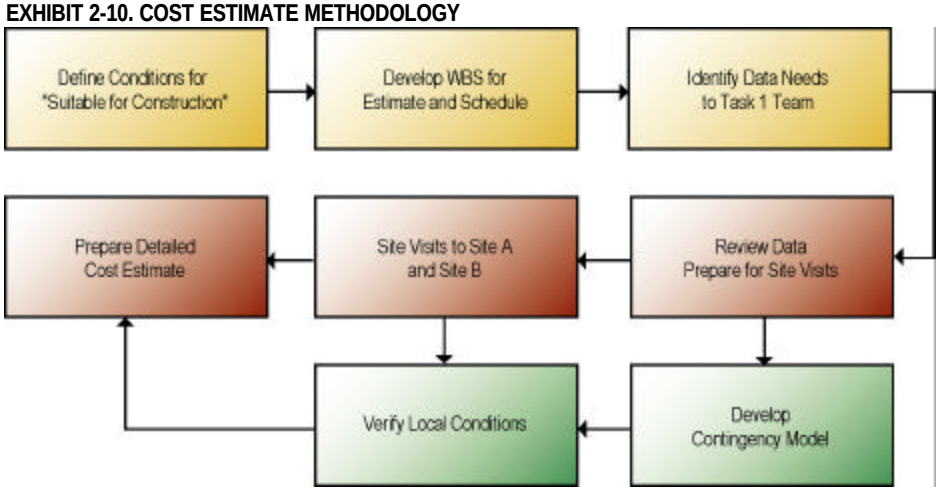
Evaluations of each site used an exclusionary and non-exclusionary criteria process. These evaluations resulted in a ranking or score assigned to each criterion; these rankings were applied to a weighting algorithm to develop a final merit calculation for each facility. A sensitivity analysis for those factors that most significantly affect the siting decisions based on the merit calculations was also completed.

2.2.2 Task 2: Pre-Construction Site Suitability Estimate

The second task under the scope of work was to prepare a cost estimate for construction activities necessary to make the site suitable for constructing a PBMR. The methodology used to accomplish this scope of work, as shown in Exhibit 2-10, was to:

- Define the condition of the site necessary to achieve the state of being "suitable for construction"
- Define the work breakdown structure (WBS) to be used in developing the estimate and the construction schedule
- Identify to the data collection teams of Task 1 the specific type of data necessary to complete the estimate
- Review the collected data and prepare for site visits to each of the sites. Included for the site visits were general arrangement drawings and site layouts using the PBMR footprint
- Obtain agreement with the property owner or representative on the general location of the PBMR and acquire information on pricing of materials and labor from local contractors
- Prepare the detailed cost estimate and construction schedule for both sites
- Conduct a contingency analysis for the cost estimates.

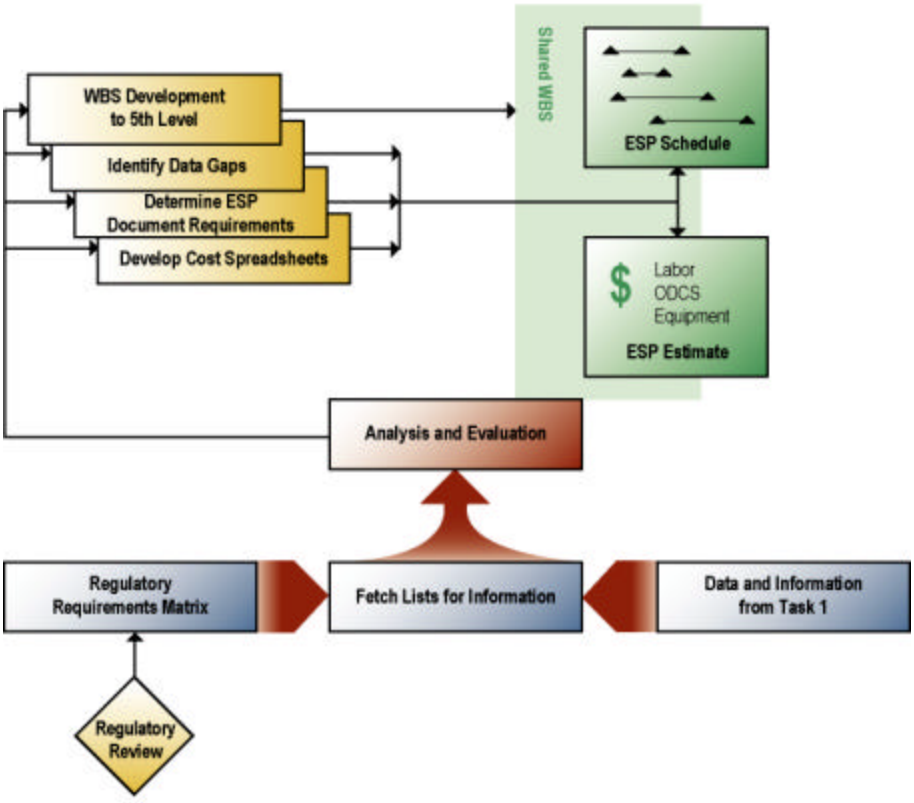
EXHIBIT 2-10. COST ESTIMATE METHODOLOGY



2.2.3 Task 3: Early Site Permit Application Estimate

Exhibit 2-11 shows the methodology used to develop the cost estimate and schedule for preparing an ESP application. The cost estimate, which was developed down to the fifth level of the WBS, included the major components of the ESP application, along with project management and administration. The draft WBS was submitted to Exelon for review and Exelon's comments have been incorporated into the final WBS found in this report.

EXHIBIT 2-11. METHODOLOGY USED FOR ESP ESTIMATE AND SCHEDULE



In the cost estimate, the SMEs reviewed the material from Task 1 and compared it to the regulatory requirements of 10 CFR 52, Subpart A, and other requirements as listed in Appendix J. As part of the Task 3 effort, CH2M HILL developed these regulatory requirements, which are discussed in greater detail below. The SMEs used a project-specific standardized estimating spreadsheet to enter the number of hours by labor category estimated to accomplish ESP activities.

Weather was not considered a limitation in completing the field efforts assumed necessary to develop any of the ESP documents.

The Project Team identified the Top Level Regulatory Criteria (TLRC) that they believe govern the content of an ESP application. These TLRC came from 10 CFR 52, Subpart A, and other referenced or applicable CFRs. From the TLRC, the Project Team developed the underlying second level regulatory criteria (RGs and NUREGs) that may be applicable to the preparation of an ESP application

SUBJECT MATTER EXPERTS (SME)

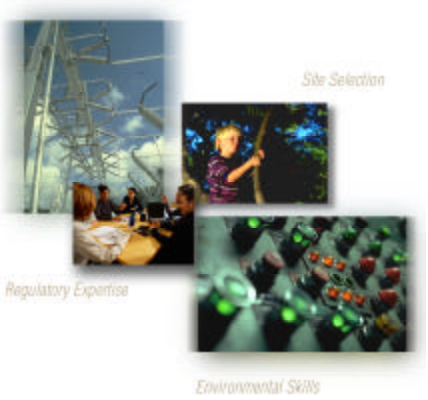
- Seismic
- Geotechnical
- Meteorology
- Hydrology
- Aquatic Biology
- Demographics
- Land use
- Environmental
- Emergency Planning
- Security Construction
- Safety
- Health Physics
- Estimating
- Water Quality
- Regulations
- Permitting
- Statistics

and the documents needed. Both the top and second level criteria identified as a result of the Project Team's review are identified in Appendix J.

SMEs for various discipline areas were identified and assigned review responsibilities. One or more SMEs were assigned to each of the areas shown in the accompanying text box below. The SMEs reviewed information gathered during Task 1 from the site visits and from other readily available sources, then compared the material to the TLRC and second level regulatory criteria. The SMEs were tasked with identifying the second level regulatory criteria to be applied and determining whether existing information would meet these criteria. The SMEs also identified any assumptions about the acceptability of this data.

Based on this review, the SMEs identified technical work that may need to be performed to generate the information required in the ESP application. Cost estimates were then developed based on the necessary technical work (e.g., site investigations and analysis), to prepare the associated section of the ESP application. The estimates assume a nominal effort for resolving Exelon's comments. The SMEs used a project-specific standardized estimating spreadsheet to enter the number of hours by labor category estimated to accomplish ESP activities.

The SMEs also supplied schedule estimates to support the development of an integrated schedule, including precursors and logic ties. The schedule for the ESP was developed using the same WBS as that of the cost estimate. Key linkages in the schedule were based on the relationship of information and analyses requirements of the Site Safety Analysis Report (SSAR). The SSAR was determined to be the critical path of the schedule and logic ties were linked to the various chapter requirements. In all cases, project team members assumed that Exelon would provide the PBMR plant-specific data necessary to complete the SSAR assessments or description.



3.0 Task 1: Site Selection and Data Evaluation

This section provides a discussion of the findings from the site evaluation, and addresses details of the site merit calculations relative to each criterion evaluated for each site.

Findings of Data Evaluation for Site Selection Criteria

- Both the INEEL and Clinton sites qualify for the ESP process.
- Neither the INEEL nor Clinton site was found to have conditions prohibiting the siting of a PBMR.
- The site selection criteria evaluated by CH2M HILL do not provide remarkable distinctions between the sites.
- Market factors, transmission grid and detailed construction cost could better define site distinctions

3.1 Findings and Discussion

Of first priority in Task 1 was the determination by the SMEs that there were no "fatal flaws" in terms of siting a PBMR at either location. The findings from the evaluation of information pertaining to the siting criteria are provided below, first for the INEEL site and then for the Clinton site. As noted in the accompanying text box, neither site presented characteristics that distinguished it from the other.

The evaluation of site criteria did not find a remarkable difference between the sites. The ranking of the sites using the 39 criteria alone is not sufficient to clearly recommend one site over the other. For a detailed evaluation of the sites, please see Appendices A and B. Other factors not included in the evaluation provide additional decision-making information, including market conditions, access to the transmission grid, detailed construction cost estimates, and assessment of public acceptance. These factors will likely provide overriding consideration for the proposed sites.

For the INEEL Site: No exclusionary criteria were found that would preclude siting a PBMR at the NPR location at the INEEL. Initial assessment of the exclusionary criteria raised a potential concern with overall water requirements for the facility and the need to provide a lagoon to manage released blowdown water from a cooling tower. During the INEEL site visit, the Project Team determined that water availability and cooling water requirements would not preclude siting. Additional studies for groundwater capacity in the vicinity of the proposed site are included as part of the ESP application cost estimate.

The non-exclusionary evaluation of the proposed INEEL site indicates this site ranks favorably (a ranking of "4" on a scale of 1 to 5, where 5 is excellent) for the vast majority of the criteria. The evaluation of the non-exclusionary criteria shows that siting the PBMR at the NPR location results in favorable rankings for all but two criteria. The INEEL site received a low ranking for the anticipated drainage and structural design load considerations for snow.

For the Clinton Site: No exclusionary criteria were found to preclude siting a PBMR in the general area of proposed Unit 2. In its initial findings for Task 1, the Project Team found two items that required clarification: (1) overall water requirements for the facility; and (2) whether the existing reservoir (Clinton

Lake) could be used for water supply, heat dissipation, or both. Following the site visit with the Clinton staff, the Project Team was able to determine that neither item would remain as a concern with regard to a "fatal flaw." Thus, no exclusionary criteria were found to prevent the Clinton site from qualifying for an ESP application.

The non-exclusionary criteria evaluation of the proposed Clinton site indicates that this site ranks favorably for the vast majority of criteria. The lowest rankings resulted from potential negative effects on agricultural productivity and aesthetics and the anticipated drainage and structural design load considerations for snow.

3.1.1 Site Merit Calculations

The following section describes the results of the scoring activity conducted by the SMEs.

Discussion of Site Evaluation Criteria

The criteria forming the framework of the evaluation were grouped according to similarity of characteristics (i.e., engineering, economic, environmental, and sociological). The criteria are based on a number of sources, including NRC regulatory requirements, the earlier DOE Demonstration Program reports, and professional judgment of the SMEs. The evaluation of the information was completed for each site for both exclusionary and non-exclusionary criteria. The scores assigned for each criterion and for each site are summarized in Appendix C (exclusionary criteria for the INEEL), Appendix D (exclusionary criteria for Clinton), Appendix E (non-exclusionary criteria for the INEEL,) and Appendix F (non-exclusionary criteria for Clinton).

Associated with each criterion is a discussion of the considerations and evaluations that went into the score each criterion received. In some instances, additional notes have been included to clarify certain scores. Extensive discussions were held between the SMEs and the POCs to ensure that all of the relevant information obtained during the task was properly reflected. An important aspect of these discussions was the need to ensure that the SMEs were interpreting the criteria and assigning scores in a consistent manner at both sites. The Project Team Task Manager and Project Manager served as the moderators for these discussions to maintain a balanced perspective.

While many of the criteria developed are appropriate and relevant to the purpose of this project, some were modified to better reflect the PBMR design concepts affecting siting. The criterion were also modified to provide a more realistic framework for an effective siting process.

Scoring Strategy

The maximum score for the 39 criteria evaluated and rated by CH2M HILL is 404 points. The scoring for the geologic hazards is not included, inasmuch as the assessment is a "go" or "no go" decision.

Appendices C through F present the scoring of each of the 39 criteria for the INEEL and Clinton sites. The scores shown in these appendices represent the most likely score for each criterion as determined by the SMEs.

Where more than one score was possible for a criterion, probabilities were assigned. The scores and probabilities are presented in Appendix A and Appendix B. Assigning probabilities to different scores allowed the SMEs to conduct an analysis that indicates the potential range in scores for each site, using the risk analysis tool @RISK.

Using the "mean" scores within each criterion, the final merit calculation was determined. The difference is not considered a significant difference at the site selection phase.

Comparative Analysis Between Sites

The mean criteria score for each of the sites is over 4 on a scale of 0 to 5, where 5 is excellent, 0 is exclusionary, and 1 is either exclusionary or poor.

Other factors will be important in making a final site selection—capital cost considerations, project schedule, market revenue potential, availability of project development subsidies, operation and maintenance (O&M) costs, and sociopolitical considerations. The preliminary observations indicate that there are differences between the two sites for these other factors. For example, the INEEL site would need a transmission system upgrade, whereas the Clinton site is linked to the regional network to distribute additional power output.

The Task 1 Findings Report for exclusionary criteria concluded there are no fatal flaws that would prevent either facility from being qualified for the ESP process. (Detailed Merit Calculations Sheets are provided in Appendices A and B.)

Sensitivity Analysis of Scoring for Sites

The sensitivity analysis focused on three areas:

1. Those criteria from the scoring protocol for which the Project Team suggested changes and evaluated the impact these changes would have on the scoring
2. The weights applied to each of the criteria and what changes in this weighting would have on the final score
3. The sensitivity around the scores applied to each of the criteria.

A sensitivity analysis related to the scoring has largely been done through CH2M HILL's assignment of the probabilistic distribution of scores for each criteria. This analysis has allowed the Project Team to perform the likely score range for each site and develop confidence levels around the scoring. This information, augmented with previous information, demonstrates that both sites are good candidates for the siting of the PBMR. The additional criteria evaluated by Exelon are very important to the analysis and the ultimate financial modeling

will need to be coupled with these results before decisions to proceed beyond ESP permitting can be made.

3.2 Significant Changes in Site Characteristics at Clinton

An evaluation of current site conditions at the Clinton site compared to those of the permit conditions did not reveal any significant changes. While there were changes in the National Pollution Elimination Discharge Permit (NPDES) for Clinton Lake, these changes were favorable to the plant operation and not detrimental to siting the PBMR. There is the possibility that the net flow balance of Clinton Lake will not sustain the makeup water flow to 10 modules. Further modeling during the ESP process and investigation in groundwater sources are recommended.

4.0 Task 2: Construction Suitability Estimate and Schedule

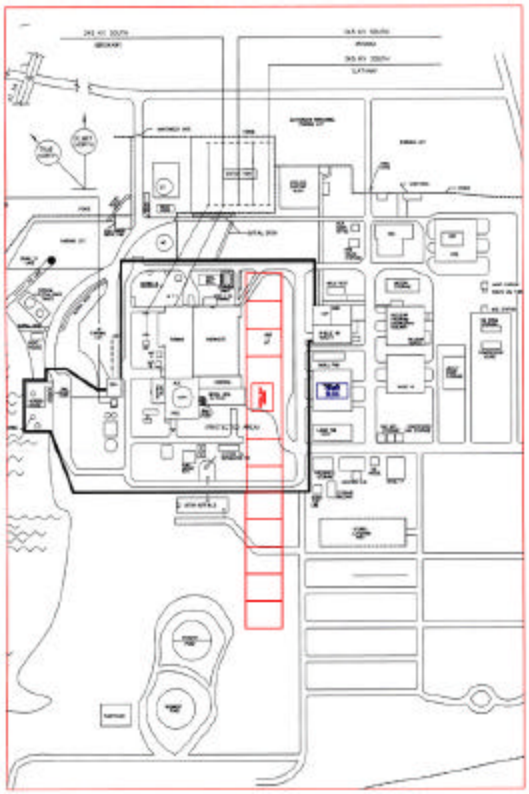
The following discussions provide the results of the construction suitability estimate and the construction schedule for each of the two sites. The methodology used to develop the cost estimates and schedules is provided in Section 2.0 and illustrated in Exhibit 2-11.

4.1 Findings Pertaining to Cost Estimates

The results of the cost estimates to ready the INEEL and Clinton proposed PBMR sites for full-scale construction are as follows:

Construction Suitability Cost Estimate	
INEEL Site	$8,437,370
Clinton Site	$1,581,173
Difference	$6,856,197

EXHIBIT 4-1. PBMR SITE LOCATION AT CLINTON



These estimates assume the INEEL site is in the footprint of the NPR location (see Exhibit 2-8 in Section 2) and the Clinton site is immediately adjacent to the east side of the Unit 1 building in the Unit 2 pit area (see Exhibit 4-1).

The primary difference in cost between the INEEL and Clinton sites is associated with bringing the transportation linkage and power to the site. As shown below, the total cost per mile for permanent road, railroad, and 12 kV line is estimated at $1,873,710 per mile and the facility is approximately 2.5 miles from the access points:

Costs Per Mile	
Cost of Road per mile	$867,364
Cost of Railroad per mile	$825,522
Cost of 12 kV line per mile	$180,824
Total access cost per mile at the INEEL Site	$1,873,710

An added factor for the INEEL site is the amount of material to be graded in order to level and prepare the site for construction. The quantity of material to be cut and filled is about 685,000 cubic yards. The estimated cost is nearly $1,350,000. The Clinton site has an excavation in the Unit 2 pit area and no significant fill is required.

The INEEL facility contains several alternative site locations for a PBMR within its 890 square mile boundary; relocating the INEEL PBMR footprint to the west, and thus closer to the site infrastructure, would reduce the distance for roadways, railroad, and power lines. However, the site would potentially be in a flood zone, which may increase the overall cost of the PBMR. A detailed cost trade-off between the NPR site footprint and other sites to the west of the NPR site is beyond the scope of this work.

4.2 Findings Pertaining to Construction Schedule

The construction schedules for the INEEL and Clinton sites are shown in Appendix I. The estimated duration is 9 months for the INEEL site and 6 months for the Clinton site. Approximately 20 days of float are provided in each of these schedules. As expected, the INEEL site schedule is longer in duration than the Clinton site schedule because of the added time to construct access for roadways, railroad, and power lines.

The schedules were developed using routine durations for each of the major tasks. These durations are representative of CH2M HILL experience at INEEL and in the Illinois area. A more aggressive schedule could be achieved with schedule incentives for subcontractors or longer work weeks. The schedules currently are based on working five 10-hour days each week with one shift. No disruption in schedule has been taken for ongoing activities at the INEEL or at Clinton.

4.3 Summary Estimate for the INEEL

A summary of costs for the INEEL site is provided in Exhibit 4-2. The detailed cost estimate is provided in Appendix G. The summary costs include contingency, overhead, and contractor's fee. A discussion of contingency is provided in Section 4.5 below. No contingency was provided for encountering hazardous waste along the access route on the NPR site. Site records do not show the presence of hazardous waste in these areas.

EXHIBIT 4-2 - SUMMARY ESTIMATE FOR THE INEEL SITE FOR CONSTRUCTION SUITABILITY

Cost Element	Labor	Equipment	Job Material	Permanent Material	Subcontractors	Total
Direct Cost	$633,222	$841,615	$7,000	$11,667	$3,725,618	$5,219,122
Indirect Cost	$546,553	$96,834	$468,896		$50,000	$1,162,283
Subtotal	$1,179,775	$938,449	$475,896	$11,667	$3,775,618	$6,381,405
Contingency						$308,500
Subtotal						$6,689,905
Overhead and Fee						$1,747,465
Grand Total						$8,437,370

In developing the cost estimate for the INEEL, the 10 modules of the PBMR were placed in an east-west alignment at the former NPR site. Access to the site will be via a newly constructed asphalt roadway (and standard gauge railroad). The railroad and road will cover approximately 2.5 miles from the existing Lincoln Boulevard.

The main activities to be completed at the site entail:

1. Opening a borrow pit along the access road (at several locations) to obtain fill materials for the new access road and the railroad bed. Both are assumed 5 feet above the existing grade. The construction embankment must be constructed in order to achieve a level above the flood plain.
2. Opening gravel pits in order to obtain material to apply an aggregate base-course for the road and ballast material for the railroad.
3. Inserting two crossings (1 for the road and 1 for the railroad) made of large diameter corrugated pipes in order to cross the Big Lost River riverbed.
4. Adding asphalt pavement to the roadway to achieve an all weather road along with signs and striping for day and night driving and track and switching materials for the railroad spur.
5. Removing the vegetation from both the site and the two access lines.
6. Activating the existing 6-inch diameter well with a pump to supply construction water.
7. Bringing a 12 kV construction power line from the existing substation at the INTEC site (2.3 miles away).
8. Building a parking area and lay-down areas within the newly constructed site fence.
9. Locating an office and other miscellaneous facilities for these temporary site development activities.

4.4 Summary Estimate for Clinton

A summary of costs for the Clinton site is provided in Exhibit 4-3. (The detailed cost estimate is provided in Appendix H.) The summary costs include contingency, overhead, and contractor's fee. A discussion of contingency is provided in Section 4.5 below.

EXHIBIT 4-3. SUMMARY ESTIMATE FOR THE CLINTON SITE FOR CONSTRUCTION SUITABILITY

Cost Element	Labor	Equipment	Job Material	Permanent Material	Subcontractors	Total
Direct Cost	$110,134	$107,298	$7,800		$249,960	$475,192
Indirect Cost	$452,267	$65,594	$171,870		$25,000	$714,731
Subtotal	$562,401	$172,892	$179,670	*Cost in Subs	$274,960	$1,189,923
Contingency						$75,000
Subtotal						$1,264,923
Overhead and Fee						$316,250
Grand Total						$1,581,173

After discussions with Clinton Plant personnel during the site visit, it was agreed that the most probable location for the PBMR is in the excavation pit of Unit 2. Exhibit 4-1 (shown previously on page 4-1) provides an approximate representation of the PBMR configuration in the Unit 2 area.

In selecting this location, the footprint of the reactors will need to be shifted from the center location of the current footprint. The configuration will need to be shifted in the southerly direction to avoid the buried cooling water lines running along the North side of the excavation. When this shift is made, the last 5 to 6 modules will be outside the existing excavation (that excavation will be assigned to the construction contractor to complete).

There are some basic site preparation areas included in this site development estimate. In the relocation of the modules, there are four items to be addressed:

1. The fence that crosses the 10 module footprint must be removed and during its removal, a closure must be made on both the North and South sides of the boundary to secure the Unit 1 area
2. The railroad spur providing access to Unit 1 must be shifted to the South
3. The plant fire loop will need to be shifted to the south
4. The buried 12 kV line will also be moved south of the footprint.

Other items of work at the site include:

1. Removing the mud mat in the bottom of the Unit 2 excavation
2. Opening a borrow pit at a distance of about 2,600 feet east of the plant

3. Providing a permanent access to this area
4. Removing the vegetation on the parking area and lay down areas and adding crushed gravel to the surface
5. Identifying the water and electrical source for the batch plant
6. Locating an office and other miscellaneous facilities for these temporary site development activities.

4.5 Contingency Analysis

The contingency analyses for the INEEL site and the Clinton site are shown in Exhibits 4-4 and 4-5, respectively. Contingency for the INEEL site is set at approximately $350,000 and at the Clinton site approximately $85,000. In neither instance is the contingency considered significant, given the nature of the work. Site clearing and grubbing and roadway and railroad construction are routine practices with low contingency in such low risk areas as the INEEL and Clinton. The 12 kV line is also considered low risk at the two sites. No contingency was provided for encountering hazardous waste along the access route on the NPR site. Site records do not show the presence of hazardous wastes in these areas.

\EXHIBIT 4-4. CONTINGENCY ANALYSIS FOR THE INEEL SITE COST ESTIMATE

The approach to the site development of the INEEL site consists of the following criteria and the contingency allowances to mitigate those costs:

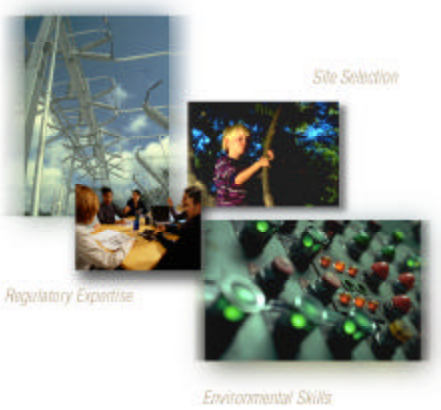
Item of Concern	Cost	Contingency	Contingency Allowance
Cost of labor	$1,179,775.00	Used union wages supplied by the site	See contingency on subcontractor's work (below)
Cost of purchased stone/asphalt products	$1,993,665.00	From existing site contracts	See contingency on subcontractor's work (below)
Supervision of subcontractor	$204,611.00	Put in a construction manager team consisting of a project manager and cost engineer	None
Taxes on materials	$1,993,665.00	Excluded	None
Escalation on project total costs	**$8,437,370.00**	Excluded	None
Subcontractor performance	$7,133,094.00	Bond included	$44,350
Subcontractor meeting schedule	$7,133,094.00	Contingency of 4% included	$308,500
For Information Purposes Only			
End Power transmission to Antelope Substation for PBMR	**$3.5 Million**		

The Rough Order of Magnitude cost for the transmission lines from the PBMR to Antelope Valley Substation does not include Unitized Switch Gear/ Segmented Bus. Nor does it contain two separate off-site transmission lines for independent powering of the future PBMR plant.

EXHIBIT 4-5. CONTINGENCY ANALYSIS FOR THE CLINTON SITE COST ESTIMATE

The approach to the site development of the Clinton site consists of the following criteria and the contingency allowances to mitigate those costs:

Item of Concern	Cost	Contingency	Contingency Allowance
Cost of labor	$562,401.00	Used union wages supplied by the site	See contingency on subcontractor's work (below)
Cost of purchased stone products	$129,660.00	Used $30.00/ton	See contingency on subcontractor's work (below)
Supervision of subcontractor	$137,136.00	Put in a construction manager team consisting of a project manager and cost engineer	None
Taxes on materials	$158,160.00	Excluded	None
Escalation on project total costs	$1,581,173.00	Excluded	None
Subcontractor performance	$1,216,763.00	Bond included	$10,400
Subcontractor meeting schedule	$1,216,763.00	Contingency of 6% included	$75,000
Excavation for the south modules outside the existing excavation	Not in scope	Excluded from this work	None



5.0 Task 3: ESP Estimate and Schedule

5.1 Findings

The findings for Task 3 are divided into three primary areas:

1. Cost estimate for the ESP application and NRC participation and review (See Exhibits 5-1 and 5-2)
2. Schedule for requests for additional information (RAI) response periods (See Exhibit 5-3)
3. Regulatory requirements which impact the preparation of the ESP application.

The remainder of this section addresses these findings in the order given.

5.1.1 Findings Concerning Cost Estimates for the ESP Application and NRC Participation and Review

The results of the ESP application cost estimate are provided below. These costs reflect the following work activities:

- Preparing an ESP application
- Responding to RAIs on the Environmental Report (ER) and the Site Safety Analysis Report (SSAR)
- Responding to comments from the public on the draft Environmental Impact Statement (EIS).

These activities will be executed through the NRC's preparation of the Safety Evaluation Report (SER) to be submitted to the Advisory Committee on Reactor Safeguards (ACRS). Given the fact that neither the NRC nor the public has gone through the ESP process, the costs in Exhibit 5-1 represent a baseline cost estimate. Ranges from this baseline and factors influencing these ranges are discussed further in Sections 5.1.4 and 5.1.5.

It should be noted that the cost estimates presented herein reflect an approximate 15% savings to the cost to prepare the application, based on CH2M HILL's preparing each ESP application. This savings can be applied based on the considerable information and data learned during the course of preparing this scoping study and the ability to apply this information in a cost savings manner to application preparation. Should a separate party not a part of the scoping study be retained to prepare an ESP application, the estimated cost to prepare each application would be approximately 15% higher.

These costs reflect additional field work to be performed at both sites. That field work requires hydrological investigations (installation of monitoring wells, along with pumping tests to confirm availability of water and potential impacts to nearby users) of approximately equal magnitude for both the Clinton and INEEL sites.

EXHIBIT 5-1. COST ESTIMATE FOR ESP DEVELOPMENT AND APPROVAL

Cost Estimate for Application Prior to NRC Submittal		
Activity Description	**INEEL**	**Clinton**
Contractor Activities		
ESP Application	$11,885	$16,252
Environmental Report (ER)	$783,061	$772,488
Site Safety Analysis Report (SSAR)	$1,403,974	$1,468,388
Emergency Plan (EP)	$190,161	$132,916
Redress Plan	$16,690	$16,869
Management and Administration	$347,164	$430,989
Environmental Justice	$78,503	$78,503
Subtotal	**$2,831,438**	**$2,916,405**
Applicant Activities:		
Management and Administration	$860,000	$860,000
On-Site Engineering – Site Support	$30,000	$30,000
Outside Counsel Legal Fees – Application Review	$430,000	$430,000
Outside Counsel Legal Fees – Regulatory Support	$110,000	$110,000
Technology Insights – PBMR PPE Development	$30,000	$30,000
External Communications	$50,000	$50,000
Subtotal	**$1,510,000**	**$1,510,000**
NRC Activities:		
Pre-Application Review Fees	$320,000	$320,000
Subtotal	**$320,000**	**$320,000**
TOTAL	**$4,661,438**	**$4,746,405**
Cost Estimate for Activities Post NRC Submittal		
Contractor Activities		
Defend NRC Review of ESP Application	$744,165	$744,165
Subtotal	**$744,165**	**$744,165**

Cost Estimate for Activities Post NRC Submittal (Exhibit 5-1 continued)		
Activity Description	**INEEL**	**Clinton**
Applicant Activities:		
Management and Administration	$940,000	$940,000
Outside Counsel Legal Fees – Defend Application	$645,835	$645,835
External Communications	$30,000	$30,000
Subtotal	**$1,615,835**	**$1,615,835**
NRC Activities:		
NRC Fees Post-Submittal	$5,780,000	$5,780,000
Review Fee Contingency	$400,000	$400,000
Subtotal	**$6,180,000**	**$6,180,000**
TOTAL	**$8,540,000**	**$8,540,000**
GRAND TOTAL	**$13,201,438**	**$13,286,405**

The above costs are based on the 1st and 2nd round RAI "Complex" case. See Exhibit 5-2.

The field work costs are included under the SSAR WBS. This is appropriate, as the SSAR is the critical path for the schedule and requires this information prior to completion.

Estimated baseline costs for the NRC activities are provided in Exhibit 5-2 below. As with the contracted costs, ranges for these costs for the NRC interface activities are provided in Sections 5.1.4 and 5.1.5 for the INEEL and Clinton sites, respectively. The NRC costs are based on the NRC's own estimate, contained in its *Future Licensing and Inspection Readiness Assessment (FLIRA)* report dated September, 2001. The FLIRA report is an attachment to NRC SECY-01-0188, *Future Licensing and Inspection Readiness Assessment*. An additional contingency of $400,000 was added to the NRC's total review cost figure to reflect potential protracted public participation and higher than anticipated costs due to the NRC's receipt of applications from more than one party.

With respect to the Project Team's costs during the period following the submittal of Exelon's ESP application to the NRC, the Project Team has estimated a complex case estimate beyond the baseline cost for both contracted services and NRC requirements. The cost information of both sites for NRC Participation and Reviews, the First Round RAI Baseline, Complex and Second Round RAI Complex for the SSAR, ER, and EP are estimated in Exhibit 5-2.

EXHIBIT 5-2. REQUEST FOR ADDITIONAL INFORMATION ON SITES 1 AND 2

RAI Sites 1 and 2	
1st Round RAI Baseline	
SSAR	$59,082.49
ER	$283,552.05
EP	$31,530.13
TOTAL	$374,164.67
1st Round RAI Complex	
SSAR	$79,998.88
ER	$356,314.89
EP	$74,184.00
TOTAL	$510,497.77
2nd Round RAI Complex	
SSAR	$37,218.50
ER	$166,751.77
EP	$29,697.80
TOTAL	$233,668.07

5.1.2 Findings Concerning Schedules for Developing the ESP

The schedules for the ESP application preparation and regulatory review were assumed to be essentially equal for both sites. There will be differences at the two sites because of the nature of public participation, State agency involvement, and details required for the PPE development. While these differences are likely, there is currently no evidence regarding what schedule impact these may present on a comparative basis. To NRC, efforts are also assumed to have the same durations for both sites.

Each ESP application is estimated to take 11 months to prepare, including field work. However, due to report preparation synergies, should the two applications be prepared concurrently, the total duration to prepare both applications would be approximately 16 to 18 months. The time to the public hearing after submitting the ESP, not including the ACRS review, is estimated to be a total of 23 months. This figure is based on a review of the mandatory (regulatory imposed) docketing, review, commenting and notice provisions, and reasonable time for the various NRC reviews, when compared against the average time for the NRC to complete similar reviews in connection with recent industry license renewal applications. There are some key assumptions in this schedule:

- Field work will be limited to the geohydrologic investigations
- The SSAR is the critical path through the ESP application

- The NRC will need at least one round of RAIs for both the SSAR and EP, as well as the ER
- Each round of RAIs will need a 60-day response period from Exelon
- The draft SER will take 5 months to produce
- The public comment period for the draft EIS will likely be extended by the NRC to 60 days.

These durations can be shortened or eliminated by partnering with the NRC to mitigate the need for formal written questions and ensuring that information is provided in the most useable form for the staff.

Range

Although Title 10 of the CFR appears to establish minimal regulations for examining the suitability of a site, there is significant uncertainty in the breadth and depth of detail that will be required in the SSAR and EP information for a new reactor technology. Because the current regulations and secondary level regulatory criteria are structured for standardized design light water reactors, significant uncertainty is also associated with the NRC staff review of the ESP application. The Project Team has estimated a complex case schedule beyond the baseline case, shown in Exhibit 5-3, for both contracted services and NRC requirements based on the listed assumptions.

EXHIBIT 5-3. SCHEDULE ASSUMPTIONS FOR COST ESTIMATE DEVELOPMENT

The ESP process can demonstrate a wide range of possibilities.

Activity	Baseline Case Assumptions	Complex Case Assumptions
Number of 1st round RAIs for SSAR	200	500
Number of 1st round RAIs for ER	50	125
Number of 1st round RAIs for EP	25	50
Number of 2nd Round RAIs for SSAR	–	200
Number of 2nd Round RAIs for ER	–	50
Number of 2nd Round RAIs for EP	–	20
Means of NRC Interactions	Partnering with table talk discussions	Formal
Duration of Draft EIS	4 months	6 months
Duration of SER	4 months	6 months
Duration of 1st round RAIs	6 months	9 months
Duration for draft EIS public comment period	60 days	90 days
Number of public comments	3,000	7,000
Number of hours to respond to each RAI comment	10	10
Duration of response to RAIs	60 days	90 days

5.1.3 Findings Concerning Regulatory Requirements Impacting the ESP Application

The following are the major findings concerning the regulatory activities undertaken by CH2M HILL for the Task 3 scope of work:

- The reactor vendor will need to identify specific plant parameters, source terms, and bounding events for each reactor type considered before the ESP application can be prepared.
- Assuming that the reactor designs that would be the subject of the application are non NRC certified designs, established specific PPE are recommended, as are mechanistic siting source terms for each reactor type considered to:
  - Prevent imposing unwarranted off-site plume exposure emergency planning requirements
  - Establish the basis for analyzing fission product releases under normal and bounding conditions for comparison to regulatory acceptance criteria
  - Reflect the reduced environmental impacts that require assessment in the EP
  - Further develop acceptance of fuel as having acceptable containment
  - Provide a basis for NRC conclusions that the proposed reactor design can be constructed and operated on the site under consideration without undue risk
- While the Nuclear Energy Institute has submitted a petition for rulemaking to eliminate the requirement to perform an Environmental Justice evaluation at a non-government site (i.e., Clinton), the cost estimated presented herein assumes that this requirement will still be in effect in the immediate future.
- Current regulatory structure subjects merchant licensees to independent implementation of both security and emergency planning requirements. Regulatory changes could result in opportunities for cost savings when siting at licensed reactor sites.
- Siting of a reactor at the INEEL is likely to result in somewhat greater implementation costs for security and emergency planning because:
  - Some DOE security requirements are more stringent than those imposed by the NRC
  - Although DOE and NRC emergency planning requirements are similar, additional interfaces will exist
- Since the reactor designs that will likely be the subject of Exelon's ESP application will be reactors for which all of the design details have not yet been finalized, the Emergency Preparedness information submitted with the ESP application will consist of the "major features" option presented in

NRC regulations. This will prevent over commitments in the ESP application and allow Exelon to pursue regulatory changes. It will also have the effect of reducing the costs associated with preparing the EP needed information, as the "full and complete" option is likely more expensive to prepare.

5.1.4 Summary ESP Estimate for the INEEL

The cost estimate for the preparation of an ESP application for the INEEL site is $2.83 million. These costs are borne by the contractor, as shown in Exhibit 5-1. This $2.83 million serves as the baseline case having the following assumptions:

- Field work will be limited to hydrologic investigations
- The reactor vendors will be able to provide their respective PPE design information
- Only one round of RAIs will be needed for the ER, SSAR, and EP
- Public comment will be limited to 60 days
- Response time for RAIs and public comments will be 60 days
- Public comments on the draft EIS will be limited to 3,000 comments or questions
- RAIs will be limited to 200 for the SSAR and 50 for the ER.

EXHIBIT 5-4. SUMMARY ESP ESTIMATE FOR THE INEEL

All field work is included in the Site Safety Analysis Report.

Summary Costs for the ESP Application	
WBS and Description	INEEL
010101 ESP Application	$11,885
010102 Environmental Report	$861,564
010103 Site Safety Analysis Report	$1,403,974
010104 Emergency Plan	$190,161
010105 Redress Plan	$16,690
010106 Management and Administration	$347,164
Grand Total	$2,831,438

5.1.5 Summary ESP Estimate for Clinton

The cost estimate for the preparation of an ESP application for the Clinton site is approximately $2.92 million, as shown in Exhibit 5-5. (The baseline case and the complex case are listed in Exhibit 5-2.)

EXHIBIT 5-5. SUMMARY ESP ESTIMATE FOR CLINTON

The Emergency Plan uses information from the existing Clinton Power Station.

Summary Costs for the ESP Application	
WBS and Description	Clinton
010101 ESP Application	$16,252
010102 Environmental Report	$850,991
010103 Site Safety Analysis Report	$1,468,388
010104 Emergency Plan	$132,916
010105 Redress Plan	$16,869
010106 Management and Administration	$430,989
Grand Total	$2,916,405

5.1.6 Assumptions

In addition to the conditions noted above, the preparation of the estimate included a number of other assumptions, with the major assumptions outlined below. The assumptions below are the same for both the INEEL site and the Clinton site. Additional details and assumptions about WBS line items have been captured and will be given to Exelon as a separate submittal in the detailed project documentation.

The estimate for both sites includes the following assumptions:

- With the exception of the PBMR, the estimate does not include the costs or schedule associated with the development of the specific plant parameters, source terms, and bounding events. It is assumed that this information is provided by the respective reactor manufacturer.
- The reactor manufacturer or vendor will provide specific information about fuel design, structures, systems, components, and engineered safety features (both active and passive) and will provide information on the status of each reactor design, radiation protection, quality assurance, and waste management. With respect to the gas reactor designs, an added factor will be the identification of the origin and mode of transport of new fuel to each reactor site.
- The estimate includes the site investigation costs associated with geotechnical and hydrological studies.
- The SSAR would need to analyze fission product releases for both normal emissions and bounding events for comparison to regulatory acceptance criteria.

- The applicant will want to minimize the required Exclusion Area Boundary (EAB) and Emergency Planning Zone (EPZ) distances, and limit the EP information to a discussion of major features.
- Demographic projections to the year 2060 will be adequate for the ESP application.
- New or different on-site meteorological monitoring programs than those that already exist will not be required to support the development of the SSAR meteorological information or release calculations.
- An on-site monitoring/field measurement program is not required to develop information such as dispersion coefficients, flow velocities, travel times, and sorption.
- NRC acceptance of the INEEL probabilistic design basis earthquake parameters and a new probabilistic seismic hazard analysis will not be required.
- No field investigations will be conducted to identify or evaluate the potential location or activity of new subsurface faults.
- Site-specific ground response studies will not be required because all structures will be founded on rock.
- An Environmental Justice (EJ) evaluation will be required. The issues of whether an EJ evaluation is required for these sites is being debated between the NRC and the Nuclear Energy Industry (NEI).

5.1.7 Summary Level ESP Schedule for INEEL and Clinton

The schedule for the ESP process is assumed to be the same for the INEEL and Clinton sites. While there will be schedule differences at these sites in the actual ESP process, what those differences in scheduled activities could be cannot be determined with any certainty at this time. Thus, the schedule is similar to the detailed schedule provided in Appendix K and has the same WBS as the cost estimate. The baseline ESP application preparation duration is 11 months, including field work, with a down stream duration of 23 months. The complex case has a duration to prepare an ESP application of 11 months with a down stream application review and approval duration of 31 months. In addition, the schedule:

- With the exception of PBMR, assumes that the reactor vendors will provide specific plant parameters and source terms for normal emissions and bounding events before beginning to prepare the ESP application
- Assumes that Exelon or PBMR (PTY) LTD will provide specific information about PBMR fuel design, structures, systems, components, and engineered safety features (both active and passive) before beginning to prepare the SSAR and ER

- Identifies precursor activities and logic ties for preparing the ESP application
- Does not address the potential adverse winter weather conditions that must be considered when scheduling the geotechnical and hydrological studies at the INEEL.

5.2 Discussion of Regulatory Requirements

In order to develop an accurate cost estimate and schedule for the ESP process, the Project Team had to first define the regulatory requirements applicable to the process. This definition was developed from the highest level criteria, referred to as the top level regulatory criteria (TLRC), down to the secondary level, where specific Regulatory Guides (RGs) and Nuclear Regulations (NUREGs) reside. The regulations governing ESP applications are codified in 10 CFR 52, Subpart A, and a number of other CFR parts referenced therein. The codified regulations are considered the TLRC.

At the TLRC, the ESP application is defined as having four major elements: information on the applicant, the SSAR, the ER, and emergency planning information. A site redress plan is also required if an applicant intends to perform site preparation activities before applying for a construction permit (CP) or combined operating license (COL). The site redress plan must address the activities conducted to return the site to an environmentally stable and aesthetically acceptable state in the event that work is performed then the ESP expires before an application for a CP or COL is submitted.

In addition to the codified regulations, a number of NRC RGs and NUREGs identify staff expectations for content of the SSAR and ER. These documents are considered the secondary level of regulatory requirements. The RGs and NUREGs do not furnish specific guidance for preparing an ESP application or for guiding the NRC's review of the proposed gas reactor technology.

5.2.1 Top Level Regulatory Criteria

The TLRC applicable to the preparation of an ESP application were identified using 10 CFR 52 as a starting point. The verbatim or paraphrased text of these codified requirements is presented in Appendix J. This appendix is constructed to show a requirement derivation "roadmap" through identification of:

- 10 CFR 52 requirements as "primary" requirements
- "Secondary" CFR requirements (resulting from references in primary requirements)
- "Tertiary" CFR requirements (resulting from references in secondary requirements).

The multiple CFR citations presented in Appendix J identify similar requirements, resulting in apparent redundancy and potential conflict. For example, 10 CFR 52.17 requires that site characteristics comply with 10 CFR

Part 100. Although it is evident this reference is intended to invoke the requirements of 10 CFR 100, Subpart B (for applications on or after January 1997), some 10 CFR 100, Subpart A topics (e.g., operation of multiple reactors at a site, independence of reactors, total effluent releases) are certain to have an impact on the NRC review of the ESP application. Accordingly, the 10 CFR Subpart A requirements at the end of Appendix J have been included to support Exelon's internal evaluation.

In all instances, the Project Team has sought to maintain the assessment of regulatory requirements used to develop the cost estimate in agreement with the PBMR-related position documents of Exelon. Exelon has been in discussions with the NRC on the gas reactor TLRC. The presentation of TLRC and the subsequent levels is for estimating and schedule purposes only. While the Project Team has tried to maintain agreement with the Exelon licensing approach for the PBMR, there may be instances where secondary and tertiary level requirements do not represent Exelon's position in these matters.

5.2.2 Secondary Level Regulatory Requirements

Appendix J identifies the second level regulatory requirements (relevant NRC RGs and NUREGs) by ESP area (e.g., emergency planning, meteorology, and seismic). These are linked to the TLRC by reference.

For each of the three major elements of the ESP application (SSAR, ER, and EP), the SME review process concluded that the second level regulatory requirements were generally appropriate and should be addressed. Some of the second level regulatory requirements were determined to be obsolete, superceded, or not applicable.

5.2.3 Data Requirements for ESP Application

Preparing an ESP application requires a significant amount of data. The Project Team believes that significantly more information will be required for siting the PBMR than for siting another reactor design.

Data requirements for the SSAR, ER, and EP information were established based on the following assessments and evaluations by the SMEs:

- The SSAR should be formatted to the fullest extent practicable in accordance with RG 1.70 to result in a format familiar to the NRC reviewers, as well as a structure that would readily adapt to a future COL application safety analysis report.
- The SSAR depth of detail given in each chapter should be limited to aspects that SMEs interpreted would be required to gain NRC staff approval of the ESP application. The requirements of the RGs referenced in RG 1.70 should be addressed, unless the reviewer determines the RGs were obsolete, superceded, or not applicable.
- The ER should follow the format specified in NUREG 1555, the NRC ER standard review plan, instead of RG 4.2. NUREG 1555 has been revised to

reflect the ESP process and the elements that should be addressed in the ER for an ESP application.

- The ER depth of detail included in each section should address the content described in the NUREG and referenced RGs.
- Because the TLRC provide great flexibility about the level of detail required for the EP information, using the existing RG and NUREGs could easily result in over commitments to emergency planning for applications that include reactor designs that are incomplete. For this reason, the format suggested in the draft NEI guideline, NEI-01-(Draft) 02, was followed.
- A minimal level of detail to be addressed in the EP information, which will preclude the imposition of EP requirements not warranted, was defined. The proposed level of EP detail has been reflected in the WBS detailed assumptions that will be maintained in the project files. .

The WBS for the three major elements of the ESP application (the SSAR, ER, and EP) was structured following the standard format and content of RG 1.70, NUREG 1555, and NEI-01-(Draft) 02, respectively.

Estimates of the WBS line item costs on the project team's interpretation of data needs were based on assumptions about level of detail, on the quality and acceptability of existing information, and on technical information (e.g., site investigations, analysis) that must be developed.

6.0 References

6.1 Clinton

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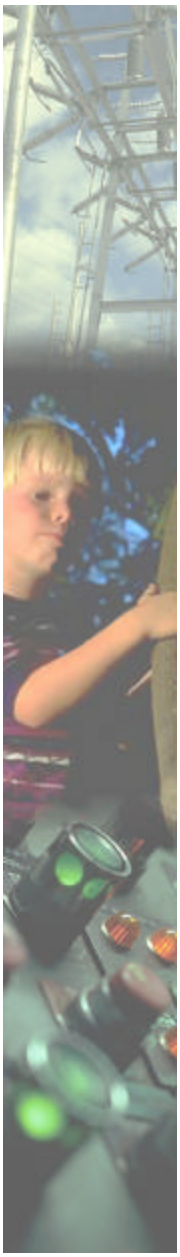

APPENDIX A

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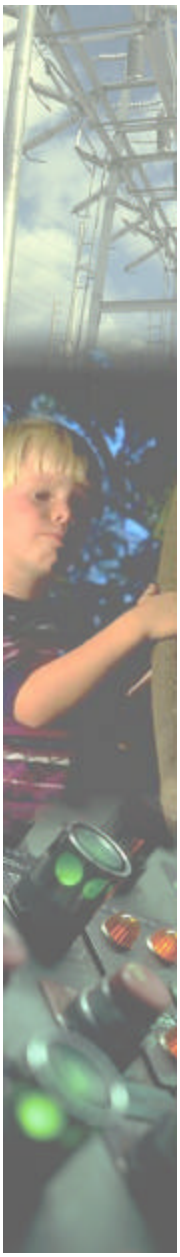

APPENDIX B

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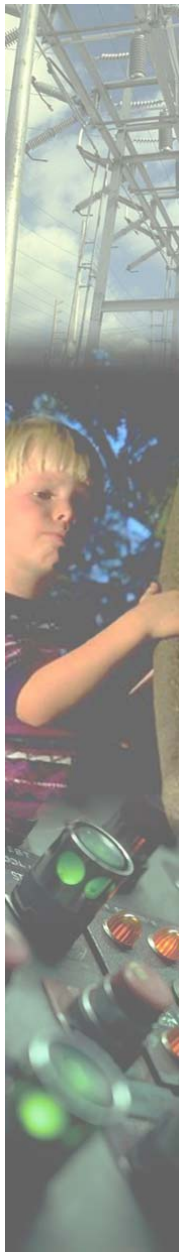
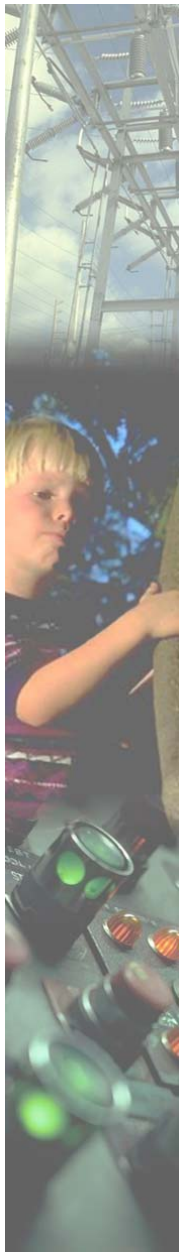
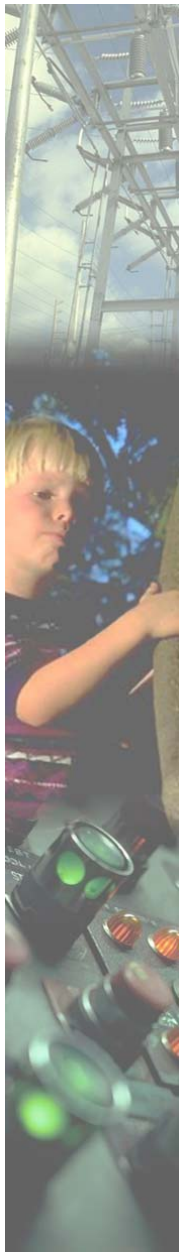


Appendix C - Exclusionary Criteria for INEEL Site

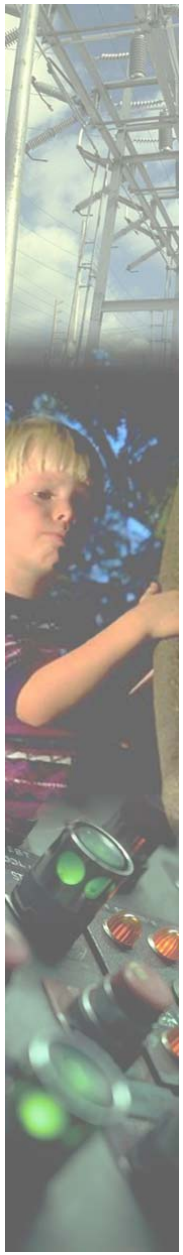
Exclusionary Criteria	Score	Rationale	Notes
Engineering and Economic Criteria			
General			
3.1.2 Transmission System Exclude site if: Significant transmission investment will be required as well as land purchases to site the new transmission facilities. Access to regional power markets is problematic. Assumption: The Pebble Bed Modular Reactor (PBMR) will generate approximately 1250 MWe. The maximum distance from the PBMR to a substation or access to a power grid is 2.5 miles. Distances beyond this are considered to exceed the "significant investment" threshold.	4	Although a determination for interconnection will be required through Idaho Power, it is assumed that capacity is available. Connection from the location to the on-site substation will require minimum-moderate costs. The INEEL site is located at the intersection of a regional network of 13.8-, 230-, and 345-kV transmission lines. The east-west transmission corridor provides interconnection between coal-fired resources in Montana, hydro resources in western Idaho, and the Western market. The north-south transmission corridor connects Utah to Montana through a 230-kV line. From the INEEL area, the network allows access to Montana, Wyoming, Utah, Nevada, Oregon, and Washington. Ownership of the network is split between IdaCorp (Idaho Power), BPA, PacifiCorp (Utah Power), and Montana Power. (1) Transmission capacity in both the east-west and north-south directions is fully subscribed at times; during peaks, the area is transmission constrained. As a result, IdaCorp is investigating additional generation resources within the southern Idaho region to serve native load and free some transmission capacity. (2) The INEEL site is served by its own 13.8-kV transmission loop through its substation at Scoville. The Scoville substation is in turn fed from the Idaho Power substation at Antelope with 13.8-kV and 230-kV backup on site from Utah Power. Current additional capacity available at the Antelope substation is approximately 400 MW. (3) Generating capacity in excess of 50 MW at INEEL would require line upgrades or a dedicated transmission line to the edge of the site and interconnection to the substation.	Federal Energy Regulatory Commission (FERC) rulings in the past four years splitting the transmission and generation sides of utility companies have made it difficult to obtain planning information for transmission. Requests for general information on system capacity are no longer accepted. Instead, requests for interconnection and wheeling must be submitted directly to the affected utility to determine cost and availability for a specific case. The determination that the site requires “significant investment” can not be made until market evaluations for a selected project business model have been completed. Thus the selection of 25 miles used might be appropriate for the reactor and 1250 Mwe, but might not be if the project were substantially smaller (threshold could be shorter distance) or larger (threshold could be larger distance).



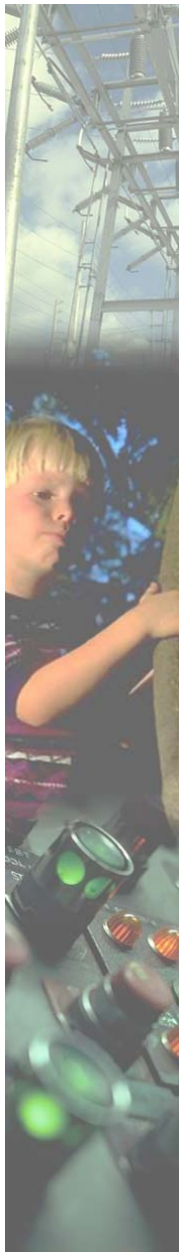
Exclusionary Criteria	Score	Rationale	Notes
3.1.3 Site Size Exclude site only if: The footprint cannot accommodate 10 PBMR modules including all ancillary structures, access corridors, intake/discharge structures, and cooling tower if required. Assumption: a10 module PBMR that required a site size of at least 800 by 1200 m in area was assumed.	5	There is ample space available for 800 by 1200 m at this location. The exact coordinates are found in grid 49 of the INEEL grid. (4) Site size provided of 800 by 1200 m (perimeter fence) is assumed to include an area for all ancillary structures required for the plant. However, cooling towers, if required, have a base diameter on the order of 400 feet and may not be accommodated in this footprint.	
3.1.4 Site Topography Exclude site if: Any topographic features such as stream channels, deeply incised valleys, knobs, sinkholes, abandoned, or active mines are present within the site area, and no engineering modification or micrositing of facility can be used to make site topography suitable.	5	The site is less than 2% slope and is situated on a topographic ridge within a low-lying area between the volcanic rift zone (20m above the Lost River flood plain). (5) The closest stream channel to the site is the Big Lost River. The site is approximately 2.5-km southeast of the river. (6) There are no deep valleys. The site consists of open land typical of the undeveloped portions of INEEL. (7) The terrain is flat with no visible knobs. (8) No sinkholes (tubes or caves) have been identified within the site area. (8) No abandoned mines have been identified at the site. The INEEL has some evidence of abandoned mine activities. (9) The closest mountain is the middle Butte, approximately 20 km southeast of the site.	Assumes that the physical elements that affect topography can not be engineered to allow placement of facility on site.



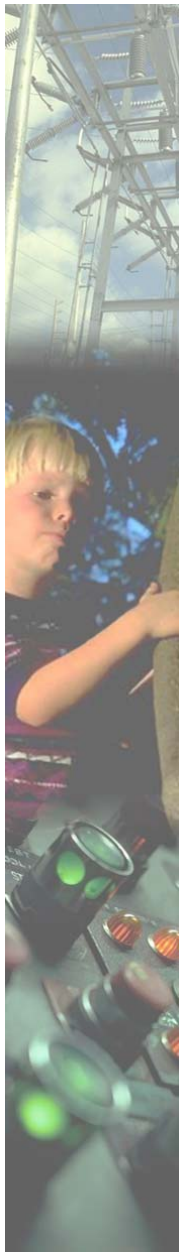
Exclusionary Criteria	Score	Rationale	Notes
3.1.5 Environmentally Sensitive Areas (ESAs) Exclude site if: An ESA exists within the boundaries of the project, or sufficiently close to the project that the ESA would be directly or indirectly affected. ESAs include federally designated critical habitats for federally protected species of animals or, if on public property, plants; federally regulated wetlands for which no mitigation is feasible or acceptable; and other federally designated areas such as wild and scenic rivers, wilderness areas, and similar areas that can not be mitigated.	5	The site will not require displacement of Class I or wetland area; it is not proximal to watershed or rivers; and results of archeological/cultural resource/paleontological study indicate that the site does not show evidence of a significant paleontological resource. (10, 11, 12) No displacement of wetlands will occur from this project, since there are no designated wetlands in the area. While threatened and endangered species occur in various areas of the INEEL, the INEEL serves as a refuge from significant disturbance, and for development of wildlife habitat. However, construction activities near the proposed site have been found to not significantly impact threatened or endangered species or critical habitat. No riparian areas, protected watersheds, or rivers occur in the site. The site is approximately 2.5 km (5 miles) southeast of the Big Lost River. Big Lost River and Birch Creek, another aquatic resource, is in poor riparian condition due to irrigation procedures. No paleontological localities have been identified at the site. The likelihood of any paleontological resources is low to moderate.	ESA is defined as significant natural areas that have regulatory constraints that prevent under normal circumstances any action that would directly or indirectly decrease their value and for which no suitable mitigation may exist.
3.1.12 Water Rights and Air Permits Assumptions: Facility will require 300,000 gpm for cooling water. If closed cycle (once through), assume 5 % of this for make-up or 15,000 gpm. **Air Permit Criteria** Exclude site if: • The site is an area where existing air quality is near or exceeds standards, • There is potential for any cooling system plume to interact with a	5	Assuming the PBMR would require15,000 gpm , the INEEL has sufficient water sources in the area to meet the projected water demands. Based on a Federal Reserve Water Right, the Department of Energy (DOE) and the State of Idaho negotiated a State water right for the INEEL. The INEEL is permitted a water pumping capacity of 80 cubic feet per second and a maximum water consumption of 35,000 acre feet per year. (13) On average, though, the INEEL withdraws only 6,229 acre feet per year. About 65% of these withdrawals are eventually returned to the aquifer via percolation. Consequently, the annual consumptive usage of water withdrawn from the aquifer is about 2,200 acre feet per year. (14)	May need to consider dry cooling for the PBMR at INEEL. Air Permitting is not considered to be an exclusionary criterion because the plant siting area is designated as being in attainment of all pollutants. There is a designated non-attainment area for particulate matter that is located approximately 75 km to the south of the project site (Fort Hall Indian Reservation). There is also a PSD Class I area (Sawtooth National Recreation Area) approximately 125 km to the



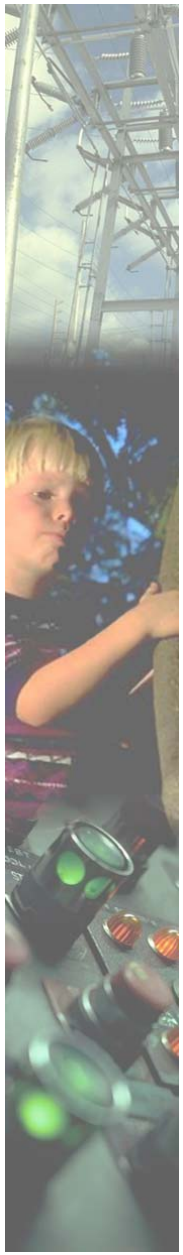
Exclusionary Criteria	Score	Rationale	Notes
plume containing noxious or toxic substance from another facility, or • Any auxiliary generators are expected to impact a non-attainment or Prevention of Significant Deterioration (PSD) Class I area. **Water Demand Criteria** <u>Exclude site if:</u> Sufficient water is not available to meet present and projected future water demands, or sufficient water can not be made available within the time and cost constraints acceptable for project construction and operation. **Water Discharge Criteria** <u>Exclude site if:</u> The requirements for meeting state or federal National Pollutant Discharge Elimination System (NPDES) regulations cannot be met or mitigated within the time and cost constraints acceptable for project construction and operation. Included in this criterion is access to acceptable point of discharge for these released waters.		Conversion: 32,800 af/yr = 20,335 gpm This conversion shows that 5,335 gpm of water will still be unused after usage from all withdrawals and a new reactor PBMR. (15)	west of the project site, but the emissions from this facility are not expected to adversely impact either of these areas. No air prohibitive air permitting issues are anticipated. **Air Permitting.** This is not considered to be an exclusionary criterion unless the facility would impact any non-attainment or PSD Class I area, or not be in compliance with a State Implemented Plan. Issues to be considered include Permits to Operate, emissions limits or potential for trading, National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements, and impacts to Class I areas from a plume if a cooling tower is used. **Water Demand**. The right to access water is inherent in the ability to obtain water quantities needed for safe and reliable operation of a new reactor. If a new allocation is required, but not feasible within the time constraints of meeting project needs, then this also would be exclusionary. Issues considered include impacts of entrainment and impingement to important aquatic resources, and water allocation laws for water body affected. **Water Discharge**. The release of heated water and/or water containing biocides or other waste products that results from plant operation may constrain project



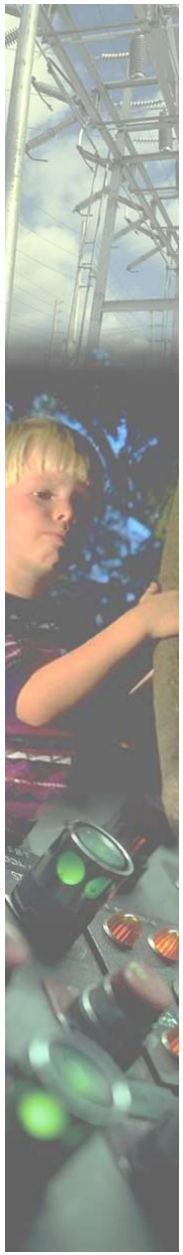
Exclusionary Criteria	Score	Rationale	Notes
			permitting. Issues include thermal and pollutant loading relative to cumulative impacts, TMDL limitations, and designated uses for these receiving water bodies.
3.1.13 Contamination and Regulatory Constraints **Contamination Constraints** Exclude site if: Site is designated as a Resource Conservation and Recovery Act (RCRA) or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site and will require time and costs for regulatory release from one of these regulations that exceed those acceptable for project implementation. Remediated sites designated as "Brownfields" will be considered as favored locations. **Regulatory Constraints** <u>Exclude site if:</u> Site construction or operations will likely be in violation of one or more local, state, or federal regulations that preclude construction or operation and for which no mitigation is feasible or available.	5	**Contamination Constraints** The site is not a “brownfields” site, although the site may meet brownfield criteria. The site is also not a contaminated site. (16, 17, 18, 19) Although the overall INEEL site is listed on the National Priorities List (NPL) for remediation under CERCLA, the proposed location for the reactor is not specifically listed in the Federal Facility Agreement and Consent Order as a site requiring remediation under CERCLA. Cooling towers will be required at the site to meet other criteria regarding water demand. **Regulatory Constraints** Section 7 consultation will be required but no biological opinion or exclusionary issue affecting protected species is likely. Nearby CERCLA and National Environmental Protection Act (NEPA) activities note that such actions still will not adversely impact species listed under the Endangered Species Act. Section 10 Permit in navigable waters is not applicable. No Section 404 permits are required.	Section 7, 404. "Site" is defined as an area required for permitting and construction of the facility and ancillary roads, transmission, and physical structures required for the facility.



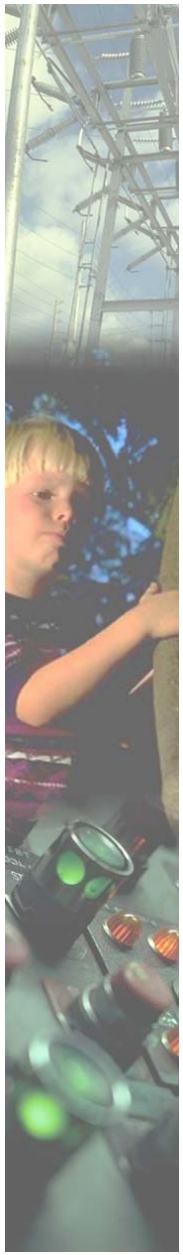
Exclusionary Criteria	Score	Rationale	Notes
Seismology/Geology			
3.1.16 Geological Hazards Exclude site if any of the following are relevant to the site: • Areas of active volcanic activity. • Sloping areas of deep-seated instability (landslides). • Areas of potential collapse such as cavernous limestone, karstic limestone, and major salt deposits. • Mined-out areas that produce deep-seated settlement due to collapse over time. • Areas with long-term major subsidence caused by pumping of groundwater or oil. • Permafrost areas.	Not Ranked	The site has none of the exclusionary geological hazards identified. Caldera-forming volcanic eruptions occurred on the Snake River Plain approximately 6.5 to 4.3 million years ago. The centers for these eruptions have been moving east across the Yellowstone-Snake River Plain area, and therefore the likelihood of further caldera-forming eruptions on the Snake River Plain is considered low. (20) Basaltic lava flows have occurred within or close to INEEL within the last 2,000 years. The closest recent lava flow originated from the Great Rift and created the volcanic features of the Craters of the Moon, roughly 70 km from the proposed site. (20) The potential for lava flows is highest from two sources, the Arco Big Southern Butte and the Lava Ridge Hell's Half Acre rift zones. However, lava from these rifts would tend to move south, away from the INEEL, because of the negative gradient from north to south on the surface of the Snake River Plain. (21) In the unlikely event that future lava should occur, the flows are not expected to directly impact the site, because the median thickness of lava flows in the Eastern Snake River Plain is roughly 4 m and the height of the site is 12 to 15 m above the surrounding area (20), suggesting that the lava would not reach the facilities at the site. The area is flat-to-gently rolling, high desert terrain that lies about 5,000 feet above the sea level. (23) No other geological hazards are known.	
3.1.17 Site-Specific Safe Shutdown Earthquake (SSE) Exclude site if: SSE maximum acceleration is greater than 0.4g.	2	For the site, the best estimate that has been determined for a 10,000-year period is that peak ground acceleration is approximately 235 cm/s^2, or 0.24g. (24)	Design opportunities may exist to allow exceedance of this criterion under certain conditions. Seismicity data and site-specific data should be factored into the site.



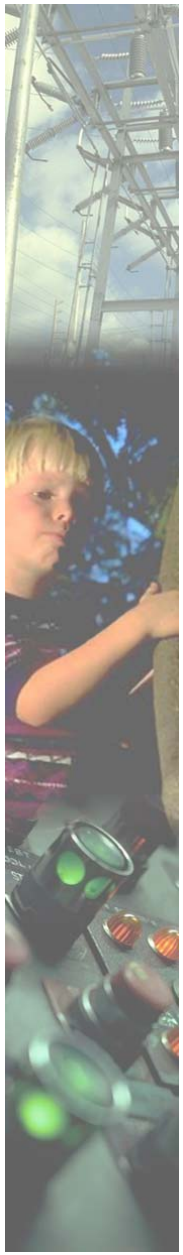
Exclusionary Criteria	Score	Rationale	Notes
3.1.18 Capable Faults Exclude site if: There is a capable fault within 5-mile radius of area/site.	4	The closest fault is 26 km (16.25 miles) from the site. For purposes of siting (not design) of new facilities within the INEEL, a series of seismic hazards maps has been generated. For the past 25 years, volcanic activity has been monitored by the INEEL: there have been only a few microearthquakes (less than 1.5 scale). (25) The closest known seismogenic structure capable of producing large magnitude earthquakes (magnitude of greater than 7.0), is the Howe fault located 26 km (16.25 miles) north of the site along the west slope of the Lemhi range. (26)	
3.1.19 Liquefaction Potential Site should be excluded if: Liquefiable materials extend to depths greater than 20 m below ground surface.	5	The INEEL subsurface shows that liquefaction is not a concern. There is no liquefiable soil. The geology of the site is as follows: Surface to groundwater is 145 m. Rocks on the surface are basalts formed from lava. Under the immediate surface is basalt with alternating layers of vesicular and massive basalt containing vesicles and fractures. The sediment is typically reddish silt (loess). (27)	
3.1.20 Bearing Materials Exclude site if: Undesirable bearing materials extend continuously to a depth of at least half the foundation width below the planned depth of the foundation.	5	Undesirable material does not extend below the foundation. There are frequent rock outcrops on the surface. The soil types at INEEL are Bockston Loam, Bondfarm/Rock Outcrop Complex (occurs on basalt plains), Malm/Matheson sandy loams (occurs on basalt plains), Matheson/Malm/Rock outcrop complex. The soil series at the site location is Matheson/Malm, Bockston, Grassy Butte, Whiteknob, Wolverine, and Bondfoam. Most areas consist of a combination of these soils. No weathered rock is associated with the soils at the site because the soils are derived from alluvium or from loess deposited on the surface of basalt flows. (28)	



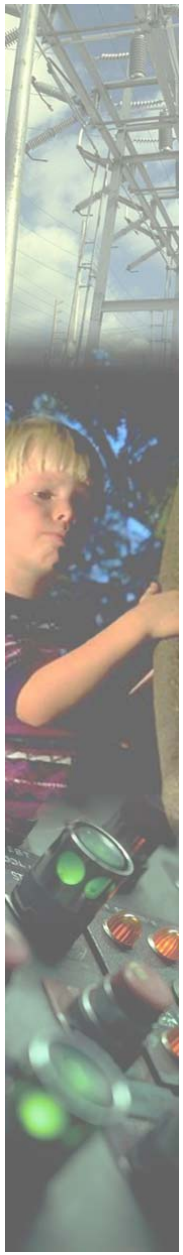
Exclusionary Criteria	Score	Rationale	Notes
Hydrology			
3.1.23 Flooding Potential <u>Exclude site if either of the following apply:</u> • Site is within the 100-year flood plain or, if above the 100 year flood plain, is not accessible during a probable maximum flood and requires elevated access road. • Site is a low, level area with major dams that could fail during seismic events, producing flood levels higher than the site that may require minor fill and erosion protection, but is not accessible during flooding caused by dam failure and requires an elevated and seismically designed access road. • Site is within the flood level produced by any type of dam or its mode of failure.	4	The site is not within a designated floodplain. The average site elevation is 4950 feet above the msl, well above the probable maximum flood level of 4893 mean sea level (msl). (30) In 1986, INEEL personnel analyzed the potential for flooding from a failure of the Mackay Dam on the Big Lost River. Four different "worst case" dam failure scenarios were evaluated. The probable maximum flood scenario, wherein storm water flows into the reservoir at a high rate, flows over the dam, and results in dam failure, produced the most extensive flooding. These evaluations indicate that portions of the site would be flooded. Water velocity on the INEEL site during this event would range between 0.6 and three feet per second, with water depths up to four feet. While this depth and velocity would pose no major threat to existing structures, these waters could mobilize contamination from these facilities. Future land uses/facilities within the INEEL site were evaluated in relation to the risk associated with this flood potential. It was determined that the site would not be affected by a dam failure. (30) The "Flooding Areas" discussion in the Long-Term Land Use Future Scenarios for the INEEL concluded that "...While this depth and velocity would not pose a major threat to existing structures, location of future land uses within these areas should be limited given the risk associated with this flood potential." (31)	



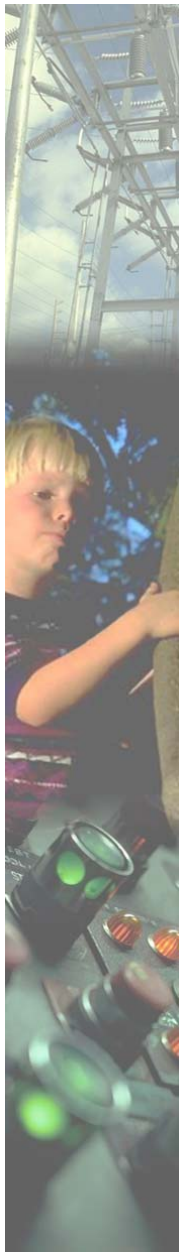
Exclusionary Criteria	Score	Rationale	Notes
3.1.25 Water Supply Exclude site if any of the following apply: • Freshwater Supplies: Site should be excluded if the water demand for all purposes is greater than 25% of 7Q10, or if less than 25%, additional water needs cannot be met with impoundment.	5	The Snake River Plain Aquifer, consisting primarily of basalts and sediments, and the groundwater stored in these materials, is among the nation's largest. It extends about 200 miles through eastern Idaho, encompasses about 9,600 square miles, and stores one to two billion acre-feet of water. About 9% of the aquifer lies beneath the INEEL at depths ranging from 200 to 600 feet. The aquifer is the source of all water used at the INEEL. Based on a Federal Reserve Water Right, the DOE and the State of Idaho negotiated a State water right for the INEEL. The INEEL is permitted a water pumping capacity of 80 cubic feet per second and a maximum water consumption of 35,000 acre-feet per year. On average, though, the INEEL withdraws only 6,229 acre-feet per year. About 65% of these withdrawals are eventually returned to the aquifer via percolation. Consequently, the annual consumptive usage of water withdrawn from the aquifer is about 2,200 acre-feet per year. (32) Water temperatures of the 129 wells located at the INEEL were sampled in 1998 and ranged in temperature from 8.5 to 19.5 degrees Celsius (average 12.5 degrees Celsius). (33) Water clarity in the preferred site is clear. In 1991, the Environmental Protection Agency designated the Snake River Plain Aquifer a sole-source aquifer. A sole-source aquifer is one that supplies at least 50% of the drinking water consumed in the area overlying the aquifer. Under the Sole-Source Aquifer Program (40 CFR 149), the EPA reviews all projects for which Federal financial assistance has been requested. (34)	Need to confirm whether percolation would be an option at INEEL for cooling water blowdown.



Exclusionary Criteria	Score	Rationale	Notes
Socioeconomic Criteria			
3.3.1 Land Use Exclude site if: Site is not compatible with deed restrictions or current land use patterns, regulations, policies, and objectives. Public not willing to revise. Assumptions: The existing power plant has satisfied local planning and zoning requirements and is operating as a conditional use.	5	The site is fully compatible with deed and land use patterns, requirements, policies, and objectives. The site is located near the Idaho Nuclear Technology and Engineering Center (INTEC) and the Central Facilities Area (CFA) in the area of future facilities planning. (35)	
3.3.2 Demography Exclude site if: It has a very high influx of project-related population, no nearby towns or cities to accommodate sudden population increases.	4	The INEEL site has minimal influx of project-related people and workers. Nearby surrounding cities have adequate capacity to accommodate population. Eastern Idaho has a moderate and growing labor force. The INEEL is not near a large metro area. The region has approximately 150,000 people and growing at an above national average of 6.3% annually. A direct labor force of approximately 62,000 resides within a 30-minute drive from Idaho Falls. The four largest cities in Eastern Idaho are: Idaho Falls, Pocatello, Blackfoot, and Rexburg. Because of the influence of the DOE INEEL, the community has a disproportionately high number of residents with advanced degrees and technical training. (36)	

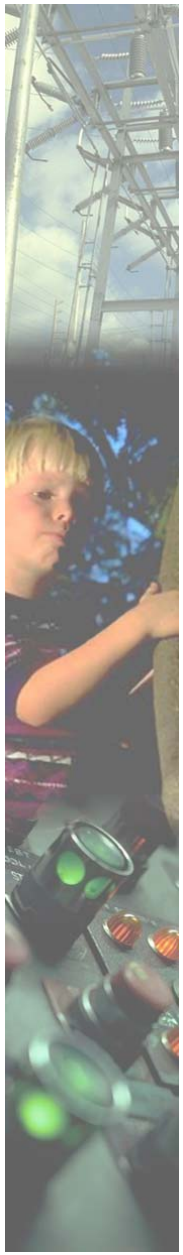


Exclusionary Criteria	Score	Rationale	Notes
3.3.6 Historic and Archeological Sites Exclude site if: it is adjacent to properties on the National Register of Historic Places or adjacent to landmarks or monuments and any two of the following: • Paleontological resources in the area. • Known cultural resources – pre-historic and ethnographic remains in the area. • Area known to contain fossil and rock deposits. Assumptions: These resources are unavoidable and State Historic Preservation Officer (SHPO) would not allow mitigation or other means to permit project construction.	5	A full cultural resource/archeological study has been conducted at the site and there is no known cultural resource in the area. There are no known sites on the National Register of Historic Places adjacent to the project site. The INEEL is approximately 161 km (100 miles) from Grand Teton and Yellowstone National Parks, but no adverse impacts are anticipated from activities at the site. The site is north and east of EBR-1, which was placed on the National Register. Activities at the site will not impact EBR-1. It is not within a 5-mile radius of the site. The site is approximately 72 km (45 miles) from Craters of the Moon National Monument; this area is a Class I area under the Clean Air Act. There are no known paleontological resources in the area, nor are there any known cultural resources, prehistoric, and ethnographic remains in the area. The area is known to contain fossil or rock deposits. (37)	

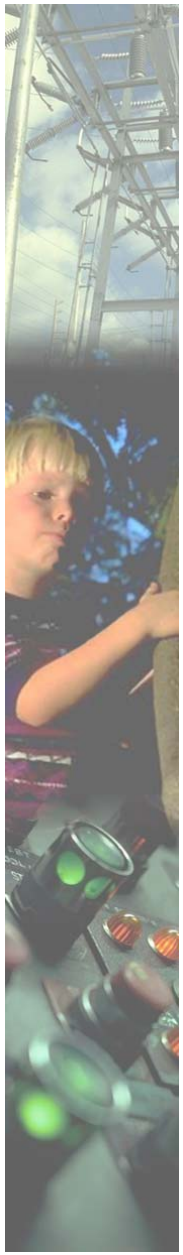


Appendix D - Exclusionary Criteria for Clinton Site

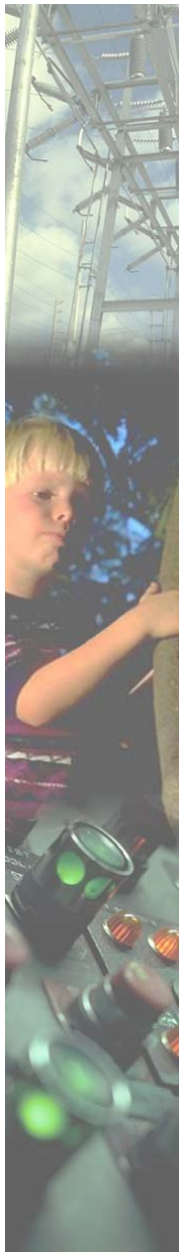
Exclusionary Criteria	Score	Rationale	Notes
Engineering and Economic Criteria			
General			
3.1.2 Transmission System <u>Exclude site if:</u> Significant transmission investment will be required as well as land purchases to site the new transmission facilities. Access to regional power markets is problematic. <u>Assumption</u>: The PBMR will generate approximately 1250 MWe. The maximum distance from the PBMR to a substation or access to a power grid is 2.5 miles. Distances beyond this are considered to exceed the "significant investment" threshold.	5	Transmission infrastructure at the Clinton site is ample to convey the additional power generation from the proposed Pebble Bed Modular Reactor (PBMR). Existing facilities include three 345-KV transmission lines extending to three different locations in the area power grid: 1) Bloomington, 2) Decatur, and 3) Champaign. Both wire size and substation design are ample to wheel the proposed power output. Clinton is located at an important electrical junction in the regional power grid. Combined, the existing and proposed power generation represents an important resource to the regional power network in terms of system reliability. Both the existing transmission and var capability at the facility has the capacity and the flexibility to wheel power to a variety of locations on demand.(1)	Federal Energy Regulatory Commission (FERC) rulings in the past four years splitting the transmission and generation sides of utility companies have made it difficult to obtain planning information for transmission. Requests for general information on system capacity are no longer accepted. Instead, requests for interconnection and wheeling must be submitted directly to the affected utility to determine cost and availability for a specific case. The determination that the site requires “significant investment” can not be made until market evaluations for a selected project business model have been completed. Thus the selection of 25 miles might be appropriate for the reactor and 1250 Mwe, but might not be if the project were substantially smaller (threshold could be shorter distance) or larger (threshold could be larger distance).
3.1.3 Site Size <u>Exclude site only if:</u> The footprint cannot accommodate	5	Site ownership is extensive (approximately ~14,000 acres) and the selected site is ample for the PBMR. Several other locations also exist that would adequately accommodate a 10-module unit. (2, 3)	



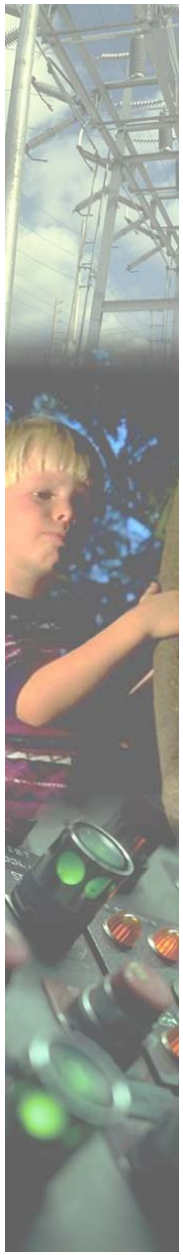
Exclusionary Criteria	Score	Rationale	Notes
10 PBMR modules including all ancillary structures, access corridors, intake/discharge structures, and cooling tower if required Assumption: The required site size for the PBMR will be at least 800 by 1200 m in area.		Site size provided of 800 by 1200 m (perimeter fence) is assumed to include an area for all ancillary structures required for the plant. However, cooling towers, if required, have a base diameter on the order of 400 feet and may not be accommodated in this footprint.	
3.1.4 Site Topography Exclude site if: Any topographic features such as stream channels, deeply incised valleys, knobs, sinkholes, or abandoned or active mines are present within the site area and no engineering modification or micrositing of facility can be used to make site topography suitable.	5	Entire project area is relatively flat. The proposed site has a topographic relief of less than 10 feet. (2)	Assumes that the physical elements that affect topography can not be engineered to allow placement of facility on site.
3.1.5 Environmentally Sensitive Areas (ESAs) Exclude site if: An ESA exists within the boundaries of the project, or sufficiently close to the project that the ESA would be directly or indirectly affected. ESAs include federally designated critical habitats for federally protected species of animals or, if on public property, plants; federally regulated wetlands for which no mitigation is feasible or acceptable; and other federally designated areas such as wild and scenic rivers, wilderness areas, and similar areas that can not be mitigated.	5	From the data examined from a variety of sources (nature preserves, natural areas, state conservation areas, state fish and wildlife areas, state parks, wetlands, and cultural resources), it appears that there are no specific areas of concern that would affect the selected site. (2, 4, 5, 6, 7, 8) Specifically, the data review determined that: • No wetlands are located on the project site. • Threatened and Endangered (T&E) Species – Bald Eagle & Indiana bat are known to occur historically in Central Illinois. The absence of suitable caves and marginal habitat minimizes the presence of the Indiana bat. No known nests or night roosting habitats exist for the bald eagle. Studies have shown that there is no critical habitat for state T&E species and the existing Clinton facility has never been required to mitigate for the presence of state T&E species. No National wildlife refuge in project area. • Not proximate to scenic rivers, protected watersheds, aquifers, or marine sanctuaries. Not in coastal zone area.	ESA is defined as significant natural areas that have regulatory constraints that prevent under normal circumstances any action that would directly or indirectly decrease their value and for which no suitable mitigation may exist.



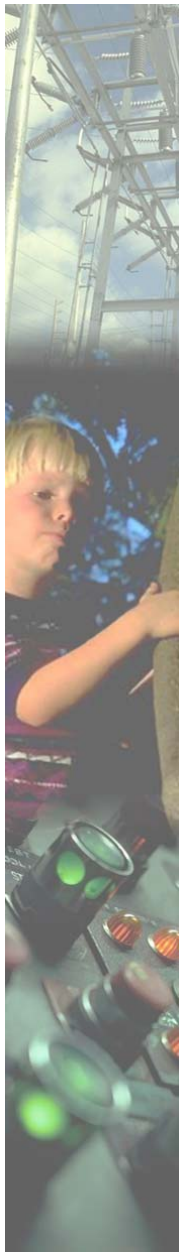
Exclusionary Criteria	Score	Rationale	Notes
		• No recorded paleontological resources, but the database showed areas with archaeological potential. These areas are primarily within the shorelines of Salt Creek and are not near the project site.	
3.1.12 Water Rights and Air Permits Assumptions: Facility will require 300,000 gpm for cooling water. If closed cycle (once through) assume 5% of this for make-up or 15,000 gpm. **Air Permit Criteria** Exclude site if: • The site is an area where existing air quality is near or exceeds standards, • There is potential for any cooling system plume to interact with a plume containing noxious or toxic substance from another facility, or • Any auxiliary generators are expected to impact a non-attainment or PSD Class I area. **Water Demand Criteria** Exclude site if: Sufficient water is not available to meet present and projected future water demands, or sufficient water can not be made available within the time and cost constraints acceptable for project construction and operation. **Water Discharge Criteria**	4	Assuming the PBMR would require 15,000 gpm, a surface water source is available via the existing reservoir to supply the make-up water demand at Clinton. (9, 10, 11, 12, 13) This assumes that the thermal capacity of the lake is not degraded. Thermal capacity can be accommodated through the use of cooling towers.	Air Permitting is not considered to be an exclusionary criterion because the plant siting area is designated as being in attainment of all pollutants and it is not within 100 km of any non-attainment or PSD Class I area. No air prohibitive air permitting issues are anticipated.



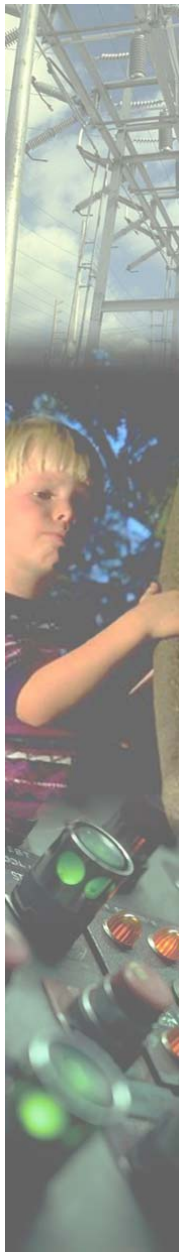
Exclusionary Criteria	Score	Rationale	Notes
Exclude site if: The requirements for meeting state or federal NPDES regulations cannot be met or mitigated within the time and cost constraints acceptable for project construction and operation. Included in this criterion is access to acceptable point of discharge for these released waters.			
3.1.13 Contamination and Regulatory Constraints **Contaminant Constraints** Exclude site if: Site is designated as a Resource Conservation and Recovery Act (RCRA) or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site and will require time and costs for regulatory release from one of these regulations that exceed those acceptable for project implementation. Remediated sites designated as "Brownsfield" will be considered as favored locations. **Regulatory Constraints** Exclude site if: Site construction or operations will likely be in violation of one or more local, state, or federal regulations that preclude construction or operation and for which no mitigation is feasible or available.	5	**Contaminant Constraints** The site is not a “brownsfields,” contaminated, or RCRA/CERCLA site. Once through cooling is not anticipated for the proposed Clinton facility. **Regulatory Constraints** There are no federal threatened or endangered species likely to be affected. No Section 10 or 404 permits will be required. (14, 15)	Section 7, 404, and 10 criteria should not be considered fatal flaws unless the issues clearly cannot be avoided or mitigated. These constraints can usually be avoided or mitigated. "Site" is defined as an area required for permitting and construction of the facility and ancillary roads, transmission, and physical structures required for the facility.



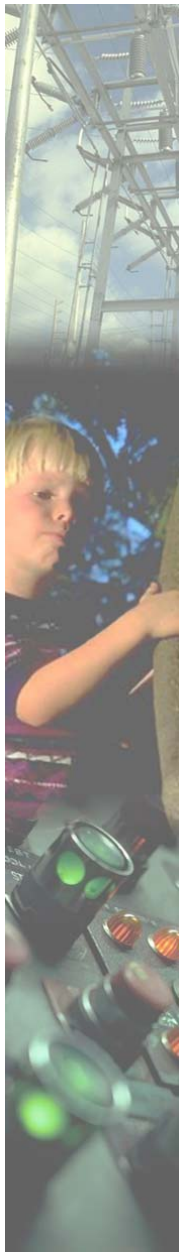
Exclusionary Criteria	Score	Rationale	Notes
Seismology/Geology			
3.1.16 Geological Hazards Exclude site if: Any of the following are relevant to the site: • Areas of active volcanic activity. • Sloping areas of deep-seated instability (landslides). • Areas of potential collapse such as cavernous limestone, karstic limestone, and major salt deposits. • Mined-out areas that produce deep-seated settlement due to collapse over time. • Areas with long-term major subsidence caused by pumping of groundwater or oil. • Permafrost areas.	Not Ranked	This site has none of the exclusionary geological hazards specified. (16)	
3.1.17 Site-Specific Safe Shutdown Earthquake (SSE) Exclude site if: SSE maximum acceleration is greater than 0.4g.	1	In the construction permit application for the Clinton Power Station, the NRC staff defined a Safe Shutdown Earthquake as an Intensity (MM) VIII event near the site, rather than as an Intensity (MM) VII as originally suggested by the Illinois Power Company. This resulted in a maximum horizontal ground surface acceleration of 0.26g, including an additional margin of safety of 0.1g. This design level is less than the exclusionary level of 0.3g. (17,18)	Design opportunities may exist to allow exceedance of this criterion under certain conditions. Seismicity data and site-specific data should be factored into the site.



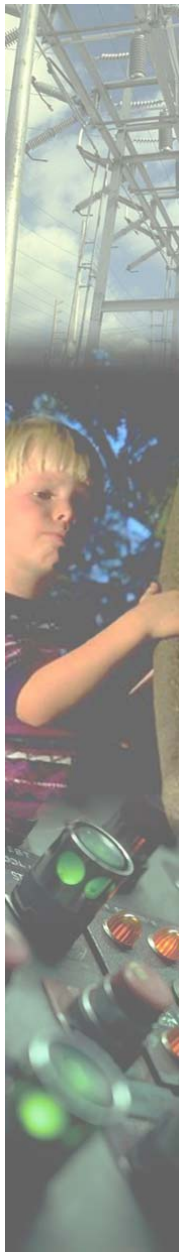
Exclusionary Criteria	Score	Rationale	Notes
3.1.18 Capable Faults Exclude site if: There is a capable fault within 5-mile radius of area/site.	5	For the Clinton site, the closest capable faults that have been identified are located approximately more than 300 km (186 miles) from the site. Although more proximal faults have been identified, some of which are within 200 km (124 miles) of the site, these faults generally have not exhibited movement or seismic activity within the past 35,000 years. It is generally assumed that if movement or seismic activity has not occurred within the past 35,000 years, the fault is not capable and should not be considered in the analysis. (18)	
3.1.19 Liquefaction Potential Site should be excluded if: Liquefiable materials extend to depths greater than 20 m below ground surface.	3	Liquefaction potential is highest in loose granular soils located below the water table. Soils at the Clinton site generally comprise medium to dense silts and sand over very dense-to-hard silts to depths of 100 m or more. These dense-to-hard silts have been over-ridden during past glaciations, making them very resistant to liquefaction. These dense-to-hard silts occur within the upper 21 m of soil profile where most of the reactor facility will be founded. Some liquefiable soils occur in the upper 5 m of soil. It may be necessary to remove and replace these soils or to improve the soils to reduce their liquefaction potential; overall, the site soil conditions are viable for this project. (17, 18, 19)	Geotechnical improvements are possible to improve ground to depths of up to 20 m, so 10 m may be too restrictive.
3.1.20 Bearing Materials Exclude site if: Undesirable bearing materials extend continuously to a depth of at least half the foundation width below the planned depth of the foundation.	5	For the Clinton site, soils below a depth of approximately 5 to 10 m comprise a very hard-to-dense silt layer. The silt has been over-ridden by glaciations, resulting in very high allowable bearing pressure and very low settlement potential. The primary facilities for the reactor will be 21 m below the ground surface, and therefore founded in these materials. Some structures could be located above the very hard silt. These structures may have to tolerate more settlement or be designed for lower bearing pressures. Alternatively, the soils below these shallow structures could be removed and replaced with denser material or improved using a ground improvement method. None of these conditions represents a significant design concern. (16, 17, 18)	
Hydrology			
3.1.23 Flooding Potential Exclude site if any of the following apply: • Site is within the 100-year flood plain or, if above the 100 year	4.5	The proposed project site would be 10 feet or greater above the calculated probable maximum flood (including wind and wave effects) for Salt Creek. There is a dam downstream of the project. The top of the dam is 13 feet below the lowest point on the project site. (20, 21)	



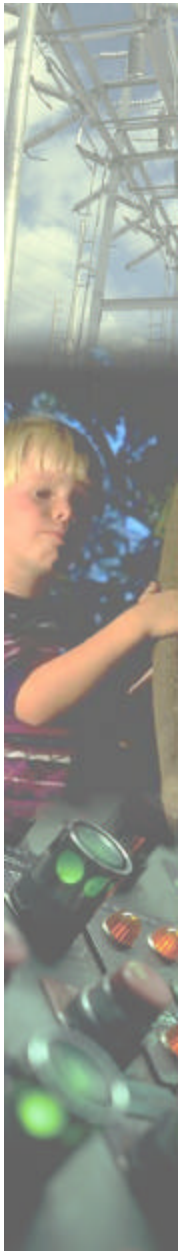
Exclusionary Criteria	Score	Rationale	Notes
flood plain, is not accessible during a probable maximum flood and requires elevated access road. • Site is a low, level area with major dams that could fail during seismic events, producing flood levels higher than the site that may require minor fill and erosion protection, but is not accessible during flooding caused by dam failure and requires an elevated and seismically designed access road. • Site is within the flood level produced by any type of dam or its mode of failure.			
3.1.25 Water Supply <u>Exclude site if any of the following apply:</u> • <u>Freshwater Supplies:</u> Site should be excluded if the water demand for all purposes is greater than 25% of 7Q10, or if less than 25%, additional water needs cannot be met with impoundment.	4	The surface water source at Clinton is Clinton lake, which has a normal pool elevation of 690 feet, 4895 acres of surface area, and stores 74,200 acre-feet of water. The reservoir does not have adjustable weirs or hydroelectric generating capabilities that would have operating practices that could adjust the storage volume available in the lake. This lake also hosts the existing Clinton Power Station. The average drainage of Salt Creek near Roswell, 12 miles downstream from the dam is 258 cubic feet per second (cfs), and the 7Q10 drainage is 6.4 cfs. Currently, the Clinton Power Station uses the lake for its circulating cooling water system in addition to an Ultimate Heat Sink designed to provide sufficient water volume and cooling capability for 30 days with no water makeup. The Clinton Power Station uses approximately 55 cfs (25,000 gpm) as make-up water. It is assumed that the PBMR will require approximately 33 cfs (15,000 gpm) for make-up water. Under low-flow conditions, the combined water demand of the existing and proposed power plants would not exceed the storage capability of the reservoir for an extended period. Although the volume is adequate, the thermal loading in Clinton Lake is challenging permitted limits. Without appropriate measures, the use of Lake Clinton for discharge of additional cooling water may further challenge these limits. Technically, this potential regulatory issue can be solved	.



Exclusionary Criteria	Score	Rationale	Notes
		with the use of cooling towers. (22, 23, 24, 25)	
Socioeconomic Criteria			
3.3.1 Land Use Exclude site if: Site is not compatible with deed restrictions or current land use patterns, regulations, policies, and objectives. Public not willing to revise. Assumptions: The existing power plant has satisfied local planning and zoning requirements and is operating as a conditional use.	5	Observations indicate compatible surrounding land uses, i.e., agricultural low-density development. Additionally, the existing power plant represents a pre-existing use that has become accepted in the area. (2, 3)	
3.3.2 Demography Exclude site if: It has a very high influx of project-related population, no nearby towns or cities to accommodate sudden population increases.	4	Proximity to communities of Springfield, Lincoln, Bloomington, Decatur, and Champaign with a combined population of 350,000 is ample to supply the construction and operating personnel for a 10-unit project. The prospects of a large population influx or boomtown effect are unlikely. (26, 27)	
3.3.6 Historic and Archeological Sites Exclude site if: It is adjacent to properties on the National Register of Historic Places or adjacent to landmarks or monuments and any two of the following: • Paleontological resources in the area, • Known cultural resources – pre-historic and ethnographic remains in the area, and	5	Two data sources were examined for the presence of cultural resources. Neither revealed archaeological or historic sites in the vicinity of the proposed project site. A cultural resources model was developed by the Illinois State Museum estimating the potential for archeological resources. Although potential exists in the project area, the proposed project site is not located in these specific areas. (28, 29)	These criteria are not likely to be exclusionary under most conditions.

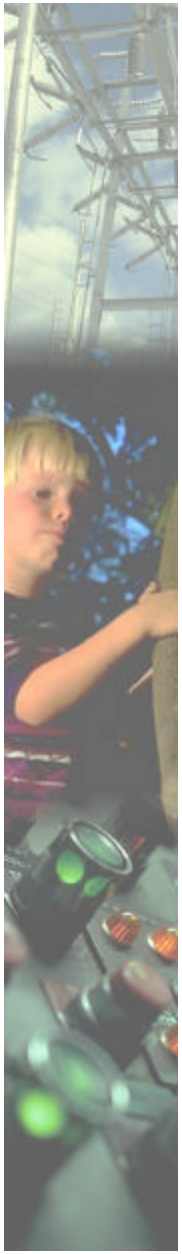


Exclusionary Criteria	Score	Rationale	Notes
• Area known to contain fossil and rock deposits. Assumptions: These resources are unavoidable and State Historic Preservation Officer (SHPO) would not allow mitigation or other means to permit project construction.			

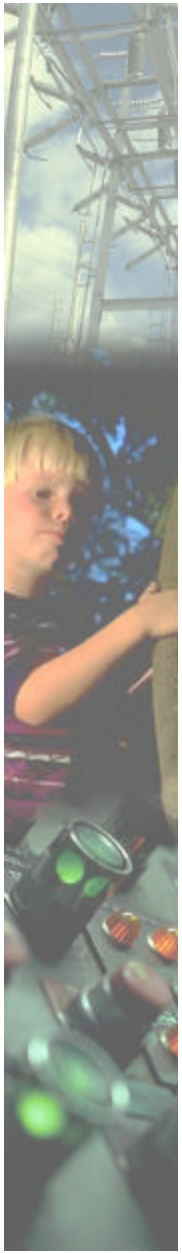


Appendix E – Non-Exclusionary Criteria for INEEL

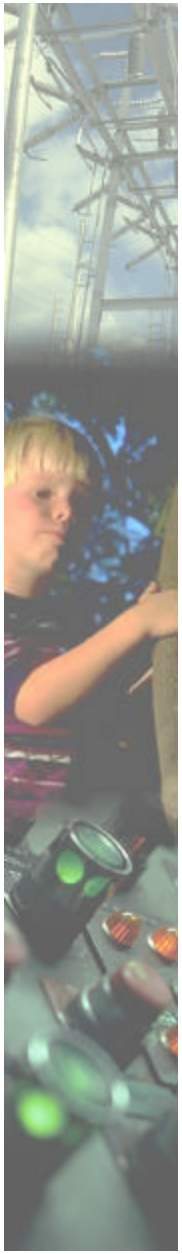
Non-Exclusionary Criteria	Score	Rationale	Notes
3.1.6 Emergency Planning/Population Density: <u>Rank Site According to</u>: 5 – Population density is less than 500 persons per square mile out to 20 miles. There are no schools, hospitals, prisons, beaches, parks, large industrial and/or commercial complexes, etc. within 5 miles. Excellent site and area characteristics. Area can satisfy current 10 CFR requirements for EPZs. 4 – Population density is equal to or less than 500 persons per square mile out to 20 miles. There are no schools, hospitals, prisons, beaches, parks, large industrial and/or commercial complexes, etc. within 5 miles. Good site and area characteristics. Area can satisfy current 10 CFR requirements for EPZs. 3 – Population density is approximately 500 persons per square mile out to 20 miles. Schools, hospitals, prisons, beaches, parks, large industrial and/or commercial complexes, etc. may exist within 5 miles. No adverse site or area characteristics. Area can satisfy PBMR-reduced EPZ requirements. 2 – Population density is greater than 500 persons per square mile out to 20 miles, and there are schools, hospitals, prisons, beaches, parks, large industrial and/or commercial complexes, etc. within 5 miles.	5	The Southern boundary of the INEEL is located 32 miles west of Idaho Falls, Idaho. (1) There are no schools, hospitals, prisons, beaches, parks, large industrial and/or commercial complexes, etc., within 5 miles, nor is there a population density of more than 500 persons per square mile out to 20 miles. (1) The closest site with residential population around 500 is Arco with 1,200 people. (2) The preferred site has emergency planning procedures in place under the PLN-114, INEEL Emergency Plan/RCRA Contingency Plan; PLN-114, Section 2, Emergency Response Organization, and Section 12, Training. (3)	



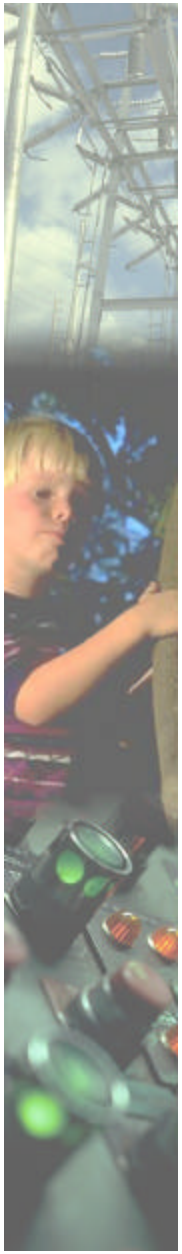
Non-Exclusionary Criteria	Score	Rationale	Notes
Some adverse site or area characteristics. Area can satisfy PBMR-reduced EPZ requirements. 1 – Population density is much greater than 500 persons per square mile out to 20 miles, and there are schools, hospitals, prisons, beaches, parks, large industrial and/or commercial complexes, etc. within 5 miles. There are significant adverse site or area characteristics and/or resettlement or relocation of native village, local community, or nearby residences is required. Area cannot satisfy PBMR-reduced EPZ requirements.			
3.1.7 Labor Supply: <u>Rank Site According to</u>: 5 – Excellent availability in all skill areas using local craft resources with few added incentives. 4 – Good availability in all skill areas using mainly local and some other craft resources. Some added incentives needed to attract labor supply. 3 – Good availability in all skill areas using craft resources from outside the local area. Incentives needed to attract labor supply. 2 – Less than adequate availability of craft resources. Significant incentives needed to attract craft personnel. Some shortages expected throughout the project. 1 – Limited availability of craft resources. Shortages expected in most skill areas throughout the project.	4	The preferred site has adequate labor supply to ensure that the project can be sufficiently manned. Payroll costs in Idaho Falls are, on the whole, 17 % below the national average, a good indicator of the relatively abundant supply of labor in the area. (4) Eastern Idaho has a moderate and growing labor force. The Eastern Idaho region has a labor force of approximately 150,000. According to data from the U.S. Bureau of Labor Statistics, this labor force grew by 7 % between 1994 and 1999. This rate is lower than the state average of 10.8 %, but higher than the national average of 6.3 %. A labor force of approximately 62,000 resides within a 30-minute drive from Idaho Falls. Typically, most nonexempt and hourly employees will commute up to thirty minutes for competitively paying jobs. Therefore, thirty-minute commute zones from the four largest cities in Eastern Idaho– Idaho Falls, Pocatello, Blackfoot, and Rexburg –are used in this analysis to estimate the labor force available to a business at or near these locations. (5) Labor-management relations in the greater Idaho Falls area are positive. Interviewed employers reported no unionization threats in recent years, and those employers that are unionized reported positive labor relations. Other indicators show that the union environment for most operations would be positive:	



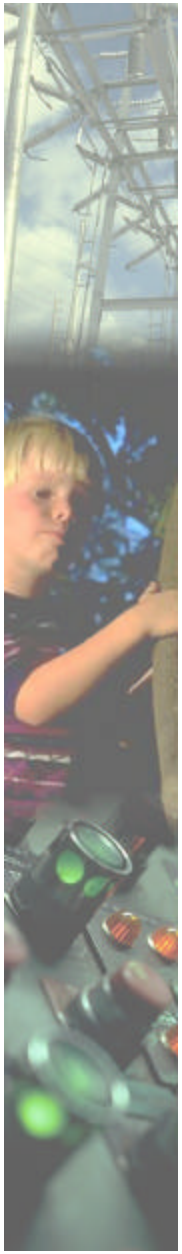
Non-Exclusionary Criteria	Score	Rationale	Notes
		• Idaho is a right-to-work state. • Idaho is one of the least unionized states in the nation, ranking 40th in total percentage of unionized labor, and 32nd for unionization among manufacturing operations. Only 8.6 % of the state's total workforce is represented by a bargaining unit, and only 11.6 % of its total manufacturing workforce is organized. It is anticipated that good skill mix and availability of personnel will exist to support the labor needs of PBMR. Currently, the managing and operating contractor employs 6,400. Over the next 6 months, this number will decrease by 1,300. (6) The employees at the INEEL and those available through subcontractors in the local vicinity have focused their efforts and capabilities on the following (7): • Environmental Management • Nuclear Energy, Science and Technology • Energy Efficiency and Renewable Energy • Office of Science • Nonproliferation And National Security • Fossil Energy • Defense Programs • Environment Safety and Health Per the INEEL Institutional Plan, 2001, the following is a breakdown of the labor force (8): Scientists and Engineers: 1694 Management and Administrative: 2729 Technicians: 633 Other: 1080	



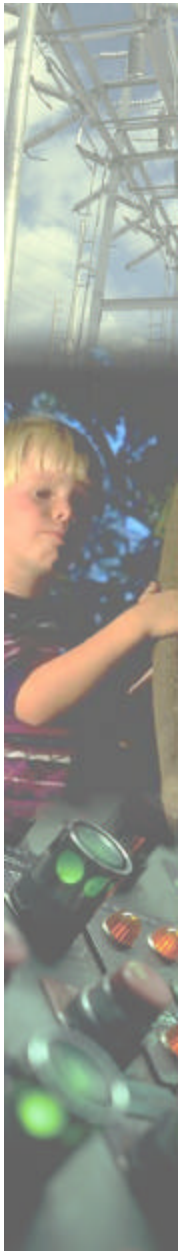
Non-Exclusionary Criteria	Score	Rationale	Notes
3.1.8 Transportation Access: Rank Site According to: 5 – Transportation routes within 0 - 10 miles. Major transportation route for materials transport to and from the site is located within 10 miles of selected site. Transport from delivery point to site will not require significant highway or rail upgrades. Transportation corridor to site is in rural or low population area. 4 – Transportation routes within 11 - 20 miles. Major transportation route for materials transport to and from the site is located greater than 10 miles from selected site. Transport from delivery point to site will not require significant highway or rail upgrades. Transportation corridor to site is in rural or low population area. 3 – Transportation routes within 21 - 30 miles. Major transportation route for materials transport to and from the site is greater than 20 miles and less than 40 miles from selected site. Transport from delivery point to site will not require significant highway or rail upgrades. Transportation corridor to site is in urban or highly populated area. 2 – Transportation routes within 31 - 40 miles. Major transportation route for materials transport to and from the site is greater than 30 miles and less than 40 miles from selected site. Transport from delivery point to site will require significant highway or rail upgrades. Transportation corridor to site is in	5	Approximately 3 miles of road from SR to the INEEL preferred site would have to be developed. Roads and railway are both available at the INEEL. Roads are the primary mode of transportation to and from the site. Some bulk materials are shipped by rail. Barge transport is not possible, as no navigable waterways exist on or adjacent to the INEEL. The INEEL is served by more than 230 miles of roadways consisting of principal arterial and major collector routes. There are 139 miles of DOE owned and controlled paved roads on-site. In addition, numerous paved intrafacility service roads exist within each specific INEEL area. Ninety miles of paved Federal and state highways that are open for public use pass through INEEL. US Route 20 and US 26 cross the southern portion of INEEL, while Idaho State Route 22, SR 28, and SR 33 cross the northeastern part. Two interstate highways serve the INEEL area. Interstate I-15, a north-south route that connects cities along the Snake River, is approximately 15 miles east of INEEL. Approximately 35 miles south of the INEEL, I-15 intersects I-86. I-86 provides a primary linkage from I-15 to points west. US 20 and US 26 are the preferred routes connecting INEEL with I-15. US 91, located 20 miles east, parallels I-15, connects the cities and towns along the Snake River, and intersects US 30 in Bannock County. (9)	



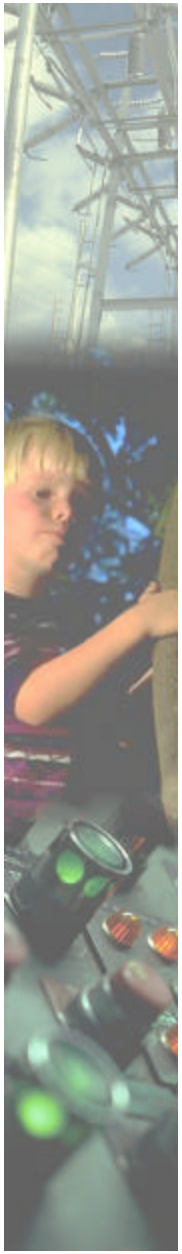
Non-Exclusionary Criteria	Score	Rationale	Notes
urban or highly populated area. 1 – Transportation routes within 40+ miles away. Major transportation route for materials transport to and from the site is greater than 40 miles from selected site. Transport from delivery point to site will require significant highway or rail upgrades. Transportation corridor to site is in urban or highly populated area.			
3.1.9 Security: <u>Rank Site According to</u>: 5 – Distance to vital structures or equipment is greater than 220 m (720 feet). 4 – Distance to vital structures or equipment is less than 220 m (720 feet) but greater than 110 m (360 feet). 3 – Distance to vital structures or equipment is less than 110 m (360 feet) but greater than 80 m (262 feet) and no substantive modification in security measures is required. 2 – Distance to vital structures or equipment is less than 110 m (360 feet) but greater than 80 m (262 feet) and significant security measures must be taken to meet security requirements. 1 – Distance to vital structures or equipment is less than 80 m (262 feet) and significant security measures and analysis must be taken to meet security requirements.	5	Security can be provided to the preferred site for greater than 220 m (720 feet), as specified in the NRC Regulatory Guide 4.7. (10)	



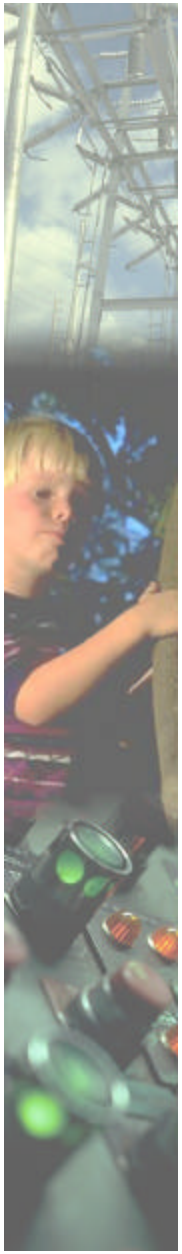
Non-Exclusionary Criteria	Score	Rationale	Notes
3.1.10 Collocated or Nearby Hazardous Land Use: Sub-Criterion Number: 1 – Within 5 miles of airports or flight holding and land patterns. 2 – Within 10 miles of major commercial airport. 3 – Within 10 miles of a military base, missile base, or firing/bombing range. 4 – Proximity to major highway and/or railway transportation route for hazardous materials. 5 – Proximity to major waterway (rivers or oceans) transportation route for hazardous materials. 6 – Within 5 miles of large explosive handling and manufacturing facilities and operations (e.g., mining, drilling, and quarrying operations). 7 – Within 5 miles of large hazardous chemical storage, handling, or manufacturing facility (e.g., chemical plant, refinery). 8 – Proximity to dock or anchorage for hazardous material waterborne shipments. 9 – Within 2 miles or large explosive and/or hazardous chemical storage, handling, or manufacturing facility 10 – Within 1.5 miles of a large propane pipeline or 0.5 miles of a gas pipeline.	5	The preferred site is located in an 890-square mile reservation located 32 miles west of Idaho Falls, Idaho. (11) Sub-Criterion: The closest airport, including flight holding and landing patterns, is in Idaho Falls, approximately 32 miles away. The closet major commercial airport is 32 miles away. The closest military base, missile base, or firing/bombing range is located over 200 miles away in Dugway, Utah. The preferred site has two interstate highways serving the INEEL area. Interstate I-15, a north-south route that connects cities along the Snake River, approximately 15 miles east of INEEL. Approximately 35 miles south of the INEEL, I-15 intersects I-86. I-86 provides a primary linkage from I-15 to points west. US 20 and US 26 are the preferred routes connecting INEEL with I-15. US 91, located 20 miles east, parallels I-15, connects the cities and towns along the Snake River, and intersects US 30 in Bannock County. The INEEL is inland and is not proximal to major waterways (rivers or oceans used for transportation). The preferred site is not within 5 miles of any large explosive handling and manufacturing facilities and operations. The preferred site is located a little over three miles from the Idaho Nuclear Engineering and Technology Center (INTEC), which stores approximately 4,400 m^3 of solid calcined high-level waste and approximately 4,500 m^3 of liquid sodium-bearing waste remain in storage. Some of the liquid sodium-bearing waste at the Tank Farm is stored in five tanks contained in non-compliant “pillar-and-panel” vaults. The preferred site at the INEEL is not proximate to a dock or anchorage for hazardous material waterborne shipments. The nearest hazardous chemical storage facility to the INEEL preferred site is over 3 miles away at INTEC. There are no other chemical handling or manufacturing facilities within 2 miles of the proposed site.	



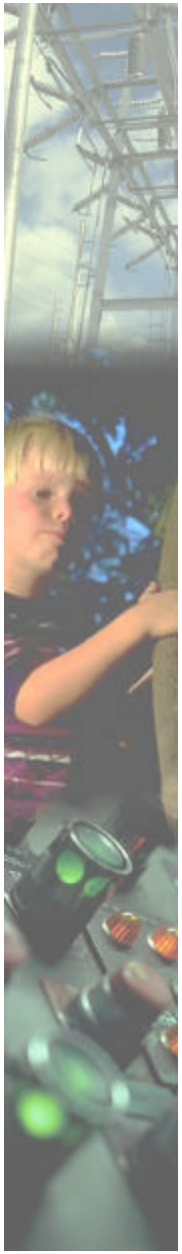
Non-Exclusionary Criteria	Score	Rationale	Notes
Rank Site According to: 5 – A "yes" response to any 2 sub-criteria and a "no" to #9 and #10. 4 – A "yes" response to any 4 sub-criteria and a "no" to #9 and #10. 3 – A "yes" response to any 6 sub-criteria and a "no" to #9 and #10. 2 – A "yes" response to any 8 sub-criteria and a "no" to #9 and #10. 1 – A "yes" response to sub-criterion #9 or #10.		No known propane pipelines exist within 1.5 miles, nor gas pipelines within 0.5 miles of the preferred site.	
3.1.11 Ease of Decommissioning: Rank Site According to: 5 – Optimal site characteristics to support decommissioning and dismantlement activities. 3 – Site characteristics should have no negative effect on decommissioning and dismantlement activities. 1 – Site characteristics could complicate decommissioning and dismantlement activities.	5	The preferred INEEL site is in an uncontaminated area, although the entire INEEL is listed on the NPL. There are no existing structures in the preferred location, and an existing transportation network exists on the INEEL to remove large components for off-site disposal. Additionally, adequate space exists for potential long term on-site storage of spent fuel. Currently two facilities are being built by private firms for the storage of spent fuel owned by the Department of Energy Idaho Operations Office (DOE-ID). These facilities are near the INTEC facility 3 miles away from the INEEL preferred site. A decommissioning and waste management program currently exists at the INEEL. The Decontamination and Dismantlement (D&D) Program in operation today, was established at the INEEL in 1977. Program activities encompass radiological, chemical, and physical characterization; decision analyses which guide the selection of preferred D&D alternatives; detailed project planning for performance and disposition of waste streams; establishment and maintenance of project documentation; and surveillance and maintenance of contaminated surplus facilities. (12)	



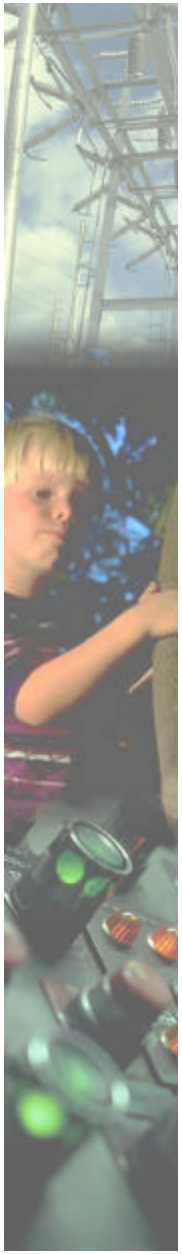
Non-Exclusionary Criteria	Score	Rationale	Notes
3.1.14 Site Development Costs: Rank Site According to: 5 – Cost of site development, licensing, permitting and long-term operations and maintenance (O&M) impacts expected to be less than $20M (in 2001 dollars). 4 – Cost of site development, licensing, permitting, and long-term O&M impacts expected to be between $20M and $25M (in 2001 dollars). 3 – Cost of site development, licensing, permitting and long-term O&M impacts expected to be between $25M and $30M (in 2001 dollars). 2 – Cost of site development, licensing, permitting, and long-term O&M impacts expected to be between $30M and $35M (in 2001 dollars). 1 – Cost of site development, licensing, permitting, and long-term O&M.	1	This ranking will be completed after Task 2.	
3.1.15 Schedule: Rank Site According to: 5 – Site development, licensing, and permitting expected to take less than 12 months. 4 – Site development, licensing, and permitting expected to take between 12 and 18 months. 3 – Site development, licensing, and permitting expected to take between 18 and 24 months.	1	This task will be completed after Tasks 2 and 3.	



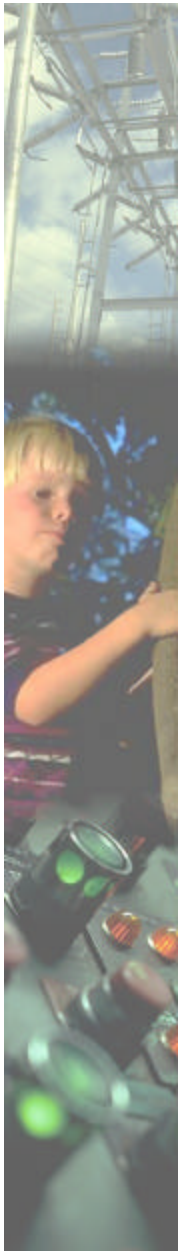
Non-Exclusionary Criteria	Score	Rationale	Notes
2 – Site development, licensing, and permitting expected to take between 24 and 30 months. 1 – Site development, licensing, and permitting expected to take more than 30 months.			
3.1.21 Near Surface Material: Rank Site According to: 5 – Very stiff to hard clays/silts, dense to very dense sands, and/or glacial till. 4 – Stiff clays and/or medium dense sands. 3 – Soft clays/silts and or loose sands down to 5 m depth. 2 – Soft clays/silts and or loose sands down to 10 m depth. 1 – Soft clays/silts and or loose sands.	4	INEEL soils are derived from silicic volcanic and Paleozoic rocks from nearby mountains and Buttes, underlain by basalt lava flows. The depth of basalt varies over the acreage of the site, and rock outcrops are common. The northern part of the INEEL is covered by lake and aeolian deposits composed of unconsolidated clay, silt, and sand. The soils in the southern part of the site are gravelly to rocky and generally shallow. (13)	
3.1.22 Groundwater: Rank Site According to: 5 – The seasonally high water table is deep and below the subsurface portions of safety-related structures, systems and components (21 m [70 feet] below ground surface). 4 – The seasonally high water table is less than 70 feet below ground surface, and the transmissivity of the surficial aquifer is low (well yields of less than 10 gallons per minute). 3 – The seasonally high water table is less than 70 feet below ground surface, and the transmissivity of the surficial aquifer is moderate (well yields	5	The depth of the top of the aquifer at the preferred site is 145 m (475 feet). (14) The depth to the top of the Snake River Plain aquifer ranges from approximately 60 m (approximately 200 feet) in the northeast portion of the INEEL to about 300 m (about 980 feet) in the southeast corner. Although the water–carrying properties vary substantially throughout the aquifer, in general, aquifer transmissivities measured below the INEEL are large, as are storativities and effective porosities. (15) (16) Transmissivity (m^2/d): 3.7 x 10^2 to 2.2. x 10^5 Storativity (m^2/d): 0.01 to 0.06 Effective porosity: 10 %	



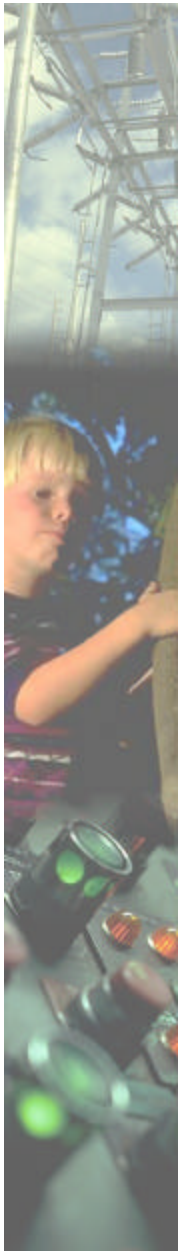
Non-Exclusionary Criteria	Score	Rationale	Notes
between 10 and 100 gallons per minute). 2 – The seasonally high water table is less than 70 feet below ground surface, and the transmissivity of the surficial aquifer is high (well yields between 100 and 1000 gallons per minute). 1 – The seasonally high water table is very shallow (less than 10 feet below ground surface), and the transmissivity of the surficial aquifer is very high (well yields greater than 1000 gallons per minute).			
3.1.24 Ice Formation: <u>Rank Site According to</u>: 5 – Region or site is in a warm climate with minimal or no potential for ice formation or any type. 4 – There is a potential for the formation of surface ice but of short duration; frazil ice formation is of low probability. 3 – Region is in a relatively cold climate with a potential for the formation of ice jam but has no impact on the potential water source; frazil ice formation has a high probability. 2 – The region or site is in a cold climate in which ice jams can occur for long periods, which could affect the dependability of the source of water supply and requires protective and heating measures.	4	The INEEL site is in a relatively cold climate, with the following air temperature characteristics for January, the coldest month of record, during the period 1950 through 1988 at INEEL's Central Facilities Area (CFA) monitoring location: 16.1 °F average temperature 27.5 °F average maximum temperature 4.6 °F average minimum temperature –8.8 °F average low temperature (17) As a result, there is a potential for the formation of ice jam in surface waters. However, this will have no significant impact on the potential water source, which is the Snake River Plain Aquifer (145 m below ground surface of the preferred site). The probable method of water withdrawal from the aquifer is not likely to result in significant frazil ice formation. (Source: Table B-5 of the reference document) (18)	This evaluation assumes that water for the PBMR will be derived from groundwater, and the effects of interest relate primarily to potential flooding impacts



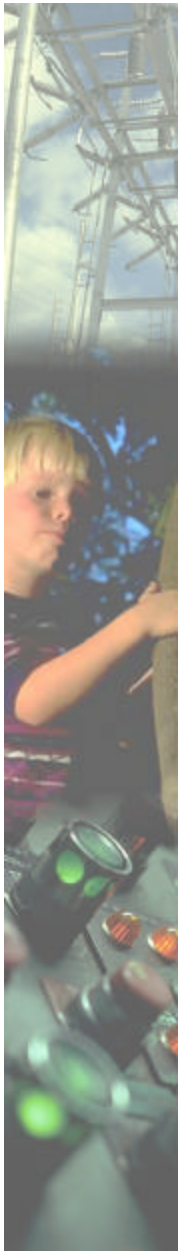
Non-Exclusionary Criteria	Score	Rationale	Notes
1 – The region has an extremely long period of cold climate with ice jams and surface ice formations that can affect the water supply source. Produces extensive forces on the water structures, and requires extensive protection and heating measures to prevent large forces and to maintain flow of water. May require on-site storage.			
3.1.26 Temperature and Moisture Content: <u>Sub-Criterion</u>: 1 – Maximum dry bulb (DB) temperature in excess of 110 F. 2 – Minimum DB temperature well below -30 F. 3 – Winter design DB temperature (1 % exceed) below -10 F. 4 – Summer design wet bulb (WB) temperature (1 % exceed) non-coincident above 80 F. 5 – Outside the specified maximum ambient temperature ranges: (1 % exceed) coincident : 100 F DB/77 F WB (0 % exceed) coincident: 115 F DB/80 F WB <u>Rank Site According to</u>: 5 – A “no” response to all sub-criteria. 4 – A “yes” response to sub-criteria #1 and #2.	5	Based on meteorological data collected on and surrounding the INEEL site during the period 1950 through 1988, the temperature characteristics of the area are as follows: Maximum recorded DB temperature: 103 °F (Table B-4, reference document (19)) Minimum recorded DB temperature: -49 °F (Table B-4, reference document (19)) Maximum recorded WB temperature: 67 °F (Table E-1, reference document (19)) Minimum recorded WB temperature: -31.5 °F (Table E-1, reference document (19)) No information is provided in the climatological summaries from the INEEL reference document that quantifies the frequency of occurrence of WB temperatures below –10 °F. However, information obtained from National Weather Service data (20) using the model described in (21) from Pocatello, ID, indicates that dewpoint temperatures less than –10 °F at that location occur more than 1 % of the time during the winter months of December through February.	



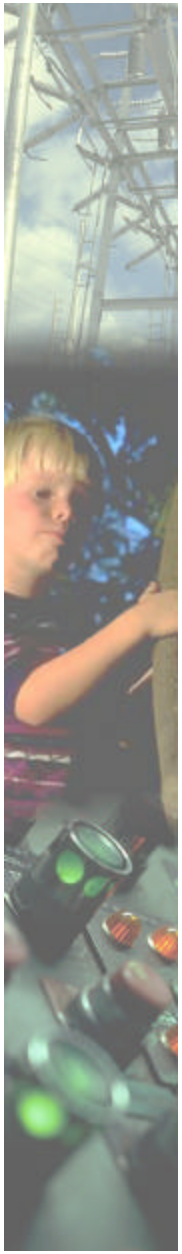
Non-Exclusionary Criteria	Score	Rationale	Notes
3 – A "yes" response to sub-criteria #1, #2 and #3. 2 – A "yes" response to sub-criteria #1, #2, #3 and #4. 1 – A "yes" response to sub-criteria #1, #2, #3, #4 and #5.			
3.1.27 Winds: <u>Sub-Criterion</u>: 1 – Within 100 miles of hurricane-prone zone along coastlines. 2 – Within tornado Region 1 (all areas east of 105th meridian as defined in NRC Regulatory Guide 1.76). 3 – Region with severe tropical storms. 4 – With basic wind speed exceeding 110 mph. 5 – Annual frequency of wind gusts equal to or greater than 50 knots (58 mph), measured over 10,000 square miles, exceeding 10. 6 – Annual frequency of wind gusts equal to or greater than 50 knots (58 mph), measured over 10,000 square miles, exceeding 20. <u>Rank Site According to</u>: 5 – A "no" response to all sub-criteria. 4 – A "yes" response to any 1 of the sub-criteria and a "no" to #4, #5, #6. 3 – A "yes" response to any 2 of the sub-criteria and a "no" response to #4 and #6.	5	The INEEL site is not within 100 miles of hurricane prone zones, nor is the INEEL site on the coastline. The INEEL is also not within tornado Region 1. Between 1950 and 1989 a total of five funnel clouds and no tornadoes were sighted within the boundary of the INEEL site. The estimated probability of a tornado striking a point at the INEEL site is $8 \times 10\text{-}6$ /year. (22) The INEEL site is located on semi-desert terrain and is not impacted by severe tropical storms. The maximum instantaneous gust recorded at INEEL's Central Facilities Area (CFA) Weather Station was 78 mph (from the west-southwest) during the period 1950 through 1964. The highest hourly average wind speed was 51 mph (also from the west-southwest). No information is available from the reference document (26) or from other readily available documentation regarding the annual frequency of wind gusts greater than 58 mph. However, peak gusts have only been recorded above 70 mph in January and March during the 15 year period of record at the CFA monitoring station and no gusts greater than 70 mph have been recorded at the Test Area North (TAN) monitoring station. Additional information contained in the reference document (23) indicates that some of the highest winds at the INEEL site occur when springtime westerly winds channel through the mountains and during strong thunderstorms.	



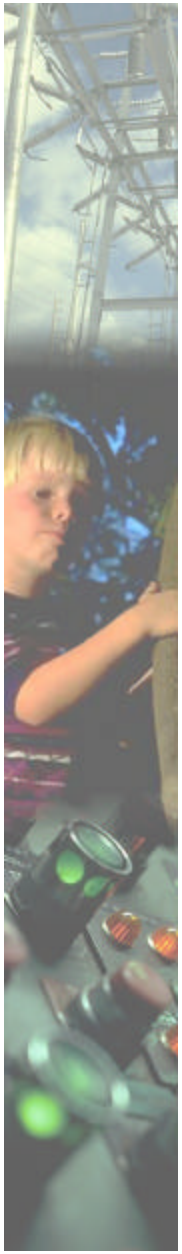
Non-Exclusionary Criteria	Score	Rationale	Notes
2 – A "yes" response to any 3 sub-criteria and a "no" response to sub-criterion #4. 1 – A "yes" response to sub-criteria #4 and any 2 or more of any other sub-criteria.			
3.1.28 Rainfall: <u>Rank Site According to</u>: 5 – PMP is of low magnitude and the topography allows for drainage to adjacent streams or ravines. 4 – PMP is high but there is adequate topographic relief to allow drainage with minor guidance. 3 – PMP is high and the topographic is not conducive to natural drainage without extensive drainage diversion. 2 – PMP is high and topography does not lend itself to natural drainage or man-made diversion canals. 1 – PMP is high and the region or site has no natural drainage relief and man-made drainage is not possible with out major drainage canals.	5	The climatological summary of the INEEL site (24) characterizes the total annual precipitation as light, based on a period of record from 1950 through 1988. The average annual precipitation at INEEL is only 8.7 inches. Average monthly precipitation ranges from 0.29 inches in October to 1.2 inches in May. (24, Table D-1) The highest average monthly rainfall occurs in May (approximately 5 inches). (24, Table D-2) Maximum recorded 1-hour and 24-hour rainfalls are 1.15 and 1.78 inches respectively. (24,Table D-4)	
3.1.29 Snow: <u>Rank Site According to</u>: 5 – The region or site is in warm climate and there is no historic evidence about snowfall. 4 – The region has minor snow fall and winter PMP in the form of snow is not justified due to the warm climate.	2	The annual average snowfall at the INEEL site was only 27.6 inches and the maximum annual snowfall was 59.7 inches during the reporting period 1950 through 1988. (25, Table D-10) The maximum reported monthly snowfall in the reporting period was 22.3 inches (December) and the largest daily snowfall reported was 8.6 inches. (25, Table D-10) Maximum reported snowfall depth is 20 inches and average snow depths in the winter months is less than 5 inches. (25, Table D-12)	



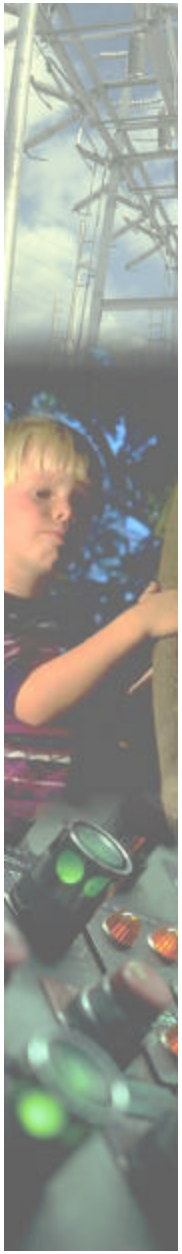
Non-Exclusionary Criteria	Score	Rationale	Notes
3 – Snowfall does not accumulate and melts quickly; however, there is a potential for the winter PMP to be in the form of snow. 2 – Snowfall accumulation on the ground is minor but winter PMP in the form of snow can form and accumulate. 1 – Severe snow accumulation on the ground and winter PMP in the form of snow can affect drainage and design loads.			
3.1.30 Atmospheric Dispersion: <u>Sub-Criterion</u>: 1 – A coastal site. 2 – A mountain-coastal site. 3 – A mountain-valley site. 4 – An open terrain site. 5 – Site with significant (i.e., more than 30 %) stable and low winds (i.e., less than 3 m/second). 6 – Site with shortest site boundary (not including boundary abutting a large body of water) has exclusion separation distance of releases from receptors of less than 0.4 miles. <u>Rank Site According to</u>: 5 – A “yes” response to sub-criteria #4 and a “no” response to sub-criteria #5 and #6. 4 – A “yes” response to sub-criteria #1 and a “no” response to sub-criteria #5	5	The preferred INEEL site is not a coastal site (Idaho is inland), nor is it a mountain coastal site, nor a mountain valley site. The preferred site is on open, flat, high desert terrain. (26) Atmospheric stability classifications are not published in the readily available literature. (27) However, there are several meteorological towers on the INEEL site that are known to measure temperature at multiple elevations between the surface and at least 120 feet above ground. This information can be used to quantify the lapse of vertical temperature on an hourly basis. This information, in conjunction with coincident wind speed, cloud cover, and solar isolation, can be used to categorize atmospheric stability for use in making atmospheric dispersion estimates. Based on knowledge of the site topography and regional winds, it is not expected that the INEEL site area is subject to significant (higher than average) conditions of stable atmospheric conditions (based on temperature lapse measurements) with low wind speeds. The site with the shortest site boundary is greater than 0.4 miles. As the response to sub-criteria #4 is “yes” and the probable response to sub-criteria #5 and #6 is “no”, the ranking is determined to be 5.	



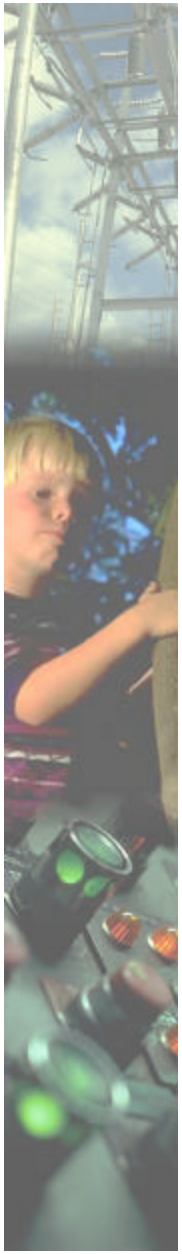
Non-Exclusionary Criteria	Score	Rationale	Notes
and #6. 3 – A "yes" response to sub-criteria #2 or #3 and a "no" response to sub-criteria #5 and #6. 2 – A "yes" response to sub-criteria #5 and a "no" response to sub-criteria #6. 1 – A "yes" response to sub-criteria #6.			
3.2.1 Terrestrial and Wetlands Habitat: <u>Sub-Criterion</u>: 1 – Disruption and displacement of more than 500 acres of undisturbed land. 2 – Displacing terrestrial habitats designated as of special importance. 3 – Significant loss of state or federal jurisdictional wetlands. 4 – Significant loss of habitat important as breeding or nursing grounds for important species. 5 – Significant loss to nesting, feeding, or migrating areas for important species. 6 – Direct or indirect impacts to federally protected species. 7 – Significant direct or indirect impacts or displacement of commercially or recreationally valuable species. <u>Rank Site According to</u>: 5 – A "no" response to all sub-criteria.	3	Although a terrestrial habitat survey specifically at the preferred INEEL site has not been conducted, the preferred site is typical of other sites at the INEEL where numerous INEEL studies have occurred. Elk use areas in the vicinity of the preferred site during the fall, winter, and spring, but pronghorn use of the preferred site is low relative to other areas of the INEEL. DOE only allows hunting near the northern boundary, not near the preferred site. Sage grouse are known to use the preferred site, but not for breeding purposes. The isolated juniper stands located in the southeastern and northeastern portions of the site provide potential nesting habitat for hawks and owls. (28)	



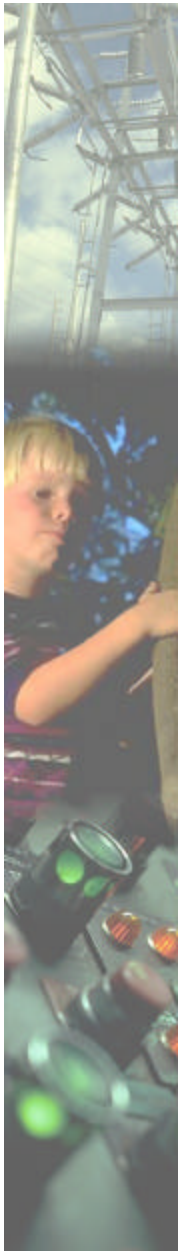
Non-Exclusionary Criteria	Score	Rationale	Notes
4 – A “yes” response to sub-criterion #1 or #2. 3 – A “yes” response to sub-criterion #7. 2 – A “yes” response to either sub-criterion #3 or #5. 1 – A “yes” response to sub-criteria #4 or #6.			
3.2.2 Terrestrial Natural Areas: <u>Sub-Criterion</u>: 1 – Facility located in disturbed area including only commercial and industrial developments, or fallow land. Facility not affecting managed pasture or agricultural land uses within 5 miles. 2 – Displacing between 100 and 500 acres of natural vegetation and/or pasture or agricultural land uses. 3 – Displacing over 500 acres of natural vegetation and/or pasture or agricultural land uses. 4 – Facility within 5 miles of public recreation areas including state or federal forests and game management or designated wildlife management areas. <u>Rank Site According to</u>: 5 – A “yes” response to sub-criteria #1 and a "no" response to all other sub-criteria. 4 – A “yes” response to sub-criteria #2.	5	Building of a facility at the preferred INEEL site would not displace or disturb important regional species; there are no wetlands in the vicinity; the area does not have known endangered or protected species or important regional species; and it is not proximal to mature or uncommon plant communities. A preliminary vegetation survey of the preferred INEEL site was conducted in 1990. The entire site is underlain by basalt lava flows of varying ages, and the dominant vegetation in areas where soils are shallow (over 90 % of the site) is big sagebrush. Perennial grasses dominate low-lying depressions where deep, fine soils have accumulated. Common plant species on the preferred site include big sagebrush, rabbitbrush, cheatgrass, bottlebrush squirreltail, thick spike wheatgrass, Indian ricegrass, and needle-and-thread grass. Several isolated stands of juniper also are present on the site. (29)	



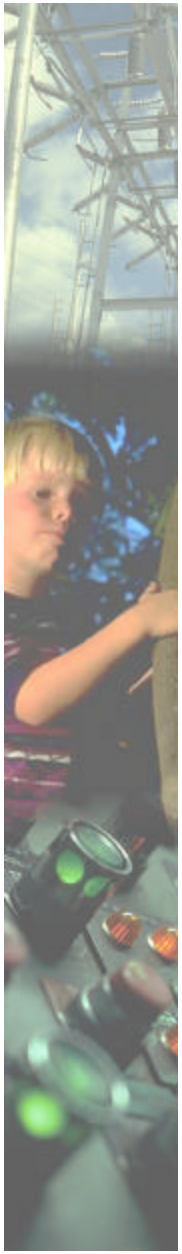
Non-Exclusionary Criteria	Score	Rationale	Notes
3 – A “yes” response to sub-criterion #3. 2 – A “no” response to sub-criteria #1, #2, and #3 but a "yes" response to sub-criterion 4. 1 – A “yes” response to sub-criterion #4 and a "yes" response to either sub-criterion #2 or #3.			
3.2.3 Aquatic Habitat / Organisms: Sub-Criterion: 1 – Collocated or adjacent to existing power plant. 2 – With known occurrence of threatened or endangered aquatic species that would be affected by facility construction or operations. 3 – Construction or operation will affect spawning or nursery areas or have an exclusion effect for movement or migration of important aquatic species. 4 – With known commercially or recreationally valuable aquatic species affected by facility construction or operation. 5 – Intake located in area with significant risk for entrainment or impingement of important aquatic species requiring expensive mitigation or compensation. 6 – Discharge will likely exceed state or federal criteria for thermal impacts requiring expensive mitigation or compensation.	5	The preferred INEEL site is not collocated or adjacent to an existing power plant. No wetlands are located at the preferred INEEL site. No aquatic habitat occurs on the preferred INEEL site. Although most of the INEEL is desert, more than 800 ha of wetlands exist during periods of high flow in the Big Lost River, which enters the southwestern corner of the INEEL and flows north. The Big Lost River spreading areas and Big Lost River sinks are major wetlands on INEEL but do not cross the INEEL preferred site. The Big Lost River is about 16 km southwest and 20 km north of the preferred site. These areas provide habitat for migratory waterfowl, shore birds, and other wildlife species during wet years, but they have not held water since 1986. When water is flowing, six species of fish have been observed in the Big Lost River. (30)	



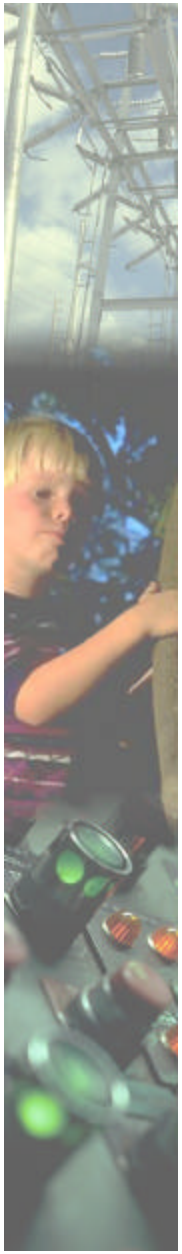
Non-Exclusionary Criteria	Score	Rationale	Notes
Rank Site According to: 5 – A "no" response to all sub-criteria. 4 – A "yes" response to sub-criterion #1 or #4. 3 – A "yes" response to sub-criterion #3, #5, or #6. 2 – A "yes" response to two or more of #3, #4, #5, or #6. 1 – A "yes" response to sub-criteria 2 or both 5 and 6.			
3.2.4 Groundwater: Rank Site According to: 5 – The water table is very deep (greater than 500 feet below ground surface), the transmissivity of the first water bearing unit is low (well yields less than 5 gallons per minute), or the groundwater is saline (total dissolved solids greater than 10,000 milligrams per liter). 4 – The water table is deep (between 100 and 500 feet below ground surface), the transmissivity of the first water bearing unit is low (well yields between 5 and 25 gallons per minute), or the groundwater is brackish (total dissolved solids between 1000 and 10,000 milligrams per liter). 3 – The water is of moderate depth (between 50 and 100 feet below ground surface), the transmissivity of the first water bearing unit is low (well yields between 25 and 100 gallons per minute), or the groundwater is fresh	5	The depth to the top of the Snake River Plain aquifer ranges from approximately 60 m (about 200 feet) in the northeast portion of the INEEL to about 300 m (about 980 feet) in the southeast corner. The depth to the top of the aquifer at the NPR site is 145 m (475 feet). (31) Although the water–carrying properties vary substantially throughout the aquifer, in general, aquifer transmissivities measured below the INEEL are large, as are storativities and effective porosities. (32) (33) Transmissivity (m^2/d): 3.7 x 10^2 to 2.2. x 10^5 Storativity (m^2/d): 0.01 to 0.06 Effective porosity: 10 %	This evaluation assumes that water for the PBMR reactor will be obtained from groundwater and that an agreement for sufficient groundwater retrieval can be reached.



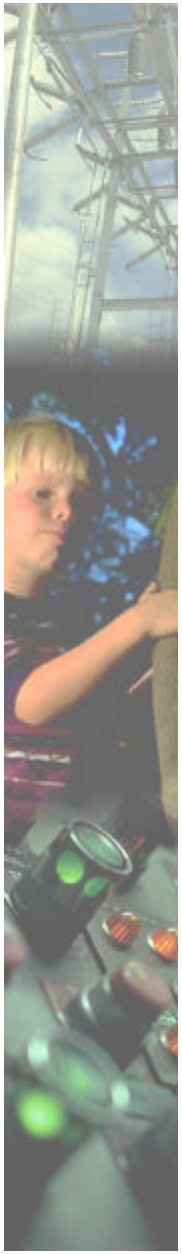
Non-Exclusionary Criteria	Score	Rationale	Notes
(total dissolved solids less than 1000 milligrams per liter). 2 – The water table is shallow (between 10 and 50 feet below ground surface), the transmissivity of the first water bearing unit is high (well yields between 100 and 1000 gallons per minute), or the groundwater is fresh (total dissolved solids less than 1000 milligrams per liter). 1 – Groundwater is very shallow (less than 10 feet below ground surface), transmissivity of the first water bearing unit is very high (wells yields greater than 1000 gallons per minute), or the groundwater is fresh (total dissolved solids less than 1000 milligrams per liter).			
3.2.6 Population: <u>Sub-Criterion</u>: 1 – Collocated or adjacent to existing power plant. 2 – Within 2 miles of commercial animal/vegetable farms or orchards. 3 – Within 5 miles of residences, schools, hospitals, correctional facilities, or publicly used facilities. 4 – Within 10 miles of cities and towns. 5 – High potential for radionuclide, chemical, or biocide contamination of nearby domestic water supplies from surface water bodies or groundwater resulting from plant operation. 6 – High potential for radionuclide, chemical, or biocide contamination of	5	The preferred site is not collocated or adjacent to an existing power plant, nor is it within 2 miles of commercial animal/vegetable farms or orchards. The preferred site is not within 5 miles of residences, schools, hospitals, correctional facilities or publicly used facilities, nor within 10 miles of a city or town. The nearest contaminated ground water is located over three miles down gradient in WAG-3 (INTEC). (36)	This evaluation was based on the assumption that although not collocated with an existing power plant, the other attributes for this site would rank it very high relative to Population criteria.



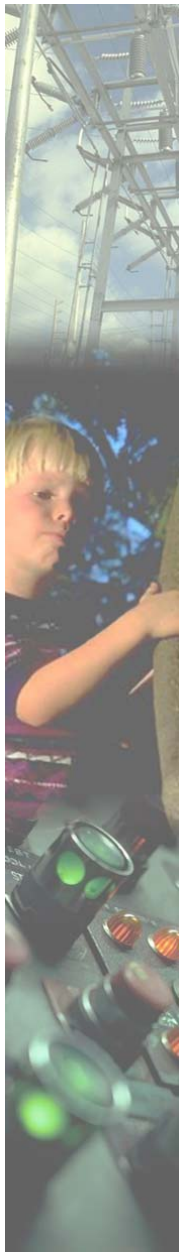
Non-Exclusionary Criteria	Score	Rationale	Notes
aquatic organisms in the area resulting from plant operation. 7 – High number of projected cooling tower-induced fogging/icing occurrences. <u>Rank Site According to</u>: 5 – A "yes" response to sub-criteria #1 and a "no" response to sub-criteria #2, #5, #6. 4 – A "no" response to sub-criteria #2, #5 and #6. 3 – A "no" response to sub-criteria #2 and #5. 2 – A "yes" response to any 5 sub-criteria. 1 – A "yes" response to any 6 or more sub-criteria.			
3.3.4 Agricultural / Industrial Productivity: <u>Sub-criterion</u>: 1 – Displacement or proximity to prime agricultural lands. 2 – Proximity to important local commercial fisheries or coral reefs. 3 – Significant number of competitive water users in the area. 4 – No significant area-wide transportation infrastructure improvement resulted from construction and operation of the power plant	5	The preferred site is an 890 square mile reservation located 32 miles west of Idaho Falls, Idaho. There are no prime agricultural lands, no local commercial fisheries or coral reefs, nor a significant number of competitive water users. There will not be any significant area-wide transportation infrastructure improvements nor will there be any limited projected induced industrial growth. (39)	



Non-Exclusionary Criteria	Score	Rationale	Notes
5 – Limited projected induced industrial growth. Rank Site According to: 5 – A "no" response to all sub-criteria. 4 – A "no" response to sub-criteria #1, #2, and #3. 3 – A "no" response to sub-criteria #1 and #2. 2 – A "yes" response to any 4 sub-criteria. 1 – A "yes" response to sub-criteria #1, #2 or #3.			
3.3.5 Aesthetics: Sub-Criterion: 1 – Within 2 miles of public amenity area (e.g., scenic, park, recreation area). 2 – Site located along coastline or riverbank. 3 – An open terrain site. 4 – Within 2 miles of major residential areas. 5 – Within 5 miles of cities and towns. 6 – With noticeable view of cooling tower structure off-site and/or visible vapor plume longer than 2 miles. Rank Site According to: 5 – A "no" response to sub-criteria #1, #4, #6, #8.	5	The preferred site is already dedicated to this type of activity. The site has restricted public access and is not normally available for public recreation. The existing facilities of the INEEL are relatively isolated from public view because of the large area expanse of the sites. At the INEEL, cooling tower plumes can occasionally be visible from Craters of the Moon National monument and Wilderness Area, a Class I visual area. Impact could be mitigated by the INEEL's adoption of a dry-cooling system for the use of the PBMR, because this type of system has no visible plume. (40)	

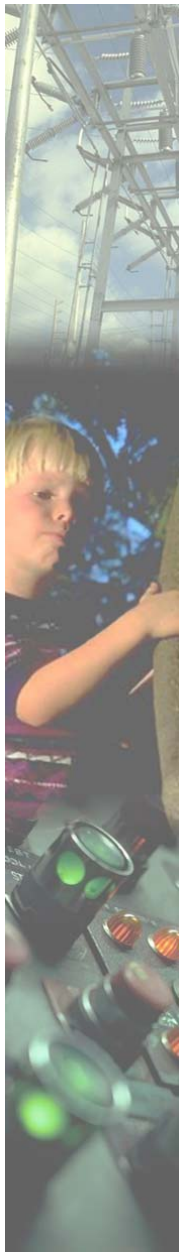


Non-Exclusionary Criteria	Score	Rationale	Notes
4 – A "no" response to sub-criteria #1 and #6. 3 – A "yes" response to sub-criteria #1 or #6. 2 – A "yes" response to sub-criteria #1, #4 or #6. 1 – A "yes" response to sub-criteria #1, #4, #6 and #8.			
3.3.7 Transportation Network: <u>Rank Site According to</u>: 5 – Adequate existing traffic capacity prior to construction and operation, no potential for adverse effects. 4 – Construction traffic expected to cause minimal time delays and congestion. 3 – Construction traffic expected to cause occasional time delays and congestion. 2 – Construction traffic expected to cause frequent time delays and congestion with potential reductions in safety and occasional time delays expected during plan operation. 1 – Construction traffic expected to cause major time delays and congestion, with reductions in safety and frequent time delays expected during plan operation.	5	For the preferred site, it appears that the transportation traffic patterns on both Highway 26 and Highway 20 currently have the capacity to support construction and operations without adverse affects. There are no current plans for highway expansion for either Highway 26 or Highway 20 from the year 2002 through 2006. (41)	

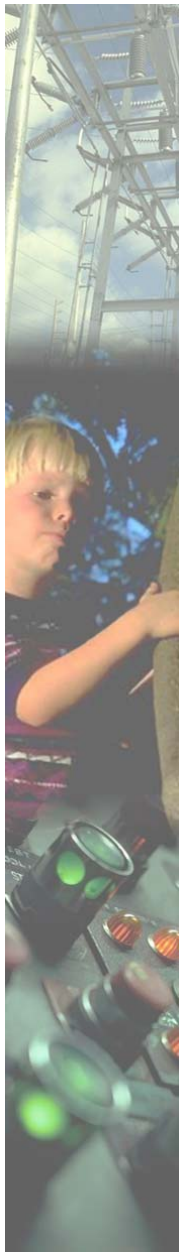


Appendix F – Non- Exclusionary Criteria for Clinton Site

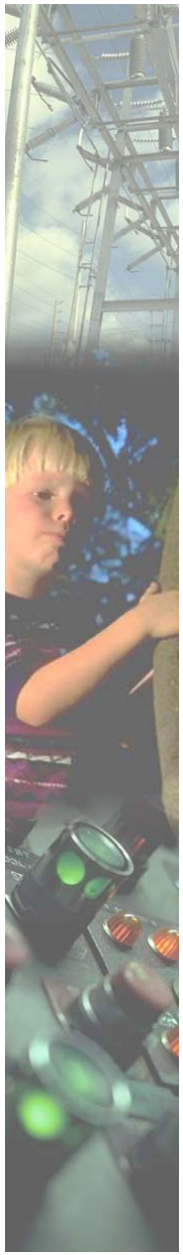
Non-Exclusionary	Score	Rationale	Notes
3.1.6 Emergency Planning/Population Density <u>Rank Site According to:</u> 5 – Population density is less than 500 persons per square mile out to 20 miles. There are no schools, hospitals, prisons, beaches, parks, large industrial and/or commercial complexes, etc., within 5 miles. Excellent site and area characteristics. Area can satisfy current 10 CFR requirements for EPZs. 4 – Population density is equal to or less than 500 persons per square mile out to 20 miles. There are no schools, hospitals, prisons, beaches, parks, large industrial and/or commercial complexes, etc., within 5 miles. Good site and area characteristics. Area can satisfy current 10 CFR requirements for EPZs. 3 – Population density is approximately 500 persons per square mile out to 20 miles. Schools, hospitals, prisons, beaches, parks, large industrial and/or commercial complexes, etc., may exist within 5 miles. No adverse site or area characteristics. Area can satisfy PBMR reduced EPZ requirements. 2 – Population density is greater than 500 persons per square mile out to 20 miles and there are schools, hospitals, prisons, beaches, parks, large industrial and/or commercial complexes, etc., within 5 miles. Some adverse site or area characteristics. Area can satisfy PBMR reduced EPZ requirements.	5	Schools, hospitals, and correctional facilities are not located within 5 miles of the proposed PBMR site. (1)(3)(4) The site is surrounded by agricultural land, and according to the 1990 census, the total population density within 5 miles of the site was 11 persons per square mile, the density within 20 miles was 26 persons per square mile, and the population center (the nearest boundary of a densely populated center containing more than 25,000 residents) is the city of Decatur, 22 miles away. (1)(2) The proposed plant site is located near a state recreational area where the transient recreational population can reach 10,309, with a daily average of 1,050. In addition, there are 5 other recreation areas within 10 miles of the site with a total peak attendance of 5,503. (1) The proposed PBMR site in Clinton is located close to major road systems with sufficient capacity to serve emergency evacuation needs (see Transportation Network criteria). (3)(4) There are no physical characteristics of the proposed site that could pose a significant impediment to evacuation activities, nor are there any special population groups in the EPZ that could require special needs during an emergency.	



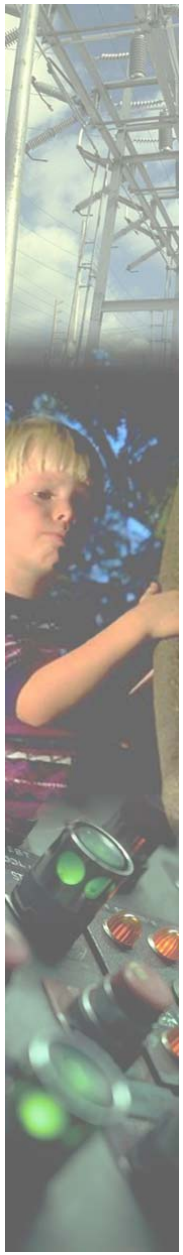
Non-Exclusionary	Score	Rationale	Notes
1 – Population density is much greater than 500 persons per square mile out to 20 miles and there are schools, hospitals, prisons, beaches, parks, large industrial and/or commercial complexes, etc., within 5 miles. There are significant adverse site or area characteristics and/or resettlement or relocation of native village, local community, or nearby residences is required. Area cannot satisfy PBMR reduced EPZ requirements.			
3.1.7 Labor Supply: <u>Rank Site According to:</u> 5 – Excellent availability in all skill areas using local craft resources with few added incentives. 4 – Good availability in all skill areas using mainly local and some other craft resources. Some added incentives needed to attract labor supply. 3 – Good availability in all skill areas using craft resources from outside the local area. Incentives needed to attract labor supply. 2 – Less than adequate availability of craft resources. Significant incentives needed to attract craft personnel. Some shortages expected throughout the project. 1 – Limited availability of craft resources. Shortages expected in most skill areas throughout the project.	4	The 7-county area surrounding the PBMR site has a total population of 600,000. (5) The largest numbers of skilled workers, i.e., construction trades, engineers, and technical skills, are located in Sangamon, McLean, Macon, and Champaign counties. Overall, the area (within 25 miles of plant site) provides a large, well-trained workforce to satisfy the needs of a PBMR facility. (5)(3)(6)	



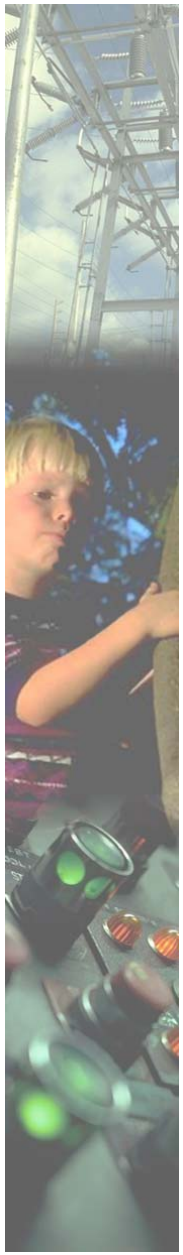
Non-Exclusionary	Score	Rationale	Notes
3.1.8 Transportation Access: <u>Rank Site According to:</u> 5 – Transportation routes within 0 - 10 miles. Major transportation route for materials transport to and from the site is located within 10 miles of selected site. Transport from delivery point to site will not require significant highway or rail upgrades. Transportation corridor to site is in rural or low population area. 4 – Transportation routes within 11 - 20 miles. Major transportation route for materials transport to and from the site is located greater than 10 miles from selected site. Transport from delivery point to site will not require significant highway or rail upgrades. Transportation corridor to site is in rural or low population area. 3 – Transportation routes within 21 - 30 miles. Major transportation route for materials transport to and from the site is greater than 20 miles and less than 40 miles from selected site. Transport from delivery point to site will not require significant highway or rail upgrades. Transportation corridor to site is in urban or highly populated area. 2 – Transportation routes within 31 - 40 miles. Major transportation route for materials transport to and from the site is greater than 30 miles and less than 40 miles from selected site. Transport from delivery point to site will require significant highway or rail upgrades. Transportation corridor to site is in urban or highly populated area. 1 – Transportation routes within 41+	5	The proposed PBMR site is within 2 miles of major rail and road transportation systems (see Transportation Network criteria). (3)(4) Transportation of large components during the construction and decommissioning phases and operational traffic after start-up are not expected to cause any significant transportation challenges. (7)(8)(9)	



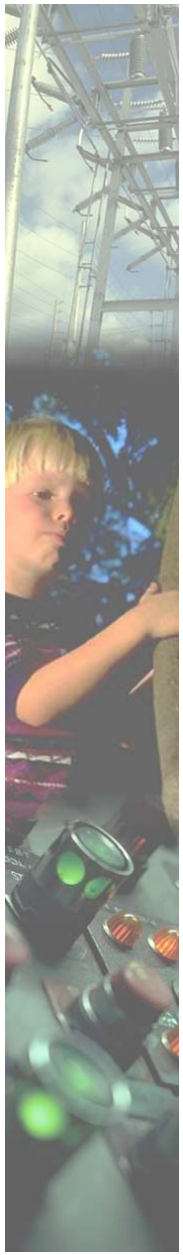
Non-Exclusionary	Score	Rationale	Notes
miles away. Major transportation route for materials transport to and from the site is greater than 40 miles from selected site. Transport from delivery point to site will require significant highway or rail upgrades. Transportation corridor to site is in urban or highly populated area.			
3.1.9 Security: Rank Site According to: 5 – Distance to vital structures or equipment is greater than 220 m (720 feet). 4 – Distance to vital structures or equipment is less than 220 m (720 feet) but greater than 110 m (360 feet). 3 – Distance to vital structures or equipment is less than 110 m (360 feet) but greater than 80 m (262 feet) and no substantive modification in security measures is required. 2 – Distance to vital structures or equipment is less than 110 m (360 feet) but greater than 80 m (262 feet) and significant security measures must be taken to meet security requirements. 1 – Distance to vital structures or equipment is much less than 80 m (262 feet) and significant security measures and analysis must be taken to meet security requirements.	5	The proposed site is contained within the existing Clinton facility security fencing and meets all requirements of NRC Regulatory Guide 4.7. (3)(4)(10)	
3.1.10 Collocated or Nearby Hazardous Land Use: Sub-Criterion Number:	5	Based on information from the EPA Marplot industries that handle hazardous chemicals. The project site is proximate to IL 54 and the Central Illinois railroad, which are located outside a 2-mile area, but within a 5-mile area. Military bases,	



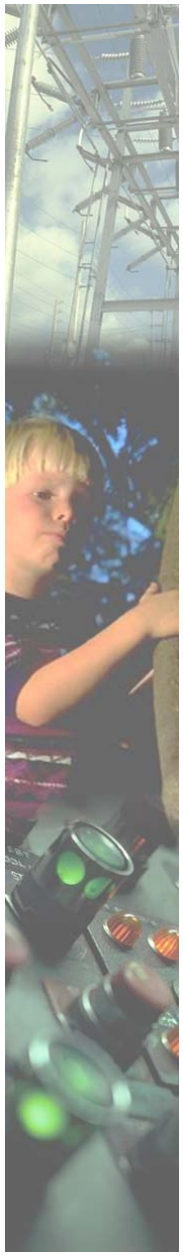
Non-Exclusionary	Score	Rationale	Notes
1 – Within 5 miles of airports or flight holding and land patterns. 2 – Within 10 miles of major commercial airport. 3 – Within 10 miles of a military base, missile base, or firing/bombing range. 4 – Proximity to major highway and/or railway transportation route for hazardous materials. 5 – Proximity to major waterway (rivers or oceans) transportation route for hazardous materials. 6 – Within 5 miles of large explosive handling and manufacturing facilities and operations (e.g., mining, drilling, and quarrying operations). 7 – Within 5 miles of large hazardous chemical storage, handling, or manufacturing facility (e.g., chemical plant, refinery). 8 – Proximity to dock or anchorage for hazardous material waterborne shipments. 9 – Within 2 miles of large explosive and/or hazardous chemical storage, handling, or manufacturing facility. 10 – Within 1.5 mile of a large propane pipeline or 0.5 miles of a gas pipeline <u>Rank Site According to:</u> 5 – A “yes” response to any 2 sub-criteria and a “no” to #9 and #10. 4 – A “yes” response to any 4 sub-criteria and a “no” to #9 and #10. 3 – A “yes” response to any 6 sub-criteria		large explosive handling facilities, airports, waterway transportation routes, propane or gas pipelines, and hazardous material docks are located at distances greater than those listed in the sub-criteria to be of concern for siting a PBMR.	



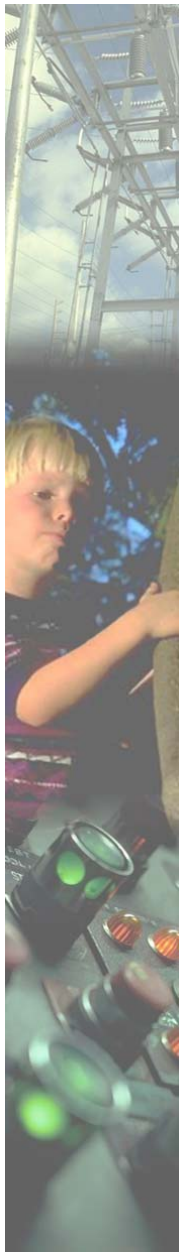
Non-Exclusionary	Score	Rationale	Notes
and a “no” to #9 and #10. 2 – A “yes” response to any 8 sub-criteria and a “no” to #9 and #10. 1 – A “yes” response to sub-criterion #9 or #10.			
3.1.11 Ease of Decommissioning: Rank Site According to: 5 – Optimal site characteristics to support decommissioning and dismantlement activities. 3 – Site characteristics should have no negative effect on decommissioning and dismantlement activities. 1 – Site characteristics could complicate decommissioning and dismantlement activities.	5	The PBMR complex site in Clinton is close to major rail and road transportation network (4), and 20 miles away from any sizable population area. (3)(5) Decommissioning activities of the facility following the end of its useful life are not expected to encounter significant infrastructure or transportation challenges. (4)(12)	
3.1.14 Site Development Costs: Rank Site According to: 5 – Cost of site development, licensing, permitting and long-term operation and maintenance (O&M) impacts expected to be less than$20M (in 2001 dollars). 4 – Cost of site development, licensing, permitting, and long-term O&M impacts expected to be between $20M and $25M (in 2001 dollars). 3 – Cost of site development, licensing, permitting and long-term O&M impacts expected to be between $25M and $30M (in 2001 dollars). 2 – Cost of site development, licensing, permitting, and long-term O&M impacts expected to be between $30M and $35M (in 2001 dollars). 1 – Cost of site development, licensing,	5		



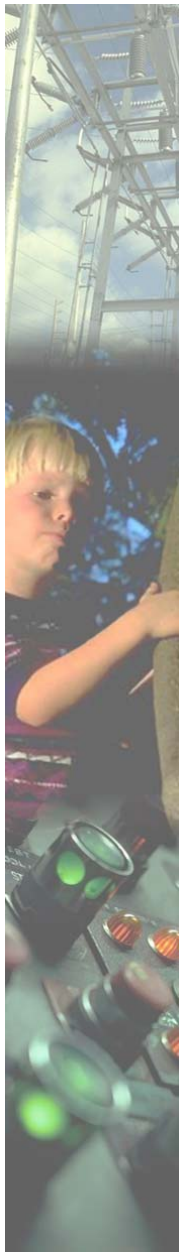
Non-Exclusionary	Score	Rationale	Notes
permitting, and long-term O&M impacts expected to be greater than $35 M (in 2001 dollars).			
3.1.15 Schedule: Rank Site According to: 5 – Site development, licensing, and permitting expected to take less than 12 months. 4 – Site development, licensing, and permitting expected to take between 12 and 18 months. 3 – Site development, licensing, and permitting expected to take between 18 and 24 months. 2 – Site development, licensing, and permitting expected to take between 24 and 30 months. 1 – Site development, licensing, and permitting expected to take longer than 30 months.	1		
3.1.21 Near Surface Material: Rank Site According to: 5 – Very stiff to hard clays/silts, dense to very dense sands, and/or glacial till. 4 – Stiff clays and/or medium dense sands. 3 – Soft clays/silts and or loose sands down to 5 m depth. 2 – Soft clays/silts and or loose sands down to 10 m depth. 1 – Soft clays/silts and or loose sands.	4	The soil between the ground surface and the foundation level of PBMR site will comprise primarily medium stiff to hard silts with some layers of medium dense to dense sands. The types and consistency of the soil above the proposed foundation level of the PBMR site is shown in seven soil boring logs. These logs extend to depths of 70 feet or more. Blowcounts recorded during Standard Penetration Tests (SPTs) indicate that silts have blowcounts that range from 10 blows per foot (bpf) to 50 bpf, while sands vary from 20 to refusal conditions. The exception to these soil conditions occurs in the upper 10 to 15 feet of soil profile where softer soils can be found. These surficial soils consist of organic topsoil, fills, and weathered tills. Structures located below a depth of about 15 feet will be in or on soils that provide very good vertical and lateral bearing support conditions. If required, soil in the upper 15 feet can be removed and replaced at relatively modest cost. No other requirements for excavation and replacement, ground	



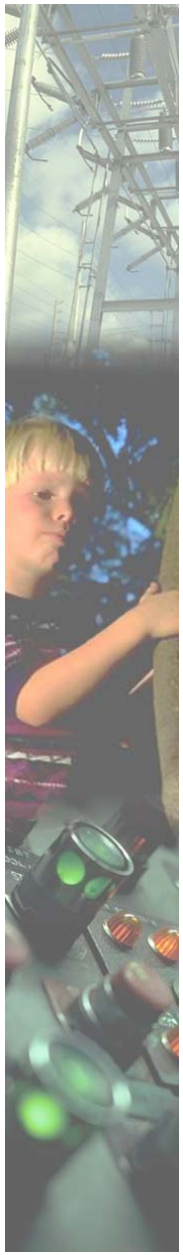
Non-Exclusionary	Score	Rationale	Notes
		improvement, or pile/pier support appear to be warranted. (14)	
3.1.22 Groundwater: <u>Rank Site According to:</u> 5 – The seasonally high water table is deep and below the subsurface portions of safety-related structures, systems and components (21 m or 70 feet below ground surface). 4 – The seasonally high water table is less than 70 feet below ground surface, and the transmissivity of the surficial aquifer is low (well yields of less than 10 gallons per minute). 3 – The seasonally high water table is less than 70 feet below ground surface, and the transmissivity of the surficial aquifer is moderate (well yields between 10 and 100 gallons per minute). 2 – The seasonally high water table is less than 70 feet below ground surface, and the transmissivity of the surficial aquifer is high (well yields between 100 and 1000 gallons per minute). 1 – The seasonally high water table is very shallow (less than 10 feet below ground surface), and the transmissivity of the surficial aquifer is very high (well yields greater than 1000 gallons per minute).	3	Based on data from piezom installed for the Clinton plant and shallow wells in the vicinity, the water table beneath Clinton is shallow within the alluvial deposits or the Wisconsin-aged glacial materials. Groundwater levels measured by the Illinois Water Survey reported the water table in wells finished in the Wisconsin deposits varies from 2 to 19 feet below ground surface with seasonal fluctuations from 1.5 to 12 feet (average of 5 feet). Private wells in the area are used for domestic and stock water with reported well yield exceeding 25 gpm in only a few cases. However, other reports indicate that a few shallow wells (less than 70 feet bgs) have pumping rates of 100 to 430 gpm. These wells were located in Wapella and Heyworth, about 8 and 14 miles away from the Clinton site. (15)(16)(17)	
3.1.24 Ice Formation: <u>Rank Site According to:</u> 5 – Region or site is in a warm climate with minimal potential or no potential for ice formation or any type.	3	The site is in a relatively cold climate, with 4 months of subfreezing average low temperatures ranging from 16.7 to 31.2 F. (19) There is a potential for the formation of ice on the nearby lake, but this is not expected to impact on the ability to withdraw water. (18)	



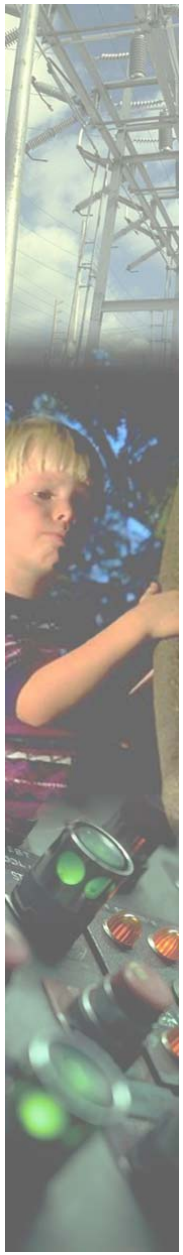
Non-Exclusionary	Score	Rationale	Notes
4 – There is a potential for the formation of surface ice but of short duration; frazil ice formation is of low probability. 3 – Region is in a relatively cold climate with a potential for the formation of ice jam but has no impact on the potential water source; frazil ice formation has a high probability. 2 – The region or site is in a cold climate in which ice jams can occur for long periods, which could affect the dependability of the source of water supply and requires protective and heating measures. 1 – The region has an extremely long period of cold climate with ice jams and surface ice formations that can affect the water supply source. Produces extensive forces on the water structures, and requires extensive protection and heating measures to prevent large forces and to maintain flow of water. May require on-site storage.			
3.1.26 Temperature and Moisture Content: <u>Sub-Criterion:</u> 1 – Maximum dry bulb (DB) temperature in excess of 110°F. 2 – Minimum DB temperature well below -30 F. 3 – Winter design DB temperature (1 % exceed) below -10°F. 4 – Summer design wet bulb (WB) temperature (1 % exceed) non-coincident	5	The summer and winter dry and wet bulb temperatures in Illinois are within the range needed to support the design of plant cooling water and HVAC systems. The temperatures requirements and the values at the Clinton site are as follows: Summer and winter DB and WB temperatures are within the specified maximum ambient temperature range. Since 1899, the maximum DB temperature recorded in the region was 109°F, which is below the maximum temperature sub-criterion of 110°F. A record low temperature of -25°F has been recorded in the region, which is above the -30°F minimum DB temperature sub-criterion. The maximum coincident winter design dry bulb is -3°F, which is above the -10°F minimum WB sub-criterion, and the maximum coincident summer design WB is 78°F, which is below the 80°F maximum WB sub-criterion. (20)(21)(3)	



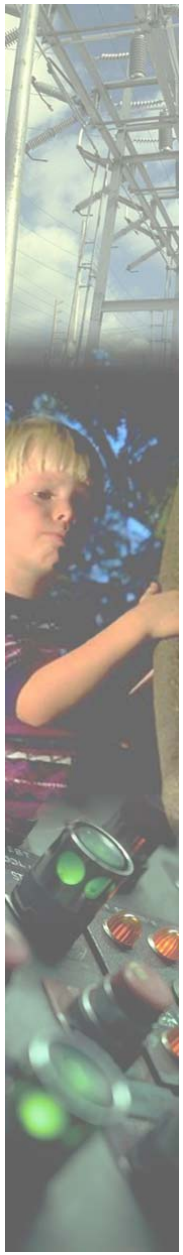
Non-Exclusionary	Score	Rationale	Notes
above 80°F. 5 – Outside the specified maximum ambient temperature ranges: (1 % exceed) coincident : 100°F DB/77°F WB (0 % exceed) coincident: 115°F DB/80°F WB <u>Rank Site According to:</u> 5 – A "no" response to all sub-criteria. 4 – A "yes" response to sub-criteria #1 and #2. 3 – A "yes" response to sub-criteria #1, #2 and #3. 2 – A "yes" response to sub-criteria #1, #2, #3 and #4. 1 – A "yes" response to sub-criteria #1, #2, #3, #4 and #5.			
3.1.27 Winds: <u>Sub-Criterion:</u> 1 – Within 100 miles of hurricane-prone zone along coastlines. 2 – Within tornado Region 1 (all areas east of 105th meridian as defined in NRC Regulatory Guide 1.76). 3 – Region with severe tropical storms. 4 – With basic wind speed exceeding 110 mph. 5 – Annual frequency of wind gusts equal to or greater than 50 knots (58 mph), measured over 10,000 square miles, exceeding 10.	4	Illinois is situated east of the 105th Meridian (24), and therefore within Tornado Region 1 as defined in NRC Regulatory Guide 1.76. A review of historical wind gusts from the NOAA database revealed that 11 tornadoes were reported in DeWitt county from 1950 to 1995, and from 1950 to 1997, 13 incidents of wind gusts exceeding 50 knots were recorded by the National Weather Service and compiled through the SeverePlot c2.0 software. (22)(23)	



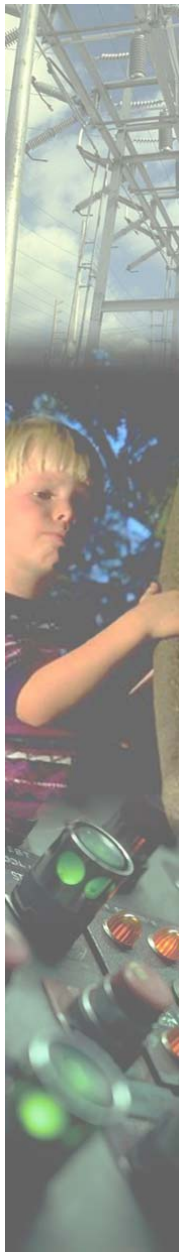
Non-Exclusionary	Score	Rationale	Notes
6 – Annual frequency of wind gusts equal to or greater than 50 knots (58 mph), measured over 10,000 square miles, exceeding 20. Rank Site According to: 5 – A "no" response to all sub-criteria. 4 – A "yes" response to any 1 of the sub-criteria and a "no" to #4, #5, #6. 3 – A "yes" response to any 2 of the sub-criteria and a "no" response to #4 and #6. 2 – A "yes" response to any 3 sub-criteria and a "no" response to sub-criterion #4. 1 – A "yes" response to #4 and any 2 or more of any other sub-criteria.			
3.1.28 Rainfall: Rank Site According to: 5 – Probable Maximum Precipitation (PMP) is of low magnitude and the topography allows for drainage to adjacent streams or ravines. 4 – PMP is high but there is adequate topographic relief to allow drainage with minor guidance. 3 – PMP is high and the topographic is not conducive to natural drainage without extensive drainage diversion. 2 – PMP is high and topography does not lend itself to natural drainage or man made diversion canals. 1 – PMP is high and the region or site has no natural drainage relief and man made drainage is not possible with out major drainage canals.	4	According to the Updated Safety and Analysis Report for the existing Clinton Power Station the PMP, averaged during a duration of 48 hours, and distributed over an area of 296 square miles is 25.2 inches. The existing Clinton Power Station have especially designed drainage system in place, and it is expected that due to the relatively flat topography of the proposed PBMR site will require engineered drainage systems in the vicinity of the plant. (25)	



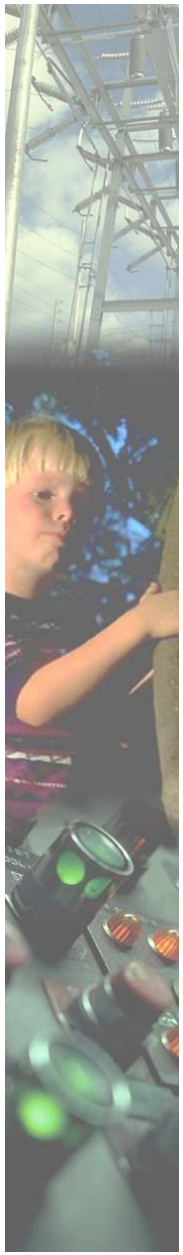
Non-Exclusionary	Score	Rationale	Notes
3.1.29 Snow: <u>Rank Site According to:</u> 5 – The region or site is in warm climate and there is not historic evidence about snowfall. 4 – The region has minor snowfall and winter PMP in the form of snow is not justified due to the warm climate. 3 – Snowfall does not accumulate and melts quickly, however, there is a potential for the winter PMP to be in the form of snow. 2 – Snowfall accumulation on the ground is minor but winter PMP in the form of snow can form and accumulate. 1 – Severe snow accumulation on the ground and winter PMP in the form of snow can affect drainage and design loads.	1	Data from the Springfield and Urbana-Champaign meteorological stations (proximate to Clinton), showed that severe winter storms are not uncommon in central Illinois. Storms can produce snowfall in excess of 6 inches; from 1950 to 2000, the yearly snowfall in Illinois has exceeded 20 inches on twenty five occasions, with the average annual snow precipitation being over 26 inches. It is expected that the snow accumulation and winter precipitation in the form of snow will require drainage and structural design load considerations. (18)(3)	
3.1.30 Atmospheric Dispersion: <u>Sub-Criterion:</u> 1 – A coastal site. 2 – A mountain-coastal site. 3 – A mountain-valley site. 4 – An open terrain site. 5 – Site with significant (i.e., greater than 30 %) stable and low winds (i.e., less than 3 m/second). 6 – Site with shortest site boundary (not including boundary abutting a large body of water) has exclusion separation	5	The Clinton site is located in an area of open terrain in central Illinois where the weather is typically continental. Continental weather is partially defined by short-period fluctuations in wind direction due to its location in a confluence zone between different air masses i.e., westerly, southerly, and northerly wind patterns. This contributes to wind velocities that are variable. Local historical weather data show that wind speeds of less than 3 m/s occur approximately 28 % of the time (based on the historical period of measurement 1961-1990), and the frequency of occurrence of calm winds was 2.5 % during this same period. (25)(26) The distance to off-site sensitive receptors, as measured from either the source or the site boundary, would be greater than 0.4 miles. (8)(9)	



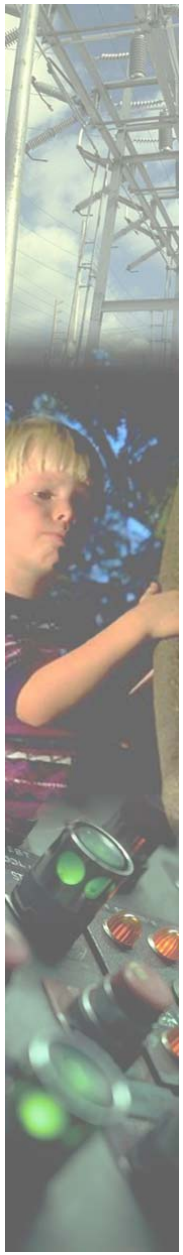
Non-Exclusionary	Score	Rationale	Notes
distance of releases from receptors of less than 0.4 miles. Rank Site According to: 5 – A "yes" response to sub-criteria #4 and a "no" response to sub-criteria #5 and #6. 4 – A "yes" response to sub-criteria #1 and a "no" response to sub-criteria #5 and #6. 3 – A "yes" response to sub-criteria #2 or #3 and a "no" response to sub-criteria #5 and #6. 2 – A "yes" response to sub-criteria #5 and a "no" response to sub-criteria #6. 1 – A "yes" response to sub-criteria #6.			
3.2.1 Terrestrial and Wetlands Habitat: Sub-Criterion: 1 – Disruption and displacement of more than 500 acres of undisturbed land. 2 – Displacing terrestrial habitats designated as of special importance. 3 –Significant loss of state or federal jurisdictional wetlands. 4 – Significant loss of habitat important as breeding or nursing grounds for important species. 5 – Significant loss to nesting, feeding, or migrating areas for important species. 6 – Direct or indirect impacts to federally protected species. 7 –Significant direct or indirect impacts or	5	The proposed PBMR site would be collocated with an existing power plant, and would not displace more than 500 acres of land, nor impact important resources, high value wetlands, or threatened and endangered (T&E) species. In 1982, the environmental statement for the Clinton Power Station Unit No. 1 showed that two endangered species may occur in the vicinity of the PBMR site; bald eagle and Indiana bat. However, the absence of suitable caves and marginal habitat minimizes the presence of the Indiana bat, and no known nests or night roosting habitat exists for the bald eagle. Additionally, four Illinois threatened or endangered avian species and one mammal species have been seen near the site prior to submittal of the 1982 Final Environmental Statement for the Clinton Power Station Unit No. 1; northern harrier, brown creeper, upland sandpiper, Bewick's wren, and river otter. Adverse impacts to these potential threatened or endangered species would be minor. (27) The license holder of the existing Clinton facility has never been required to perform mitigation activities for state T&E species.	



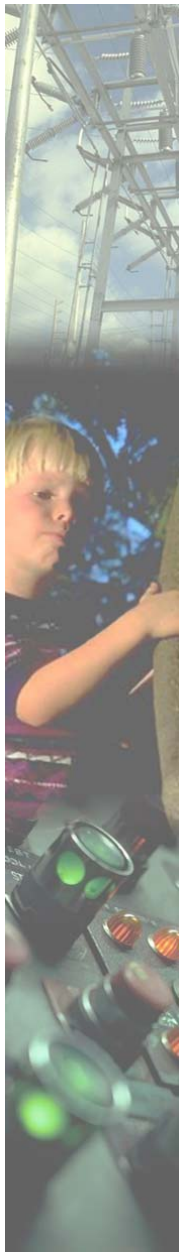
Non-Exclusionary	Score	Rationale	Notes
displacement of commercially or recreationally valuable species. Rank Site According to: 5 – A “no” response to sub-criterion. 4 – A “yes” response to sub-criterion 1 or 2. 3 – A “yes” response to sub-criteria 7. 2 – A “yes” response to either 3 or 5. 1 – A “yes” response to sub-criteria 4 or 6.			
3.2.2 Terrestrial Natural Areas: Sub-Criterion: 1 – Facility located in disturbed area including only commercial and industrial developments, or fallow land. Facility not affecting managed pasture or agricultural land uses within 5 miles. 2 – Displacing between 100 and 500 acres of natural vegetation and/or pasture or agricultural land uses. 3 – Displacing over 500 acres of natural vegetation and/or pasture or agricultural land uses. 4 – Facility within 5 miles of public recreation areas including state or federal forests and game management or designated wildlife management areas. Rank Site According to: 5 – A “yes” response to sub-criteria 1, and a "no" response to all other sub-criteria.	5	The vegetative cover for the project site is substantially altered by prior plant site construction, and therefore has little or no habitat value. The area surrounding the site is principally agriculture. Some areas of scattered forest cover occur along stream channels, steep slopes, and ravines. These forested areas occur primarily as small fragmented parcels. However, large tracts of woodland are located along and adjacent to the shores of Lake Clinton. Some former cropped lands adjacent to the lake have been planted with diverse tree communities and native grasses. Fence rows or field edges in some areas support a thin band of scrub-shrub communities. Wetlands throughout the area are small in number and in size. A state park is located less than 2 miles from the proposed PBMR site. No adverse effects on the terrestrial vegetation is expected beyond those caused by construction, because no further destruction of natural habitat is expected, and terrestrial communities will adapt to the prevailing conditions. Vegetative cover located on the proposed PBMR site lacks regional or local importance. No known state or federally listed threatened or endangered plant species, nor wetlands occur at the site. (27)	



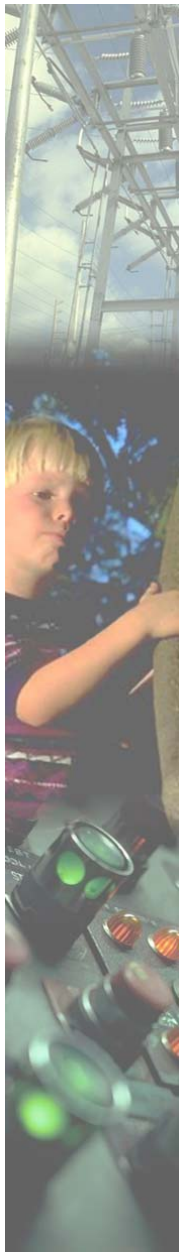
Non-Exclusionary	Score	Rationale	Notes
4 – A “yes” response to sub-criteria 2. 3 – A “yes” response to sub-criteria 3. 2 – A “no” response to 1, 2, and 3 but a yes response to sub-criteria 4. 1 – A “yes” response to sub-criteria 4 and a "yes" response to either 2 or 3.			
3.2.3 Aquatic Habitat/Organisms: <u>Sub-Criterion:</u> 1 – Collocated or adjacent to existing power plant. 2 – With known occurrence of threatened or endangered aquatic species that would be affected by facility construction or operations. 3 – Construction or operation will affect spawning or nursery areas or have an exclusion effect for movement or migration of important aquatic species. 4 – With known commercially or recreationally valuable aquatic species affected by facility construction or operation. 5 – Intake located in area with significant risk for entrainment or impingement of important aquatic species requiring expensive mitigation or compensation. 6 – Discharge will likely exceed state or federal criteria for thermal impacts requiring expensive mitigation or compensation. <u>Rank Site According to:</u> 5 – A “no” response to all sub-criteria.	4	Much of the Lake Clinton basin was cleared prior to impoundment, and thus, the lake bottom consists principally of fine silt. Brushy areas are generally confined to coves that were left undisturbed and the upper reaches of each arm of the reservoir. These brushy areas provide preferred habitat for several fish species, and thermal refugia for maintenance of fish populations during periods of maximum thermal discharge. The dominant fish species present are gizzard shad, carp, largemouth bass, bluegill, hybrid striped bass, and green sunfish. An experimental stocking program to create self-sustaining populations of native game species has been implemented. Withdrawal of cooling water from the lake will not likely impact the aquatic community as a result of entrainment and impingement, on the assumption that the PBMR will use closed cycle cooling or will provide Best Available Technology in screen design to mitigate these impacts. At least one plant shut-down during the winter months has resulted in fish kills from cold-shock syndrome. Abating the consequences of this event can not be mitigated, other than by replacement. The use of Lake Clinton as a heat sink during station operation will essentially preclude ice formation on the lake during the winter. This condition will tend to delay fall migration of waterfowl and shorebirds, as well as encourage some species to overwinter in the area, thereby increasing competition for food resources. Elevated thermal conditions may impact thermally sensitive fish species. Additionally, elevated thermal conditions below the dam may cause downstream movement of some creek fish in warmer months and congregation of creek fish near the dam in cooler months. The heated condition of lake waters may also enhance the potential for	This criterion ranks high because of sub-criterion 1 related to collocation adjacent to existing plant. Current regulatory changes related to 316(b) and renewed emphasis on cumulative impacts could result in lowering this ranking. The added thermal discharges into Lake Clinton could also have a negative effect on the current National Pollutant Discharge Elimination System (NPDES) permit conditions for the Clinton Power Station.



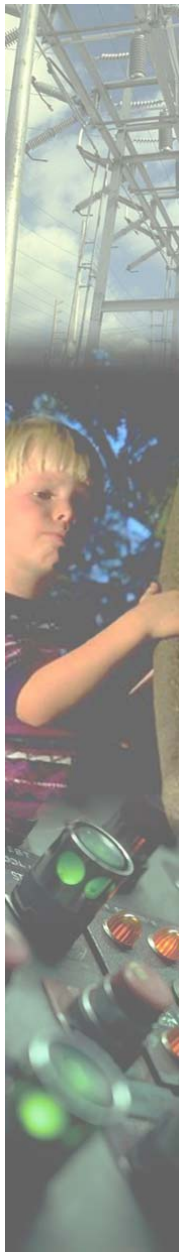
Non-Exclusionary	Score	Rationale	Notes
4 – A "yes" response to sub-criterion #1 or #4. 3 – A "yes" response to sub-criteria #3, #5, or #6. 2 – A "yes" response to 2 or more of sub-criteria #3, #4, #5, or #6. 1 – A "yes" response to sub-criterion #2 or both #5 and #6.		development of waterfowl disease pathogens and encephalitic human pathogenic amoebae in Lake Clinton. Such organisms are known to have become established in other thermally altered power plant lakes in Illinois. However, thermal addition already occurs with the Clinton Power Station Unit No. 1 (27), and no pathogenic organism breeding in warm water environments has been observed. The proposed PBMR would be collocated with an existing power plant.	
3.2.4 Groundwater: <u>Rank Site According to:</u> 5 – The water table is very deep (greater than 500 feet below ground surface), the transmissivity of the first water bearing unit is low (well yields less than 5 gallons per minute), or the groundwater is saline (total dissolved solids greater than 10,000 milligrams per liter). 4 – The water table is deep (between 100 and 500 feet below ground surface), the transmissivity of the first water bearing unit is low (well yields between 5 and 25 gallons per minute), or the groundwater is brackish (total dissolved solids between 1000 and 10,000 milligrams per liter). 3 – The water is of moderate depth (between 50 and 100 feet below ground surface), the transmissivity of the first water bearing unit is low (well yields between 25 and 100 gallons per minute), or the groundwater is fresh (total dissolved solids less than 1000 milligrams per liter). 2 – The water table is shallow (between 10 and 50 feet below ground surface),	2	The water table beneath the Clinton site is shallow and the aquifer is moderately transmissive. Water quality is fresh (total dissolved solids less than 1,000 mg/L) as evidenced by its use a source of domestic water. Information collected on private and non-private wells in the surrounding area indicate that deeper aquifer units (i.e., greater than 250 feet bgs) should be considered as a potential source for a supplemental cooling water source. The sand and gravel deposits within the buried Mahomet Bedrock Valley (the Banner Formation) may produce water wells with yields up to 2,000-gpm. (28) Water wells producing water from this unit, including the City of Clinton, report pumping rates of 200 to 900 gpm with only 20 to 60 feet of drawdown. This groundwater quality is also "fresh" with TDS concentrations averaging 414 mg/L. Impacts to the local water users of the shallow aquifer system and surficial ecosystems will be minimized by drawing water from deeper portions of the unconsolidated aquifer. (29)(30)(31)	Site receives a lower ranking for this criterion because of the shallow, fresh groundwater. This affects the criteria related to potential risk of a contamination pathway, likely of greater public interest because some of the reactor is located below ground.



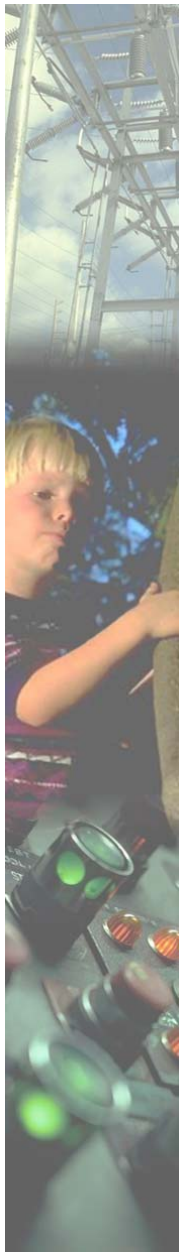
Non-Exclusionary	Score	Rationale	Notes
the transmissivity of the first water bearing unit is high (well yields between 100 and 1000 gallons per minute), or the groundwater is fresh (total dissolved solids less than 1000 milligrams per liter). 1 – Groundwater is very shallow (less than 10 feet below ground surface), transmissivity of the first water bearing unit is very high (wells yields greater than 1000 gallons per minute), or the groundwater is fresh (total dissolved solids less than 1000 milligrams per liter).			
3.2.6 Population: <u>Sub-Criterion:</u> 1 – Collocated or adjacent to existing power plant. 2 – Within 2 miles of commercial animal/vegetable farms or orchards. 3 – Within 5 miles of residences, schools, hospitals, correctional facilities, or publicly used facilities. 4 – Within 10 miles of cities and towns. 5 – High potential for radionuclide, chemical, or biocide contamination of nearby domestic water supplies from surface water bodies or groundwater resulting from plant operation. 6 – High potential for radionuclide, chemical, or biocide contamination of aquatic organisms in the area resulting from plant operation. 7 – High number of projected cooling tower-induced fogging/icing occurrences. <u>Rank Site According to</u> 5 – A “yes” response to sub-criterion #1 and a “no” response to sub-criteria #2,	5	A variety of sources was consulted to determine the presence and location of sensitive receptors. The data showed that schools, hospitals, and correctional facilities are not located within 5 miles of the proposed PBMR site. (1)(4)(5)(9) There are scattered farmsteads (less than 50) within a 5-mile radius of the site. The City of Clinton, population 7,50, is the only city or town within 10 miles that has a population greater than 5,000. (5)(6) Commercial vegetable farms, livestock operations, or orchards are not located within 2 miles of the site. (3)(4) The reliability of the available data is not suitable to confirm the presence of livestock operations. The potential for radionuclide impact on domestic water supplies is low; however, impact on aquatic organisms is high. The proposed site is collocated with the existing Clinton Power Plant.	



Non-Exclusionary	Score	Rationale	Notes
#5, #6. 4 – A “no” response to sub-criteria #2, #5 and #6. 3 – A “no” response to sub-criteria #2 and #5. 2 – A “yes” response to any 5 sub-criteria. 1 – A “yes” response to any 6 or more sub-criteria.			
3.3.4 Agricultural / Industrial Productivity: <u>Sub-criterion:</u> 1 – Displacement or proximity to prime agricultural lands. 2 – Proximity to important local commercial fisheries or coral reefs. 3 – Significant number of competitive water users in the area. 4 – No significant area-wide transportation infrastructure improvement resulted from construction and operation of the power plant 5 – Limited projected induced industrial growth. <u>Rank Site According to:</u> 5 – A “no” response to all sub-criteria. 4 – A “no” response to sub-criteria #1, #2, and #3. 3 – A “no” response to sub-criteria #1 and #2. 2 – A “yes” response to any 4 sub-criteria.	2	The proposed plant site would not affect any agricultural lands. The site is, however, proximate to an abundance of agricultural land that is cropped in corn and soybean. Illinois has a preponderance of prime farmland –typically, 80 % of the agricultural land in the county is prime. The plant site is also situated proximate to a primary water resource (Salt Creek) that currently experiences competitive water use. The existing Clinton Plant places a large demand on the water resource and additionally, the reservoir created by the power plant receives heavy recreational use. (36)	



Non-Exclusionary	Score	Rationale	Notes
1 – A “yes” response to sub-criteria #1, #2, or #3.			
3.3.5 Aesthetics: <u>Sub-Criterion</u>: 1 – Within 2 miles of public amenity area (e.g., scenic, park, recreation area). 2 – Site located along coastline or riverbank. 3 – An open terrain site. 4 – Within 2 miles of major residential areas. 5 – Within 5 miles of cities and towns. 6 – With noticeable view of cooling tower structure off-site and/or visible vapor plume longer than 2 miles. 7 – With distinguishable view of associated transmission facilities by off-site observers. 8 – With identifiable nuclear power plant view off-site. <u>Rank Site According to:</u> 5 – A “no” response to sub-criteria #1, #4, #6, #8. 4 – A “no” response to sub-criteria #1 and #6. 3 – A “yes” response to sub-criteria #1 or #6. 2 – A “yes” response to sub-criteria #1, #4, or #6. 1 – A “yes” response to sub-criteria #1, #4, #6, and #8.	3	The proposed PBMR site is located within a mile of a state recreational area and may require cooling towers for operation. Although a nuclear plant is already in the vicinity, the presence of an additional site and possible additional transmission lines close to the state park would affect the visual effects of the scenic and recreational area. (3)(4)(37)	



Non-Exclusionary	Score	Rationale	Notes
3.3.7 Transportation Network: <u>Rank Site According to:</u> 5 – Adequate existing traffic capacity prior to construction and operation, no potential for adverse effects. 4 – Construction traffic expected to cause minimal time delays and congestion. 3 – Construction traffic expected to cause occasional time delays and congestion. 2 – Construction traffic expected to cause frequent time delays and congestion with potential reductions in safety and occasional time delays expected during plan operation. 1 – Construction traffic expected to cause major time delays and congestion, with reductions in safety and frequent time delays expected during plant operation.	5	The proposed PBMR site in Clinton is located close to major road and railroad transportation systems that currently support the Clinton Power Station. IL 54 serves the entrance to the existing plant site. The 2-lane roadway is a rural highway with sufficient capacity to serve future traffic conditions to the year 2020, including the proposed PBMR construction and plant operations related traffic. Additionally, IL 10 is an East-West highway (2-lane) located along the southern edge of the power station property. Both US 54 and IL 10 have continuity though the area, and connect to Interstate Highway to the East and the West. Although traffic is generally low volume on rural highways, weekend recreational use does result in traffic volume increases. US 51, a major North-South route, is located 5 miles west of the site. This 4-lane divided facility is a relatively low volume highway with sufficient capacity to accommodate future traffic. US 51 connects to I-74 about 20 miles north of the site, and to I-72 about 20 miles south of the plant. IL-54 also connects to I-74 about 12 miles to the east. Rail serves the north side of the site. (3)(4)(6)	

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

			LABOR	EQUIPMENT OPERATION	JOB MATERIAL	PERMANENT MATERIAL	SUBCONTRACT	EQUIPMENT OWNERSHIP	TOTAL	MAN HOURS
01500-005000 MOBILIZATION			0	0	0	0	0	0	0	0
0.0%	1.000	LS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
TAKE-OFF QTY:	1.000									
02200-023000 ACCESS ROAD CLEARING AND GRUB			1165	485	0	0	0	277	1927	24
0.0%	12.000	AC	97.083	40.379	0.000	0.000	0.000	23.107	160.569	
TAKE-OFF QTY:	12.000									
02200-023100 SITE CLEARING AND GRUB			80241	19174	7000	0	0	20323	126737	1794
1.5%	217.000	AC	369.772	88.360	32.258	0.000	0.000	93.652	584.042	
TAKE-OFF QTY:	217.000									
02200-023300 RAILROAD CLEARING AND GRUB			501	208	0	0	0	119	828	10
0.0%	5.000	AC	100.117	41.641	0.000	0.000	0.000	23.829	165.587	
TAKE-OFF QTY:	5.000									
02300-031500 CUT/FILL SITE			305802	261186	0	0	0	232015	799003	6573
9.5%	532400.000	CY	0.574	0.491	0.000	0.000	0.000	0.436	1.501	
TAKE-OFF QTY:	532400.000									
02300-032500 CUT/FILL ROAD			162858	111749	0	10800	0	104450	389857	3581
4.6%	109120.000	CY	1.492	1.024	0.000	0.099	0.000	0.957	3.573	
TAKE-OFF QTY:	109120.000									
02300-033500 CUT/FILL RAILROAD			71967	45974	0	0	0	43195	161136	1592
1.9%	43022.000	CY	1.673	1.069	0.000	0.000	0.000	1.004	3.745	
TAKE-OFF QTY:	43022.000									
02500-058005 12KV OVERHEAD CONST POWER			0	0	0	0	343200	0	343200	0
4.1%	6864.000	LF	0.000	0.000	0.000	0.000	50.000	0.000	50.000	
TAKE-OFF QTY:	6864.000									
02600-061000 PERMANENT SITE/RD/RR DRAINAGE			10688	1494	0	867	0	966	14014	259
0.2%	170.000	LF	62.869	8.786	0.000	5.100	0.000	5.681	82.436	
TAKE-OFF QTY:	170.000									
02700-020000 INSTALL SINGLE RR TRACK/SWITCH			0	0	0	0	0	0	0	0
0.0%	2.000	EA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
TAKE-OFF QTY:	2.000									

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

			LABOR	EQUIPMENT OPERATION	JOB MATERIAL	PERMANENT MATERIAL	SUBCONTRACT	EQUIPMENT OWNERSHIP	TOTAL	MAN HOURS
02700-071000 CONST BASE(BALLAST) RD/PARKING			0	0	0	0	372357	0	372357	0
4.4%	11944.000 CY		0.000	0.000	0.000	0.000	31.175	0.000	31.175	
TAKE-OFF QTY:	11944.000									
02700-072000 CONST BASE (BALLAST) RAILROAD			0	0	0	0	88695	0	88695	0
1.1%	3285.000 CY		0.000	0.000	0.000	0.000	27.000	0.000	27.000	
TAKE-OFF QTY:	3285.000									
02700-074000 ASPHALT SURFACING FOR RD/PARK			0	0	0	0	1554680	0	1554680	0
18.4%	23888.000 TON		0.000	0.000	0.000	0.000	65.082	0.000	65.082	
TAKE-OFF QTY:	23888.000									
02760-076000 REFLECTORIZE/PAINT RD/PARKING			0	0	0	0	3760	0	3760	0
0.0%	18800.000 LF		0.000	0.000	0.000	0.000	0.200	0.000	0.200	
TAKE-OFF QTY:	18800.000									
02800-082000 SITE FENCE/GATE INSTALLATION			0	0	0	0	357526	0	357526	0
4.2%	12542.000 LF		0.000	0.000	0.000	0.000	28.506	0.000	28.506	
TAKE-OFF QTY:	12542.000									
05650-020000 INSTALL SINGLE RR TRACK/SWITCH			0	0	0	0	997400	0	997400	0
11.8%	10560.000 LF		0.000	0.000	0.000	0.000	94.451	0.000	94.451	
TAKE-OFF QTY:	10560.000									
05700-021000 PUMP FOR 6" WELL			0	0	0	0	8000	0	8000	0
0.1%	1.000 EA		0.000	0.000	0.000	0.000	8000.000	0.000	8000.000	
TAKE-OFF QTY:	1.000									
801.00000000 SUPERVISION			250097	0	0	0	0	0	250097	5190
3.0%	1.000 LS		250097.223	0.000	0.000	0.000	0.000	0.000	250097.223	
TAKE-OFF QTY:	1.000									
802.00000000 ENGINEERING			58317	0	0	0	0	0	58317	1730
0.7%	1.000 LS		58316.556	0.000	0.000	0.000	0.000	0.000	58316.556	
TAKE-OFF QTY:	1.000									
803.00000000 SURVEYING			111404	0	11000	0	0	0	122404	4110
1.5%	1.000 LS		111404.373	0.000	11000.000	0.000	0.000	0.000	122404.373	
TAKE-OFF QTY:	1.000									

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

			LABOR	EQUIPMENT OPERATION	JOB MATERIAL	PERMANENT MATERIAL	SUBCONTRACT	EQUIPMENT OWNERSHIP	TOTAL	MAN HOURS
804.00000000 OFFICE PERSONNEL			65817	0	0	0	0	0	65817	2740
0.8%	1.000	LS	65816.758	0.000	0.000	0.000	0.000	0.000	65816.758	
TAKE-OFF QTY:	1.000									
805.00000000 QUATITY CONTROL/ASSURANCE			0	0	0	0	50000	0	50000	0
0.6%	1.000	LS	0.000	0.000	0.000	0.000	50000.000	0.000	50000.000	
TAKE-OFF QTY:	1.000									
806.00000000 SAFETY			6704	0	3760	0	0	0	10464	173
0.1%	1.000	LS	6704.297	0.000	3760.000	0.000	0.000	0.000	10464.297	
TAKE-OFF QTY:	1.000									
807.00000000 G & A SUPPLIES			0	0	195550	0	0	0	195550	0
2.3%	1.000	LS	0.000	0.000	195550.000	0.000	0.000	0.000	195550.000	
TAKE-OFF QTY:	1.000									
808.00000000 GENERAL SERICES OPERATION			449	412	39661	0	0	93	40616	10
0.5%	1.000	LS	449.468	412.250	39661.000	0.000	0.000	93.300	40616.018	
TAKE-OFF QTY:	1.000									
811.00000000 SMALL TOOLS			0	0	8000	0	0	0	8000	0
0.1%	1.000	LS	0.000	0.000	8000.000	0.000	0.000	0.000	8000.000	
TAKE-OFF QTY:	1.000									
812.00000000 BONDS, TAXES, INSURANCE			0	0	44350	0	0	0	44350	0
0.5%	1.000	LS	0.000	0.000	44350.000	0.000	0.000	0.000	44350.000	
TAKE-OFF QTY:	1.000									
814.00000000 FREIGHT			11154	0	54965	0	0	0	66119	364
0.8%	1.000	LS	11154.125	0.000	54965.000	0.000	0.000	0.000	66119.125	
TAKE-OFF QTY:	1.000									
815.00000000 CRAFT INCIDENTAL COSTS			0	0	101000	0	0	0	101000	0
1.2%	1.000	LS	0.000	0.000	101000.000	0.000	0.000	0.000	101000.000	
TAKE-OFF QTY:	1.000									
821.00000000 OFFICE/SHOP INSTALLATION			5231	0	10610	0	0	0	15841	208
0.2%	1.000	LS	5231.475	0.000	10610.000	0.000	0.000	0.000	15841.475	
TAKE-OFF QTY:	1.000									

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

		LABOR	EQUIPMENT OPERATION	JOB MATERIAL	PERMANENT MATERIAL	SUBCONTRACT	EQUIPMENT OWNERSHIP	TOTAL	MAN HOURS
850.00000000 VEHICLES		37379	28923	0	0	0	67407	133709	1100
1.6%	1.000 LS	37379.106	28922.800	0.000	0.000	0.000	67407.000	133708.906	
TAKE-OFF QTY:	1.000								
905.00000000 CONTINGENCY		0	0	308500	0	0	0	308500	0
3.7%	1.000 LS	0.000	0.000	308500.000	0.000	0.000	0.000	308500.000	
TAKE-OFF QTY:	1.000								
907.00000000 FEES ON COSTS		0	0	1747465	0	0	0	1747465	0
20.7%	1.000 LS	0.000	0.000	1747465	0.000	0.000	0.000	1747465.000	
TAKE-OFF QTY:	1.000								
PX-1 PROJECT X INEEL		1179775	469605	2531861	11667	3775618	468844	8437370	29457

Competitive Edge Estimating
Construction Operation Detail

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

ESTIMATE ADJUSTING FACTORS

LABOR ADJUSTMENT:	1.000
PAYROLL BURDEN:	0.155
UNSCHEDULED OVERTIME:	1.000
AVERAGE HOURLY LABOR:	25.000
EQUIPMENT RENTAL:	1.000
REPAIR LABOR:	1.000
REPAIR PARTS:	1.000
OUTSIDE REPAIR:	1.000
FUEL:	2.000
OIL/GREASE:	1.000
CABLE/TEETH:	1.000
TIRES/TUBES:	1.000
JOB MATERIALS:	1.000
PERMANENT MATERIALS:	1.000
SUBCONTRACTS:	1.000
EQUIPMENT OWNERSHIP:	1.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 01500-005000 MOBILIZATION UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SEE INDIRECT COST

TOTAL COST FOR BID ITEM: 01500-005000 TOTAL MAN HOURS	0	0	0	0	0	0	0
UNIT COST		0.000	0.000	0.000	0.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 02200-023000 ACCESS ROAD CLEARING AND GRUB UNIT: AC BID: 12.000 TAKE-OFF: 12.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 GRADE TO PILE UNIT: SF QTY: 506,880.000 PROD RATE: 31,680.000 WRK HRS: 16.0
ADJ. QTY: 506,880.000 MH PR RATE: 0.000 ADJ HRS: 16.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 2.0

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 020-14G	1.000		BLADE OPERATOR	16.0	44.935	719	0	0	0	0
1 020-OPF	0.500		OPERATOR FOREMAN	8.0	55.756	446	0	0	0	0
3 005-PU5	0.500		1/2 TON PICKUP	8.0	7.580	0	61	0	0	0
3 020-14G	1.000		CAT MOTOR PATROL	16.0	43.824	0	701	0	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	24	1927	1165	762	0	0	0
UNIT COST	21120.000	SF	PER MAN HOUR		0.004	0.002	0.002	0.000	0.000	0.000
TOTAL COST FOR BID ITEM: 02200-023000			TOTAL MAN HOURS	24	1927	1165	762	0	0	0
UNIT COST					160.569	97.083	63.485	0.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 02200-023100 SITE CLEARING AND GRUB UNIT: AC BID: 217.000 TAKE-OFF: 217.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 GRADE TO PILE UNIT: SF QTY: 9,452,520.000 PROD RATE: 31,680.000 WRK HRS: 298.4
ADJ. QTY: 9,452,520.000 MH PR RATE: 0.000 ADJ HRS: 298.4
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 37.3

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 020-14G	1.000		BLADE OPERATOR	298.4	44.935	13407	0	0	0	0
1 020-OPF	0.500		OPERATOR FOREMAN	149.2	55.756	8318	0	0	0	0
3 005-PU5	0.500		1/2 TON PICKUP	149.2	7.580	0	1131	0	0	0
3 020-14G	1.000		CAT MOTOR PATROL	298.4	43.824	0	13076	0	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	448	35932	21725	14207	0	0	0
UNIT COST	21120.000	SF	PER MAN HOUR		0.004	0.002	0.002	0.000	0.000	0.000

SUB ITEM: 003 LOAD AND CARRY GRUB/BURN UNIT: CY QTY: 35,000.000 PROD RATE: 117.000 WRK HRS: 299.1
ADJ. QTY: 35,000.000 MH PR RATE: 0.000 ADJ HRS: 299.1
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 37.4

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-SKL	2.000		SKILLED LABOR	598.3	39.957	23906	0	0	0	0
1 020-LDH	1.000		LOADER/ROLLER OPER	299.1	44.935	13442	0	0	0	0
1 020-OPF	0.500		OPERATOR FOREMAN	149.6	55.756	8340	0	0	0	0
1 090-TRK	1.000		TEAMSTER	299.1	42.882	12828	0	0	0	0
3 005-3MG	1.000		3000 GAL WATER TRUCK	299.1	10.000	0	2991	0	0	0
3 005-PU5	0.500		1/2 TON PICKUP	149.6	7.580	0	1134	0	0	0
3 020-950	1.000		CAT 3.5 CY LOADER	299.1	70.750	0	21165	0	0	0
4 002-BRN	3500.000	GAL	DSL FUEL FOR BURNING		2.000	0	0	7000	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	1346	90805	58515	25290	7000	0	0
UNIT COST	26.000	CY	PER MAN HOUR		2.594	1.672	0.723	0.200	0.000	0.000

TOTAL COST FOR BID ITEM: 02200-023100			TOTAL MAN HOURS	1794	126737	80241	39497	7000	0	0
UNIT COST					584.042	369.772	182.012	32.258	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 02200-023300 RAILROAD CLEARING AND GRUB UNIT: AC BID: 5.000 TAKE-OFF: 5.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 GRADE TO PILE UNIT: SF QTY: 217,800.000 PROD RATE: 31,680.000 WRK HRS: 6.9
ADJ. QTY: 217,800.000 MH PR RATE: 0.000 ADJ HRS: 6.9
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.9

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 020-14G	1.000		BLADE OPERATOR	6.9	44.935	309	0	0	0	0
1 020-OPF	0.500		OPERATOR FOREMAN	3.4	55.756	192	0	0	0	0
3 005-PU5	0.500		1/2 TON PICKUP	3.4	7.580	0	26	0	0	0
3 020-14G	1.000		CAT MOTOR PATROL	6.9	43.824	0	301	0	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	10	828	501	327	0	0	0
UNIT COST	21120.000	SF	PER MAN HOUR		0.004	0.002	0.002	0.000	0.000	0.000
TOTAL COST FOR BID ITEM: 02200-023300			TOTAL MAN HOURS	10	828	501	327	0	0	0
UNIT COST					165.587	100.117	65.469	0.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 02300-031500 CUT/FILL SITE UNIT: CY BID: 532,400.000 TAKE-OFF: 532,400.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 CUT/FILL UNIT: CY QTY: 532,400.000 PROD RATE: 810.000 WRK HRS: 657.3
ADJ. QTY: 532,400.000 MH PR RATE: 0.000 ADJ HRS: 657.3
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 82.2

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
2 100-100	1.000	*	CUT/FILL			0	0	0	0	0
1 010-SKL	1.000	*	SKILLED LABOR	657.3	39.957	26263	0	0	0	0
1 020-14G	2.000	*	BLADE OPERATOR	1314.6	44.935	59070	0	0	0	0
1 020-DOZ	1.000	*	DOZER OPERATOR	657.3	47.963	31525	0	0	0	0
1 020-LDH	1.000	*	LOADER/ROLLER OPER	657.3	44.935	29535	0	0	0	0
1 020-OPF	1.000	*	OPERATOR FOREMAN	657.3	55.756	36647	0	0	0	0
1 020-SCP	3.000	*	SCRAPER OPERATOR	1971.9	47.963	94576	0	0	0	0
1 090-TRK	1.000	*	TEAMSTER	657.3	42.882	28186	0	0	0	0
3 005-PU5	1.000	*	1/2 TON PICKUP	657.3	7.580	0	4982	0	0	0
3 020-14G	2.000	*	CAT MOTOR PATROL	1314.6	43.824	0	57610	0	0	0
3 020-631	3.000	*	631 SCRAPER (24 CY)	1971.9	133.870	0	263972	0	0	0
3 020-825	1.000	*	CAT 825 SHEEPFOOT ROLL	657.3	113.670	0	74713	0	0	0
3 020-D8N	1.000	*	CAT D8 DOZER	657.3	89.854	0	59060	0	0	0
3 020-WTR	1.000	*	10,000 WATER TRUCK	657.3	50.000	0	32864	0	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	6573	799003	305802	493201	0	0	0
UNIT COST	81.000	CY	PER MAN HOUR		1.501	0.574	0.926	0.000	0.000	0.000

1500FT HAUL/3 SCAPERS/3MIN CYCLE/3X15X18=810 CY HR

TOTAL COST FOR BID ITEM: 02300-031500 TOTAL MAN HOURS	6573	799003	305802	493201	0	0	0
UNIT COST		1.501	0.574	0.926	0.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 02300-032500 CUT/FILL ROAD UNIT: CY BID: 109,120.000 TAKE-OFF: 109,120.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 CUT/FILL ROAD UNIT: CY QTY: 109,120.000 PROD RATE: 440.000 WRK HRS: 248.0
ADJ. QTY: 109,120.000 MH PR RATE: 0.000 ADJ HRS: 248.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 31.0

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
2 100-200	1.000	*	CUT/FILL ROAD			0	0	0	0	0
1 010-SKL	2.000	*	SKILLED LABOR	496.0	39.957	19819	0	0	0	0
1 020-14G	1.000	*	BLADE OPERATOR	248.0	44.935	11144	0	0	0	0
1 020-DOZ	1.000	*	DOZER OPERATOR	248.0	47.963	11895	0	0	0	0
1 020-LDH	1.000	*	LOADER/ROLLER OPER	248.0	44.935	11144	0	0	0	0
1 020-OPF	1.000	*	OPERATOR FOREMAN	248.0	55.756	13827	0	0	0	0
1 020-SCP	4.000	*	SCRAPER OPERATOR	992.0	47.963	47579	0	0	0	0
1 090-TRK	1.000	*	TEAMSTER	248.0	42.882	10635	0	0	0	0
3 005-PU5	1.000	*	1/2 TON PICKUP	248.0	7.580	0	1880	0	0	0
3 020-631	4.000	*	631 SCRAPER (24 CY)	992.0	133.870	0	132799	0	0	0
3 020-825	1.000	*	CAT 825 SHEEPFOOT ROLL	248.0	113.670	0	28190	0	0	0
3 020-D8N	1.000	*	CAT D8 DOZER	248.0	89.854	0	22284	0	0	0
3 020-WTR	1.000	*	10,000 WATER TRUCK	248.0	50.000	0	12400	0	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	2728	323595	126043	197553	0	0	0
UNIT COST	40.000	CY	PER MAN HOUR		2.966	1.155	1.810	0.000	0.000	0.000

SUB ITEM: 002 6' CULVERTS AT RIVER CROSSING UNIT: LF QTY: 80.000 PROD RATE: 30.000 WRK HRS: 2.7
ADJ. QTY: 80.000 MH PR RATE: 0.000 ADJ HRS: 2.7
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.3

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
2 100-300	80.000	*	PLACING CULVERTS			0	0	0	0	0
1 010-SKL	240.000	*	SKILLED LABOR	640.0	39.957	25572	0	0	0	0
1 020-18T	80.000	*	UP TO 30 TN CRANE OPER	213.3	52.703	11243	0	0	0	0
3 050-30T	80.000	*	30 TN HYDRAULIC CRANE	213.3	87.403	0	18646	0	0	0
TOTAL COST FOR SUB ITEM: 002			TOTAL MAN HOURS	853	55462	36816	18646	0	0	0
UNIT COST	0.094	LF	PER MAN HOUR		693.270	460.196	233.075	0.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 02300-032500 CUT/FILL ROAD UNIT: CY BID: 109,120.000 TAKE-OFF: 109,120.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 003 6' CONCRETE CULVERTS UNIT: LF QTY: 80.000 PROD RATE: 1.000 WRK HRS: 80.0
ADJ. QTY: 80.000 MH PR RATE: 0.000 ADJ HRS: 80.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 10.0

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
5 001-CL6	80.000	LF	6' CONCRETE CULVERTS		135.000	0	0	0	10800	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	0	10800	0	0	0	10800	0
UNIT COST		LF	PER MAN HOUR		135.000	0.000	0.000	0.000	135.000	0.000
TOTAL COST FOR BID ITEM: 02300-032500			TOTAL MAN HOURS	3581	389857	162858	216199	0	10800	0
UNIT COST					3.573	1.492	1.981	0.000	0.099	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 02300-033500 CUT/FILL RAILROAD UNIT: CY BID: 43,022.000 TAKE-OFF: 43,022.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 CUT/FILL RAILROAD UNIT: CY QTY: 43,022.000 PROD RATE: 440.000 WRK HRS: 97.8
ADJ. QTY: 43,022.000 MH PR RATE: 0.000 ADJ HRS: 97.8
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 12.2

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
2 100-200	1.000	*	CUT/FILL ROAD			0	0	0	0	0
1 010-SKL	2.000	*	SKILLED LABOR	195.6	39.957	7814	0	0	0	0
1 020-14G	1.000	*	BLADE OPERATOR	97.8	44.935	4394	0	0	0	0
1 020-DOZ	1.000	*	DOZER OPERATOR	97.8	47.963	4690	0	0	0	0
1 020-LDH	1.000	*	LOADER/ROLLER OPER	97.8	44.935	4394	0	0	0	0
1 020-OPF	1.000	*	OPERATOR FOREMAN	97.8	55.756	5452	0	0	0	0
1 020-SCP	4.000	*	SCRAPER OPERATOR	391.1	47.963	18759	0	0	0	0
1 090-TRK	1.000	*	TEAMSTER	97.8	42.882	4193	0	0	0	0
3 005-PU5	1.000	*	1/2 TON PICKUP	97.8	7.580	0	741	0	0	0
3 020-631	4.000	*	631 SCRAPER (24 CY)	391.1	133.870	0	52358	0	0	0
3 020-825	1.000	*	CAT 825 SHEEPFOOT ROLL	97.8	113.670	0	11114	0	0	0
3 020-D8N	1.000	*	CAT D8 DOZER	97.8	89.854	0	8786	0	0	0
3 020-WTR	1.000	*	10,000 WATER TRUCK	97.8	50.000	0	4889	0	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	1076	127582	49694	77888	0	0	0
UNIT COST	40.000	CY	PER MAN HOUR		2.966	1.155	1.810	0.000	0.000	0.000

SUB ITEM: 002 PLACING 6' CULVERTS UNIT: LF QTY: 88.000 PROD RATE: 30.000 WRK HRS: 2.9
ADJ. QTY: 88.000 MH PR RATE: 0.000 ADJ HRS: 2.9
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.4

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
2 100-300	44.000	*	PLACING CULVERTS			0	0	0	0	0
1 010-SKL	132.000	*	SKILLED LABOR	387.2	39.957	15471	0	0	0	0
1 020-18T	44.000	*	UP TO 30 TN CRANE OPER	129.1	52.703	6802	0	0	0	0
3 050-30T	44.000	*	30 TN HYDRAULIC CRANE	129.1	87.403	0	11281	0	0	0
TOTAL COST FOR SUB ITEM: 002			TOTAL MAN HOURS	516	33554	22273	11281	0	0	0
UNIT COST	0.170	LF	PER MAN HOUR		381.299	253.108	128.191	0.000	0.000	0.000

TOTAL COST FOR BID ITEM: 02300-033500			TOTAL MAN HOURS	1592	161136	71967	89169	0	0	0
UNIT COST					3.745	1.673	2.073	0.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 02500-058005 12KV OVERHEAD CONST POWER UNIT: LF BID: 6,864.000 TAKE-OFF: 6,864.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 INSTALLING 12KV CONST LINES UNIT: LF QTY: 6,864.000 PROD RATE: 1.000 WRK HRS: 6,864.0
ADJ. QTY: 6,864.000 MH PR RATE: 0.000 ADJ HRS: 6,864.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 858.0

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
6 100-12P	6864.000	LF	12 KV POWER OVERHEAD		50.000	0	0	0	0	343200
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	343200	0	0	0	0	343200
UNIT COST		LF	PER MAN HOUR		50.000	0.000	0.000	0.000	0.000	50.000
TOTAL COST FOR BID ITEM: 02500-058005			TOTAL MAN HOURS	0	343200	0	0	0	0	343200
UNIT COST					50.000	0.000	0.000	0.000	0.000	50.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 02600-061000 PERMANENT SITE/RD/RR DRAINAGE UNIT: LF BID: 170.000 TAKE-OFF: 170.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 INSTALL PERMANENT DRAINAGE UNIT: LF QTY: 170.000 PROD RATE: 670.000 WRK HRS: 0.3
ADJ. QTY: 170.000 MH PR RATE: 0.000 ADJ HRS: 0.3
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.0

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
2 100-400	170.000	*	DRAINAGE CREW			0	0	0	0	0
1 010-LAF	170.000	*	LABOR FOREMAN	43.1	43.016	1855	0	0	0	0
1 010-SKL	680.000	*	SKILLED LABOR	172.5	39.957	6894	0	0	0	0
1 020-BKH	170.000	*	BACKHOE OPERATOR	43.1	44.935	1938	0	0	0	0
3 020-225	170.000	*	CAT 325 BACKHOE-1 CY	43.1	57.018	0	2459	0	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	259	13147	10688	2459	0	0	0
UNIT COST	0.657	LF	PER MAN HOUR		77.336	62.869	14.467	0.000	0.000	0.000

SUB ITEM: 002 8" ASPHALT COATED DRAINAGE PIP UNIT: LF QTY: 170.000 PROD RATE: 1.000 WRK HRS: 170.0
ADJ. QTY: 170.000 MH PR RATE: 0.000 ADJ HRS: 170.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 21.3

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
5 001-STC	170.000	LF	8" SAC STORM PIPE		5.100	0	0	0	867	0
TOTAL COST FOR SUB ITEM: 002			TOTAL MAN HOURS	0	867	0	0	0	867	0
UNIT COST		LF	PER MAN HOUR		5.100	0.000	0.000	0.000	5.100	0.000

TOTAL COST FOR BID ITEM: 02600-061000			TOTAL MAN HOURS	259	14014	10688	2459	0	867	0
UNIT COST					82.436	62.869	14.467	0.000	5.100	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 02700-020000 INSTALL SINGLE RR TRACK/SWITCH UNIT: EA BID: 2.000 TAKE-OFF: 2.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

TOTAL COST FOR BID ITEM: 02700-020000 TOTAL MAN HOURS	0	0	0	0	0	0	0
UNIT COST		0.000	0.000	0.000	0.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 02700-071000 CONST BASE(BALLAST) RD/PARKING UNIT: CY BID: 11,944.000 TAKE-OFF: 11,944.000 USED: TAKE-OFF
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 HAULING/PLACING BASE/BALLAST UNIT: CY QTY: 11,944.000 PROD RATE: 1.000 WRK HRS: 11,944.0
ADJ. QTY: 11,944.000 MH PR RATE: 0.000 ADJ HRS: 11,944.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 1,493.0

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
6 001-BBR	11944.000	CY	BASE/BALLAST/RD/PARKING		27.000	0	0	0	0	322488
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	322488	0	0	0	0	322488
UNIT COST		CY	PER MAN HOUR		27.000	0.000	0.000	0.000	0.000	27.000

SUB ITEM: 002 LIQUID APPT ASPHALT EMULSION UNIT: GAL QTY: 9,954.000 PROD RATE: 1.000 WRK HRS: 9,954.0
ADJ. QTY: 9,954.000 MH PR RATE: 0.000 ADJ HRS: 9,954.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 1,244.3

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
6 001-LAE	9954.000	GAL	LIQUID ASPHALT EMULSION		2.990	0	0	0	0	29762
TOTAL COST FOR SUB ITEM: 002			TOTAL MAN HOURS	0	29762	0	0	0	0	29762
UNIT COST		GAL	PER MAN HOUR		2.990	0.000	0.000	0.000	0.000	2.990

SUB ITEM: 003 STABILIZATION FABRIC 6OZ UNIT: SY QTY: 19,907.000 PROD RATE: 1.000 WRK HRS: 19,907.0
ADJ. QTY: 19,907.000 MH PR RATE: 0.000 ADJ HRS: 19,907.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 2,488.4

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
6 001-SBF	19907.000	SY	STABILIZATION FABRIC		1.010	0	0	0	0	20106
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	0	20106	0	0	0	0	20106
UNIT COST		SY	PER MAN HOUR		1.010	0.000	0.000	0.000	0.000	1.010

TOTAL COST FOR BID ITEM: 02700-071000			TOTAL MAN HOURS	0	372357	0	0	0	0	372357
UNIT COST					31.175	0.000	0.000	0.000	0.000	31.175

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 02700-072000 CONST BASE (BALLAST) RAILROAD UNIT: CY BID: 3,285.000 TAKE-OFF: 3,285.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 PLACE BASE (BALLAST) RAILROAD UNIT: CY QTY: 3,285.000 PROD RATE: 1.000 WRK HRS: 3,285.0
ADJ. QTY: 3,285.000 MH PR RATE: 0.000 ADJ HRS: 3,285.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 410.6

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
6 001-BBT	3285.000	CY	BASE/BALLAST RAILROAD		27.000	0	0	0	0	88695
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	88695	0	0	0	0	88695
UNIT COST		CY	PER MAN HOUR		27.000	0.000	0.000	0.000	0.000	27.000
TOTAL COST FOR BID ITEM: 02700-072000			TOTAL MAN HOURS	0	88695	0	0	0	0	88695
UNIT COST					27.000	0.000	0.000	0.000	0.000	27.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 02700-074000 ASPHALT SURFACING FOR RD/PARK UNIT: TON BID: 23,888.000 TAKE-OFF: 23,888.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

USED 2 TON PER CY

SUB ITEM: 001 ASPHALT SURFACING/RD/PARKING UNIT: TON QTY: 23,888.000 PROD RATE: 1.000 WRK HRS: 23,888.0
ADJ. QTY: 23,888.000 MH PR RATE: 0.000 ADJ HRS: 23,888.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 2,986.0

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
6 001-AFP	23888.000	TON	ASPHALT SURFACING		65.000	0	0	0	0	1552720
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	1552720	0	0	0	0	1552720
UNIT COST		TON	PER MAN HOUR		65.000	0.000	0.000	0.000	0.000	65.000

SUB ITEM: 005 GUARD RAILS AT RIVER CROSSING UNIT: LF QTY: 140.000 PROD RATE: 1.000 WRK HRS: 140.0
ADJ. QTY: 140.000 MH PR RATE: 0.000 ADJ HRS: 140.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 17.5

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
6 001-GR	140.000	LF	GUARD RAIL/RIVER		14.000	0	0	0	0	1960
TOTAL COST FOR SUB ITEM: 005			TOTAL MAN HOURS	0	1960	0	0	0	0	1960
UNIT COST		LF	PER MAN HOUR		14.000	0.000	0.000	0.000	0.000	14.000

TOTAL COST FOR BID ITEM: 02700-074000			TOTAL MAN HOURS	0	1554680	0	0	0	0	1554680
UNIT COST					65.082	0.000	0.000	0.000	0.000	65.082

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 02760-076000 REFLECTORIZE/PAINT RD/PARKING UNIT: LF BID: 18,800.000 TAKE-OFF: 18,800.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 PAVEMENT MARKING UNIT: LF QTY: 18,800.000 PROD RATE: 1.000 WRK HRS: 18,800.0
ADJ. QTY: 18,800.000 MH PR RATE: 0.000 ADJ HRS: 18,800.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 2,350.0

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
6 001-RFS	18800.000	LF	REFLECTING ROAD PAINTING		0.200	0	0	0	0	3760
TOTAL COST FOR SUB ITEM:	001		TOTAL MAN HOURS	0	3760	0	0	0	0	3760
UNIT COST		LF	PER MAN HOUR		0.200	0.000	0.000	0.000	0.000	0.200
TOTAL COST FOR BID ITEM:	02760-076000		TOTAL MAN HOURS	0	3760	0	0	0	0	3760
UNIT COST					0.200	0.000	0.000	0.000	0.000	0.200

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 02800-082000 SITE FENCE/GATE INSTALLATION UNIT: LF BID: 12,542.000 TAKE-OFF: 12,542.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 8' INDUSTRIAL FENCE W/ALUM PT UNIT: LF QTY: 12,542.000 PROD RATE: 1.000 WRK HRS: 12,542.0
ADJ. QTY: 12,542.000 MH PR RATE: 0.000 ADJ HRS: 12,542.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 1,567.8

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
6 100-FNC	12542.000	LF	FENCE/GATE WORK		28.000	0	0	0	0	351176
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	351176	0	0	0	0	351176
UNIT COST		LF	PER MAN HOUR		28.000	0.000	0.000	0.000	0.000	28.000

SUB ITEM: 002 INSTALL 2 20' GATES UNIT: EA QTY: 2.000 PROD RATE: 1.000 WRK HRS: 2.0
ADJ. QTY: 2.000 MH PR RATE: 0.000 ADJ HRS: 2.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.3

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
6 100-FNG	2.000	EA	8' X 20' DOUBLE FENCE GT		3175.000	0	0	0	0	6350
TOTAL COST FOR SUB ITEM: 002			TOTAL MAN HOURS	0	6350	0	0	0	0	6350
UNIT COST		EA	PER MAN HOUR		3175.000	0.000	0.000	0.000	0.000	3175.000

TOTAL COST FOR BID ITEM: 02800-082000 TOTAL MAN HOURS	0	357526	0	0	0	0	357526
UNIT COST		28.506	0.000	0.000	0.000	0.000	28.506

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 05650-020000 INSTALL SINGLE RR TRACK/SWITCH UNIT: LF BID: 10,560.000 TAKE-OFF: 10,560.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 INSTALL SINGLE RR TRACKS UNIT: LF QTY: 10,560.000 PROD RATE: 1.000 WRK HRS: 10,560.0
ADJ. QTY: 10,560.000 MH PR RATE: 0.000 ADJ HRS: 10,560.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 1,320.0

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
6 001-RRT	10560.000	LF	INSTALLING TRACK AND TIE		90.000	0	0	0	0	950400
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	950400	0	0	0	0	950400
UNIT COST		LF	PER MAN HOUR		90.000	0.000	0.000	0.000	0.000	90.000

SUB ITEM: 002 INSTALL SWITCHES UNIT: EA QTY: 2.000 PROD RATE: 1.000 WRK HRS: 2.0
ADJ. QTY: 2.000 MH PR RATE: 0.000 ADJ HRS: 2.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.3

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
6 001-SWS	2.000	EA	SWITCHING SPUR		23500.000	0	0	0	0	47000
TOTAL COST FOR SUB ITEM: 002			TOTAL MAN HOURS	0	47000	0	0	0	0	47000
UNIT COST		EA	PER MAN HOUR		23500.000	0.000	0.000	0.000	0.000	23500.000

TOTAL COST FOR BID ITEM: 05650-020000			TOTAL MAN HOURS	0	997400	0	0	0	0	997400
UNIT COST					94.451	0.000	0.000	0.000	0.000	94.451

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 05700-021000 PUMP FOR 6" WELL UNIT: EA BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 INSTALL SUBM 6" PUMP TO 500' UNIT: EA QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
6 100-PMP	1.000	EA	30 HP SUBMERSIBLE PUMP		8000.000	0	0	0	0	8000
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	8000	0	0	0	0	8000
UNIT COST		EA	PER MAN HOUR		8000.000	0.000	0.000	0.000	0.000	8000.000

30 HP SUBMERSIBLE PUMP TO 500'

TOTAL COST FOR BID ITEM: 05700-021000 TOTAL MAN HOURS	0	8000	0	0	0	0	8000
UNIT COST		8000.000	0.000	0.000	0.000	0.000	8000.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 801.00000000 SUPERVISION UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 003 SITE SUPERVISION UNIT: HR QTY: 173.000 PROD RATE: 1.000 WRK HRS: 173.0
ADJ. QTY: 173.000 MH PR RATE: 0.000 ADJ HRS: 173.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 21.6

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 005-CSP	10.000		CIVIL SUPERINTENDENT	1730.0	38.753	67043	0	0	0	0
1 005-GS	10.000		GENERAL SUPT E4	1730.0	47.694	82510	0	0	0	0
1 005-PM	10.000		PROJECT MANAGER-E5	1730.0	58.118	100544	0	0	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	5190	250097	250097	0	0	0	0
UNIT COST	0.033	HR	PER MAN HOUR		1445.649	1445.649	0.000	0.000	0.000	0.000
TOTAL COST FOR BID ITEM: 801.00000000			TOTAL MAN HOURS	5190	250097	250097	0	0	0	0
UNIT COST					250097.223	250097.223	0.000	0.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 802.00000000 ENGINEERING UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 SITE SUPERVISION UNIT: HR QTY: 173.000 PROD RATE: 1.000 WRK HRS: 173.0
ADJ. QTY: 173.000 MH PR RATE: 0.000 ADJ HRS: 173.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 21.6

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 005-CSE	10.000		COST/SCHED ENGINEER E2	1730.0	33.709	58317	0	0	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	1730	58317	58317	0	0	0	0
UNIT COST	0.100	HR	PER MAN HOUR		337.090	337.090	0.000	0.000	0.000	0.000
TOTAL COST FOR BID ITEM: 802.00000000			TOTAL MAN HOURS	1730	58317	58317	0	0	0	0
UNIT COST					58316.556	58316.556	0.000	0.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 803.00000000 SURVEYING UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 INSTRUMENTS/SUPPLIES UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 110-SVS	10.000	MO	SURVEY SUPPLIES		100.000	0	0	1000	0	0
4 110-SVY	1.000	SET	SURVEY INSTRUMENTS		10000.000	0	0	10000	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	11000	0	0	11000	0	0
UNIT COST		LS	PER MAN HOUR		11000.000	0.000	0.000	11000.000	0.000	0.000

SUB ITEM: 003 SITE SUPERVISION UNIT: HR QTY: 137.000 PROD RATE: 1.000 WRK HRS: 137.0
ADJ. QTY: 137.000 MH PR RATE: 0.000 ADJ HRS: 137.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 17.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 006-IM	10.000		INSTRUMENTMAN	1370.0	24.060	32962	0	0	0	0
1 006-PTC	10.000		PARTY CHIEF	1370.0	30.689	42043	0	0	0	0
1 006-ROD	10.000		RODMAN	1370.0	26.569	36399	0	0	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	4110	111404	111404	0	0	0	0
UNIT COST	0.033	HR	PER MAN HOUR		813.171	813.171	0.000	0.000	0.000	0.000

TOTAL COST FOR BID ITEM: 803.00000000			TOTAL MAN HOURS	4110	122404	111404	0	11000	0	0
UNIT COST					122404.373	111404.373	0.000	11000.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 804.00000000 OFFICE PERSONNEL UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 SITE SUPERVISION UNIT: HR QTY: 137.000 PROD RATE: 1.000 WRK HRS: 137.0
ADJ. QTY: 137.000 MH PR RATE: 0.000 ADJ HRS: 137.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 17.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 005-PAY	10.000		PAYROLL/ACCT TECH ET14	1370.0	25.777	35315	0	0	0	0
1 005-SCT	10.000		SECRETARY -T15	1370.0	22.264	30502	0	0	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	2740	65817	65817	0	0	0	0
UNIT COST	0.050	HR	PER MAN HOUR		480.414	480.414	0.000	0.000	0.000	0.000
TOTAL COST FOR BID ITEM: 804.00000000			TOTAL MAN HOURS	2740	65817	65817	0	0	0	0
UNIT COST					65816.758	65816.758	0.000	0.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 805.00000000 QUATITY CONTROL/ASSURANCE UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 SITE QUALITY CONTROL SUPPLIES UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
6 100-ISP	50000.000	LS	SUBCONTRACTOR TESTING		1.000	0	0	0	0	50000
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	50000	0	0	0	0	50000
UNIT COST		LS	PER MAN HOUR		50000.000	0.000	0.000	0.000	0.000	50000.000

TOTAL COST FOR BID ITEM: 805.00000000			TOTAL MAN HOURS	0	50000	0	0	0	0	50000
UNIT COST					50000.000	0.000	0.000	0.000	0.000	50000.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 806.00000000 SAFETY UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 SUPPLIES UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 060-AID	17000.000	MHR	FIRST AID SUPPLIES		0.100	0	0	1700	0	0
4 060-DRG	6.000	EA	DRUG TESTING		60.000	0	0	360	0	0
4 060-SAF	17000.000	MHR	SAFETY SUPPLIES		0.100	0	0	1700	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	3760	0	0	3760	0	0
UNIT COST		LS	PER MAN HOUR		3760.000	0.000	0.000	3760.000	0.000	0.000

SUB ITEM: 003 SITE SUPERVISION UNIT: HR QTY: 173.000 PROD RATE: 1.000 WRK HRS: 173.0
ADJ. QTY: 173.000 MH PR RATE: 0.000 ADJ HRS: 173.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 21.6

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 005-SAF	1.000		SAFETY ENGINEER	173.0	38.753	6704	0	0	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	173	6704	6704	0	0	0	0
UNIT COST	1.000	HR	PER MAN HOUR		38.753	38.753	0.000	0.000	0.000	0.000

THIS REPRESENTS THE CORPORATE SAFETY EHNGINEER'S TIME AND EXPENSES (AND SITE SAFETY PLAN REVIEW)

TOTAL COST FOR BID ITEM: 806.00000000 TOTAL MAN HOURS	173	10464	6704	0	3760	0	0
UNIT COST		10464.297	6704.297	0.000	3760.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 807.00000000 G & A SUPPLIES UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 G&A SUPPLIES UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 005-FAX	1.000	EA	FAX MACHINE		800.000	0	0	800	0	0
4 005-LAZ	1.000	EA	LASER PRINTERS		2000.000	0	0	2000	0	0
4 005-PRM	1.000	EA	PRIMIVERA COMPLETE		9000.000	0	0	9000	0	0
4 050-CLP	40.000	MO	CELL PHONES		125.000	0	0	5000	0	0
4 050-CMP	4.000	EA	COMPUTERS/SOFTWARE		3000.000	0	0	12000	0	0
4 050-CUR	10.000	MO	COURIER EXPENSE		1500.000	0	0	15000	0	0
4 050-JAN	10.000	MO	JANITOR SERVICE		600.000	0	0	6000	0	0
4 050-OFS	10.000	MO	OFFICE SUPPLIES		5000.000	0	0	50000	0	0
4 050-TEL	10.000	MO	TELEPHONE		5000.000	0	0	50000	0	0
4 060-PDM	305.000	MDY	PER DIEM		150.000	0	0	45750	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	195550	0	0	195550	0	0
UNIT COST		LS	PER MAN HOUR		195550.000	0.000	0.000	195550.000	0.000	0.000
TOTAL COST FOR BID ITEM: 807.00000000			TOTAL MAN HOURS	0	195550	0	0	195550	0	0
UNIT COST					195550.000	0.000	0.000	195550.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 808.00000000 GENERAL SERICES OPERATION UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 COMMERICAL POWER/SETUP UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 008-DIS	1.000	EA	ELECTRIC DISCONNECT		1025.000	0	0	1025	0	0
4 008-PLE	1.000	EA	LIGHT POLE		400.000	0	0	400	0	0
4 008-TSF	2.000	EA	5 KVA TRANSFORMER		1293.000	0	0	2586	0	0
4 050-PWR	10.000	MO	COMMERCIAL POWER		3000.000	0	0	30000	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	34011	0	0	34011	0	0
UNIT COST		LS	PER MAN HOUR		34011.000	0.000	0.000	34011.000	0.000	0.000

SUB ITEM: 003 WATER/ICE/CUPS/CANS UNIT: MHR QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 050-WTR	27000.000	MHR	WATER/ICE/CUPS/CANS		0.050	0	0	1350	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	0	1350	0	0	1350	0	0
UNIT COST		MHR	PER MAN HOUR		1350.000	0.000	0.000	1350.000	0.000	0.000

SUB ITEM: 007 SMALL EQUIP OPERATION UNIT: HR QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 020-CMP	10.000		COMPRESSOR OPERATOR	10.0	44.947	449	0	0	0	0
3 010-185	10.000		185 CFM PORT COMPRESSOR	10.0	14.259	0	143	0	0	0
3 020-580	10.000		CASE LDH/BH	10.0	27.379	0	274	0	0	0
3 020-PMP	10.000		6" DSL PUMP	10.0	8.917	0	89	0	0	0
TOTAL COST FOR SUB ITEM: 007			TOTAL MAN HOURS	10	955	449	506	0	0	0
UNIT COST	0.100	HR	PER MAN HOUR		955.018	449.468	505.550	0.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 808.00000000 GENERAL SERICES OPERATION UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 009 GARBAGE/TOILETS UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 060-GAR	10.000	MO	GARBAGE REMOVAL		250.000	0	0	2500	0	0
4 060-POR	30.000	MO	PORT-O-LETS		60.000	0	0	1800	0	0
TOTAL COST FOR SUB ITEM: 009			TOTAL MAN HOURS	0	4300	0	0	4300	0	0
UNIT COST		LS	PER MAN HOUR		4300.000	0.000	0.000	4300.000	0.000	0.000
TOTAL COST FOR BID ITEM: 808.00000000			TOTAL MAN HOURS	10	40616	449	506	39661	0	0
UNIT COST					40616.018	449.468	505.550	39661.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 811.00000000 SMALL TOOLS UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 SMALL TOOLS UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 050-TOL	8000.000	LS	SMALL TOOLS		1.000	0	0	8000	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	8000	0	0	8000	0	0
UNIT COST		LS	PER MAN HOUR		8000.000	0.000	0.000	8000.000	0.000	0.000
TOTAL COST FOR BID ITEM: 811.00000000			TOTAL MAN HOURS	0	8000	0	0	8000	0	0
UNIT COST					8000.000	0.000	0.000	8000.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 812.00000000 BONDS, TAXES, INSURANCE UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 BONDS UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 2.0-MBR	2000.000	PKS	THIRD 2 M BOND RATE		6.500	0	0	13000	0	0
4 2.5-MBD	2500.000	PKS	THIRD 2.5 M BOND RATE		4.800	0	0	12000	0	0
4 2.5-MBR	2500.000	PKS	SECOND 2.5 M BOND RATE		5.100	0	0	12750	0	0
4 7.5-MBR	1500.000	PKS	OVER 7.5 M BOND RATE		4.400	0	0	6600	0	0
TOTAL COST FOR SUB ITEM:	001		TOTAL MAN HOURS	0	44350	0	0	44350	0	0
UNIT COST		LS	PER MAN HOUR		44350.000	0.000	0.000	44350.000	0.000	0.000
TOTAL COST FOR BID ITEM:	812.00000000		TOTAL MAN HOURS	0	44350	0	0	44350	0	0
UNIT COST					44350.000	0.000	0.000	44350.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 814.00000000 FREIGHT UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 SETUP ALLOWANCE UNIT: HRS QTY: 182.000 PROD RATE: 1.000 WRK HRS: 182.0
ADJ. QTY: 182.000 MH PR RATE: 0.000 ADJ HRS: 182.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 22.8

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 020-MCH	1.000		MECHANIC	182.0	30.643	5577	0	0	0	0
4 001-CRN	150.000	HR	CRANE RENTAL FROM SUB		106.550	0	0	15983	0	0
4 001-SET	10000.000	DOL	SET UP EQUIP MATERIALS		1.000	0	0	10000	0	0
4 100-FRG	1500.000	DOL	EQUIPMENT FREIGHT		1.000	0	0	1500	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	182	33060	5577	0	27483	0	0
UNIT COST	1.000	HRS	PER MAN HOUR		181.646	30.643	0.000	151.003	0.000	0.000

SUB ITEM: 003 MOVE OUT ALLOWANCE UNIT: HRS QTY: 182.000 PROD RATE: 1.000 WRK HRS: 182.0
ADJ. QTY: 182.000 MH PR RATE: 0.000 ADJ HRS: 182.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 22.8

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 020-MCH	1.000		MECHANIC	182.0	30.643	5577	0	0	0	0
4 001-CRN	150.000	HR	CRANE RENTAL FROM SUB		106.550	0	0	15983	0	0
4 001-SET	10000.000	DOL	SET UP EQUIP MATERIALS		1.000	0	0	10000	0	0
4 100-FRG	1500.000	DOL	EQUIPMENT FREIGHT		1.000	0	0	1500	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	182	33060	5577	0	27483	0	0
UNIT COST	1.000	HRS	PER MAN HOUR		181.646	30.643	0.000	151.003	0.000	0.000

TOTAL COST FOR BID ITEM: 814.00000000			TOTAL MAN HOURS	364	66119	11154	0	54965	0	0
UNIT COST					66119.125	11154.125	0.000	54965.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 815.00000000 CRAFT INCIDENTAL COSTS UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 OVERTIME UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 001-001	1000000.000	DOL	LABOR @ 10% OF HOURLY		0.100	0	0	100000	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	100000	0	0	100000	0	0
UNIT COST		LS	PER MAN HOUR		100000.000	0.000	0.000	100000.000	0.000	0.000

SUB ITEM: 003 SECURITY BADGES UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 002-BBD	40.000	EA	SECURITY BADGE		25.000	0	0	1000	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	0	1000	0	0	1000	0	0
UNIT COST		LS	PER MAN HOUR		1000.000	0.000	0.000	1000.000	0.000	0.000

TOTAL COST FOR BID ITEM: 815.00000000			TOTAL MAN HOURS	0	101000	0	0	101000	0	0
UNIT COST					101000.000	0.000	0.000	101000.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 821.00000000 OFFICE/SHOP INSTALLATION UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 003 INSTALL OFFICE/STAIRS UNIT: HR QTY: 173.000 PROD RATE: 1.000 WRK HRS: 173.0
ADJ. QTY: 173.000 MH PR RATE: 0.000 ADJ HRS: 173.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 21.6

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-HLP	0.250		LABOR HELPER	43.3	24.493	1059	0	0	0	0
1 040-CAF	0.250		CARPENTER FOREMAN	43.3	28.545	1235	0	0	0	0
1 040-CAR	0.500		CARPENTER	86.5	26.685	2308	0	0	0	0
4 001-MOB	500.000	DOL	EQUIPMENT SETUP MAT'L		1.000	0	0	500	0	0
4 002-RNT	10.000	MO	TRAILER RENT		400.000	0	0	4000	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	173	9102	4602	0	4500	0	0
UNIT COST	1.000	HR	PER MAN HOUR		52.613	26.602	0.000	26.012	0.000	0.000

SUB ITEM: 007 INSTALL FURNITURE UNIT: HR QTY: 173.000 PROD RATE: 1.000 WRK HRS: 173.0
ADJ. QTY: 173.000 MH PR RATE: 0.000 ADJ HRS: 173.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 21.6

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-UNL	0.200		UNSKILLED LABOR	34.6	18.189	629	0	0	0	0
4 005-BKC	2.000	EA	BOOKCASE		350.000	0	0	700	0	0
4 005-CHR	6.000	EA	DESK CHAIR		110.000	0	0	660	0	0
4 005-DRF	1.000	EA	DRAFTING TABLE/STOOL		600.000	0	0	600	0	0
4 005-DSK	4.000	EA	METAL DESK		300.000	0	0	1200	0	0
4 005-FRG	1.000	EA	REFRIGATOR		1000.000	0	0	1000	0	0
4 005-SCT	1.000	EA	SECRETARY STATION		1200.000	0	0	1200	0	0
4 005-TEL	5.000	EA	TELEPHONE		150.000	0	0	750	0	0
TOTAL COST FOR SUB ITEM: 007			TOTAL MAN HOURS	35	6739	629	0	6110	0	0
UNIT COST	5.000	HR	PER MAN HOUR		38.956	3.638	0.000	35.318	0.000	0.000

TOTAL COST FOR BID ITEM: 821.00000000			TOTAL MAN HOURS	208	15841	5231	0	10610	0	0
UNIT COST					15841.475	5231.475	0.000	10610.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 850.00000000 VEHICLES UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 TRANSPORTATION UNIT: HR QTY: 100.000 PROD RATE: 1.000 WRK HRS: 100.0
ADJ. QTY: 100.000 MH PR RATE: 0.000 ADJ HRS: 100.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 12.5

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
3 005-4X4	10.000		4 X 4 EXPLORER	1000.0	9.595	0	9595	0	0	0
3 005-PU5	30.000		1/2 TON PICKUP	3000.0	7.580	0	22740	0	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	32335	0	32335	0	0	0
UNIT COST		HR	PER MAN HOUR		323.350	0.000	323.350	0.000	0.000	0.000

SUB ITEM: 003 SUPPORT VEHICLES UNIT: HR QTY: 100.000 PROD RATE: 1.000 WRK HRS: 100.0
ADJ. QTY: 100.000 MH PR RATE: 0.000 ADJ HRS: 100.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 12.5

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 020-OIL	8.000		OILER	800.0	30.643	24515	0	0	0	0
1 090-TRK	3.000		TEAMSTER	300.0	42.882	12865	0	0	0	0
3 005-HBY	1.500		40' HIGHWAY TRAILER	150.0	7.506	0	1126	0	0	0
3 005-HGT	8.000		FUEL/GREASE TRUCK	800.0	60.000	0	48000	0	0	0
3 005-HWT	3.000		HIGHWAY TRACTOR	300.0	45.810	0	13743	0	0	0
3 005-LBY	1.500		50 TON LOWBOY TRAILER	150.0	7.506	0	1126	0	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	1100	101374	37379	63995	0	0	0
UNIT COST	0.091	HR	PER MAN HOUR		1013.739	373.791	639.948	0.000	0.000	0.000

TOTAL COST FOR BID ITEM: 850.00000000			TOTAL MAN HOURS	1100	133709	37379	96330	0	0	0
UNIT COST					133708.906	37379.106	96329.800	0.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 905.00000000 CONTINGENCY UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 CONTINGENCY ON SUB UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 905-SUB	6170000.000	PCT	CONTINGENCY ON SUBS		0.050	0	0	308500	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	308500	0	0	308500	0	0
UNIT COST		LS	PER MAN HOUR		308500.000	0.000	0.000	308500.000	0.000	0.000
TOTAL COST FOR BID ITEM: 905.00000000			TOTAL MAN HOURS	0	308500	0	0	308500	0	0
UNIT COST					308500.000	0.000	0.000	308500.000	0.000	0.000

PX-1 PROJECT X INEEL CCI OWNER: EXCELON BID DATE: 09/17/01

BID ITEM: 907.00000000 FEES ON COSTS UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 FEE UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 907-FEE	7331100.000	PCT	FEE ON COST + CONTING		0.150	0	0	1099665	0	0
4 907-SUB	6478000.000	PCT	SUBCONTRACTOR FEES		0.100	0	0	647800	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	1747465	0	0	1747465	0	0
UNIT COST		LS	PER MAN HOUR		1747465.000	0.000	0.000	1747465	0.000	0.000
TOTAL COST FOR BID ITEM: 907.00000000			TOTAL MAN HOURS	0	1747465	0	0	1747465	0	0
UNIT COST					1747465.000	0.000	0.000	1747465	0.000	0.000
TOTAL COST FOR ESTIMATE: PX-1			TOTAL MAN HOURS	29457	8437370	1179775	938449	2531861	11667	3775618

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

			LABOR	EQUIPMENT OPERATION	JOB MATERIAL	PERMANENT MATERIAL	SUBCONTRACT	EQUIPMENT OWNERSHIP	TOTAL	MAN HOURS
01500-005000 MOBILIZATION			0	0	0	0	0	0	0	0
0.0%	1.000	LS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
TAKE-OFF QTY:	1.000									
01500-005700 SILT FENCES			4457	0	7800	0	0	0	12257	130
0.8%	1.000	LS	4456.849	0.000	7800.000	0.000	0.000	0.000	12256.849	
TAKE-OFF QTY:	1.000									
02200-022000 DEMOLITION OF STRUCTURES			34456	11011	0	36380	91800	6923	180570	901
11.4%	1.000	LS	34455.833	11010.882	0.000	36379.600	91800.000	6923.482	180569.797	
TAKE-OFF QTY:	1.000									
02200-023000 ACCESS ROAD CLEAR AND GRUB			4183	3020	0	0	0	2007	9210	116
0.6%	1.000	LS	4183.376	3019.669	0.000	0.000	0.000	2006.800	9209.845	
TAKE-OFF QTY:	1.000									
02200-023100 LAYDOWN/PARKING CLEAR AND GRUB			2020	1458	0	0	0	969	4446	56
0.3%	1.000	LS	2019.561	1457.771	0.000	0.000	0.000	968.800	4446.132	
TAKE-OFF QTY:	1.000									
02200-031000 BASE FOR DISTURBED AREAS			3120	1668	0	119010	0	1215	125013	89
7.9%	1.000	LS	3119.968	1668.028	0.000	119010.000	0.000	1215.149	125013.145	
TAKE-OFF QTY:	1.000									
02300-031600 BORROW TO EMBANKMENT			52974	43096	0	0	0	34816	130886	1473
8.3%	1.000	LS	52973.579	43095.868	0.000	0.000	0.000	34816.200	130885.647	
TAKE-OFF QTY:	1.000									
02800-082000 FENCE WORK			8924	832	0	2770	0	283	12810	255
0.8%	1.000	LS	8924.363	831.767	0.000	2770.000	0.000	283.475	12809.605	
TAKE-OFF QTY:	1.000									
08000-010000 DEMOBILIZATION			0	0	0	0	0	0	0	0
0.0%	1.000	LS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
TAKE-OFF QTY:	1.000									
801.00000000 SUPERVISION			175470	0	0	0	0	0	175470	3633
11.1%	1.000	LS	175469.901	0.000	0.000	0.000	0.000	0.000	175469.901	
TAKE-OFF QTY:	1.000									

CLINTON CLINTON SITING | CH2M HILL | OWNER: EXELON | BID DATE: 09/17/01

		LABOR	EQUIPMENT OPERATION	JOB MATERIAL	PERMANENT MATERIAL	SUBCONTRACT	EQUIPMENT OWNERSHIP	TOTAL	MAN HOURS
802.00000000 ENGINEERING		40911	0	0	0	0	0	40911	1211
2.6%	1.000 LS	40911.177	0.000	0.000	0.000	0.000	0.000	40911.177	
TAKE-OFF QTY:	1.000								
803.00000000 SURVEYING		123241	0	10700	0	0	0	133941	3633
8.5%	1.000 LS	123240.796	0.000	10700.000	0.000	0.000	0.000	133940.796	
TAKE-OFF QTY:	1.000								
804.00000000 OFFICE PERSONNEL		58270	0	0	0	0	0	58270	2422
3.7%	1.000 LS	58269.939	0.000	0.000	0.000	0.000	0.000	58269.939	
TAKE-OFF QTY:	1.000								
805.00000000 QUALITY CONTROL/ASSURANCE		0	0	0	0	25000	0	25000	0
1.6%	1.000 LS	0.000	0.000	0.000	0.000	25000.000	0.000	25000.000	
TAKE-OFF QTY:	1.000								
806.00000000 SAFETY		3119	0	1010	0	0	0	4129	87
0.3%	1.000 LS	3118.580	0.000	1010.000	0.000	0.000	0.000	4128.580	
TAKE-OFF QTY:	1.000								
807.00000000 G&A SUPPLIES		0	0	52580	0	0	0	52580	0
3.3%	1.000 LS	0.000	0.000	52580.000	0.000	0.000	0.000	52580.000	
TAKE-OFF QTY:	1.000								
808.00000000 GENERAL SERICES OPERATION		0	0	9381	0	0	0	9381	0
0.6%	1.000 LS	0.000	0.000	9381.000	0.000	0.000	0.000	9381.000	
TAKE-OFF QTY:	1.000								
811.00000000 SMALL TOOLS		0	0	879	0	0	0	879	0
0.1%	1.000 LS	0.000	0.000	879.000	0.000	0.000	0.000	879.000	
TAKE-OFF QTY:	1.000								
812.00000000 BONDS, TAXES, INSURANCE		0	0	10400	0	0	0	10400	0
0.7%	1.000 LS	0.000	0.000	10400.000	0.000	0.000	0.000	10400.000	
TAKE-OFF QTY:	1.000								
814.00000000 FREIGHT		14039	0	47760	0	0	0	61799	364
3.9%	1.000 LS	14038.661	0.000	47760.000	0.000	0.000	0.000	61798.661	
TAKE-OFF QTY:	1.000								

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

			LABOR	EQUIPMENT OPERATION	JOB MATERIAL	PERMANENT MATERIAL	SUBCONTRACT	EQUIPMENT OWNERSHIP	TOTAL	MAN HOURS
815.00000000 CRAFT INCIDENTAL COSTS			0	0	29750	0	0	0	29750	0
1.9%	1.000	LS	0.000	0.000	29750.000	0.000	0.000	0.000	29750.000	
TAKE-OFF QTY:	1.000									
821.00000000 OFFICE/SHOP INSTALLATION			7667	0	9410	0	0	0	17077	208
1.1%	1.000	LS	7667.239	0.000	9410.000	0.000	0.000	0.000	17077.239	
TAKE-OFF QTY:	1.000									
850.00000000 VEHICLES			29552	44027	0	0	0	21567	95145	900
6.0%	1.000	LS	29551.515	44026.800	0.000	0.000	0.000	21567.000	95145.315	
TAKE-OFF QTY:	1.000									
905.00000000 CONTINGENCY			0	0	75000	0	0	0	75000	0
4.7%	1.000	LS	0.000	0.000	75000.000	0.000	0.000	0.000	75000.000	
TAKE-OFF QTY:	1.000									
907.00000000 FEE ON COSTS			0	0	316250	0	0	0	316250	0
20.0%	1.000	LS	0.000	0.000	316250.000	0.000	0.000	0.000	316250.000	
TAKE-OFF QTY:	1.000									
CLINTON CLINTON SITING			562401	105111	570920	158160	116800	67781	1581173	15477

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

ESTIMATE ADJUSTING FACTORS

LABOR ADJUSTMENT:	1.000
PAYROLL BURDEN:	0.155
UNSCHEDULED OVERTIME:	1.000
AVERAGE HOURLY LABOR:	25.000
EQUIPMENT RENTAL:	1.000
REPAIR LABOR:	1.000
REPAIR PARTS:	1.000
OUTSIDE REPAIR:	1.000
FUEL:	2.000
OIL/GREASE:	1.000
CABLE/TEETH:	1.000
TIRES/TUBES:	1.000
JOB MATERIALS:	1.000
PERMANENT MATERIALS:	1.000
SUBCONTRACTS:	1.000
EQUIPMENT OWNERSHIP:	1.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 01500-005000 MOBILIZATION UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SEE INDIRECTS FOR INDIVIDUAL COST ELEMENTS

TOTAL COST FOR BID ITEM: 01500-005000 TOTAL MAN HOURS	0	0	0	0	0	0	0
UNIT COST		0.000	0.000	0.000	0.000	0.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 01500-005700 SILT FENCES UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 FOR HAUL ROAD UNIT: LF QTY: 5,200.000 PROD RATE: 200.000 WRK HRS: 26.0
ADJ. QTY: 5,200.000 MH PR RATE: 0.000 ADJ HRS: 26.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 3.3

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-LAF	1.000		LABOR FOREMAN	26.0	35.164	914	0	0	0	0
1 010-UNL	4.000		UNSKILLED LABOR	104.0	34.063	3543	0	0	0	0
4 002-SLT	5200.000	LF	SILT CURTAIN		1.500	0	0	7800	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	130	12257	4457	0	7800	0	0
UNIT COST	40.000	LF	PER MAN HOUR		2.357	0.857	0.000	1.500	0.000	0.000
TOTAL COST FOR BID ITEM: 01500-005700			TOTAL MAN HOURS	130	12257	4457	0	7800	0	0
UNIT COST					12256.849	4456.849	0.000	7800.000	0.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 02200-022000 DEMOLITION OF STRUCTURES UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 REMOVE CONCRETE MUD MAT UNIT: CY QTY: 3,111.000 PROD RATE: 100.000 WRK HRS: 31.1
ADJ. QTY: 3,111.000 MH PR RATE: 0.000 ADJ HRS: 31.1
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 3.9

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-SKL	1.000		SKILLED LABOR	31.1	34.063	1060	0	0	0	0
1 020-DOZ	2.000		DOZER OPERATOR	62.2	35.784	2226	0	0	0	0
1 020-LDH	1.000		LOADER/ ROLLER OPERATOR	31.1	35.784	1113	0	0	0	0
1 020-OPF	1.000		OPERATOR FOREMAN	31.1	39.863	1240	0	0	0	0
1 090-TRH	3.000		TEAMSTER- HEAVY	93.3	35.744	3336	0	0	0	0
3 005-10D	3.000		10 CY DUMP TRUCK	93.3	39.854	0	3720	0	0	0
3 005-PU5	1.000		1/2 TON PICKUP- GAS	31.1	7.617	0	237	0	0	0
3 020-966	1.000		CAT R.T.LOADER-4.5 CY	31.1	52.110	0	1621	0	0	0
3 020-D8N	2.000		CAT D8 DOZER	62.2	83.682	0	5207	0	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	249	19760	8976	10784	0	0	0
UNIT COST	12.500	CY	PER MAN HOUR		6.352	2.885	3.467	0.000	0.000	0.000

THE NEW REACTOR STRUCTURE WILL PENETRATE 79 FEET FROM THE OG. THE PRESENT CUT IS OPEN TO A DEPTH OF 44 FEET. THEREFORE, THE CONSTRUCTION CONTRACT WILL HAVE TO EXCAVATE BELOW GRADE ANOTHER 35 FEET. THERE IS AN ENGINEERED FILL IN THIS AREA (TO A DEPTH OF 60 FEET BELOW THE MUD MAT).

REMOVE THE MUD MAT HERE. DIMENSIONS ARE 6-12" OF DEPTH (USE 12") X 560' LONG X 150' WIDE= 3111 CY. USE A DOZER TO RIP (AND ONE AT THE DUMP AREA) UP THE UNREINFORCED CONCRETE AND A LOADER
TO LOAD IT OUT. TRUCKS CAN BACK DOWN THE EXISTING RAMP (PLANT SOUTH) AND HAUL OUT THE MATERIAL. BURY THE MATERIAL IN THE NEWLY STRIPPED BORROW AREA (SEE 02300-031600).

PRODUCTION HERE IS BASED ON LOADER PRODUCTION OF 100 CY/HR.

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 02200-022000 DEMOLITION OF STRUCTURES UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 003 REMOVE ASPHALT ROAD UNIT: CY QTY: 400.000 PROD RATE: 100.000 WRK HRS: 4.0
ADJ. QTY: 400.000 MH PR RATE: 0.000 ADJ HRS: 4.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.5

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-SKL	1.000		SKILLED LABOR	4.0	34.063	136	0	0	0	0
1 020-DOZ	2.000		DOZER OPERATOR	8.0	35.784	286	0	0	0	0
1 020-LDH	1.000		LOADER/ ROLLER OPERATOR	4.0	35.784	143	0	0	0	0
1 020-OPF	1.000		OPERATOR FOREMAN	4.0	39.863	159	0	0	0	0
1 090-TRH	3.000		TEAMSTER- HEAVY	12.0	35.744	429	0	0	0	0
3 005-10D	3.000		10 CY DUMP TRUCK	12.0	39.854	0	478	0	0	0
3 005-PU5	1.000		1/2 TON PICKUP- GAS	4.0	7.617	0	30	0	0	0
3 020-966	1.000		CAT R.T.LOADER-4.5 CY	4.0	52.110	0	208	0	0	0
3 020-D8N	2.000		CAT D8 DOZER	8.0	83.682	0	669	0	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	32	2541	1154	1387	0	0	0
UNIT COST	12.500	CY	PER MAN HOUR		6.352	2.885	3.467	0.000	0.000	0.000

THE NEW REACTOR STRUCTURE WILL EXTEND BEYONG THE EXISTING EXCAVATION AND INTO THE ROAD THAT SURROUNDS THE EXCAVATION.

REMOVE THE ASPHALT AND ITS BASE HERE. DIMENSIONS ARE 12" OF DEPTH X 360' LONG X 30' WIDE= 400 CY. USE A DOZER TO RIP (AND ONE AT THE DUMP AREA) UP THE ASPHALT AND A LOADER TO LOAD IT OUT.

TRUCKS CAN BURY THE MATERIAL IN THE NEWLY STRIPPED BORROW AREA (SEE 02300-031600).

PRODUCTION HERE IS BASED ON LOADER PRODUCTION OF 100 CY/HR.

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 02200-022000 DEMOLITION OF STRUCTURES UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 005 RELOCATE RAIL LINE TO UNIT#1 UNIT: LF QTY: 360.000 PROD RATE: 360.000 WRK HRS: 1.0
ADJ. QTY: 360.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
6 200-RRI	560.000	LF	RAILROAD MATERIAL INSTAL		100.000	0	0	0	0	56000
6 200-RRO	360.000	LF	RAILROAD MATERIAL REMOVA		30.000	0	0	0	0	10800
6 200-SWH	1.000	EA	RAILROAD SWITCH INSTALL		25000.000	0	0	0	0	25000
TOTAL COST FOR SUB ITEM: 005			TOTAL MAN HOURS	0	91800	0	0	0	0	91800
UNIT COST		LF	PER MAN HOUR		255.000	0.000	0.000	0.000	0.000	255.000

EXISTING LINE IS 360 LF. IT WILL GO THROUGH THE MIDDLE OF THE NEW REACTOR FOOTPRINT. THE REPLACEMENT LOOP WILL LOOP FARTHER TO THE SOUTH AND INCREASE TO A NEW LENGTH OF 560 LF. ADD A NEW SWITCH AS THE EXISTING WILL NOT BE USABLE.

THE EMBANKMENT WILL BE 9.5' AT THE TOP X 3 FOOT HIGH (1:1 SIDE SLOPES)= 780 CY. ADD 197 CY OF BALLAST. LAY NEW TRACK.

SUB ITEM: 007 INSTALL RAILROAD FILL/BED UNIT: CY QTY: 977.000 PROD RATE: 100.000 WRK HRS: 9.8
ADJ. QTY: 977.000 MH PR RATE: 0.000 ADJ HRS: 9.8
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 1.2

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-SKL	1.000		SKILLED LABOR	9.8	34.063	333	0	0	0	0
1 020-DOZ	2.000		DOZER OPERATOR	19.5	35.784	699	0	0	0	0
1 020-LDH	1.000		LOADER/ ROLLER OPERATOR	9.8	35.784	350	0	0	0	0
1 020-OPF	1.000		OPERATOR FOREMAN	9.8	39.863	389	0	0	0	0
1 090-TRH	3.000		TEAMSTER- HEAVY	29.3	35.744	1048	0	0	0	0
1 090-TRK	1.000		TEAMSTER-LIGHT	9.8	35.226	344	0	0	0	0
3 005-10D	3.000		10 CY DUMP TRUCK	29.3	39.854	0	1168	0	0	0
3 005-PU5	1.000		1/2 TON PICKUP- GAS	9.8	7.617	0	74	0	0	0
3 005-WTR	1.000		3MG WATER TRUCK	9.8	39.126	0	382	0	0	0
3 020-966	1.000		CAT R.T.LOADER-4.5 CY	9.8	52.110	0	509	0	0	0
3 020-D8N	2.000		CAT D8 DOZER	19.5	83.682	0	1635	0	0	0
5 002-BAL	355.000	TON	BALLAST		30.000	0	0	0	10650	0
TOTAL COST FOR SUB ITEM: 007			TOTAL MAN HOURS	88	17582	3163	3769	0	10650	0
UNIT COST	11.111	CY	PER MAN HOUR		17.996	3.237	3.858	0.000	10.901	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 02200-022000 DEMOLITION OF STRUCTURES UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 009 REMOVE/REROUTE FIRE LOOP UNIT: LF QTY: 380.000 PROD RATE: 10.000 WRK HRS: 38.0
ADJ. QTY: 380.000 MH PR RATE: 0.000 ADJ HRS: 38.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 4.8

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-LAF	1.000		LABOR FOREMAN	38.0	35.164	1336	0	0	0	0
1 010-SKL	1.000		SKILLED LABOR	38.0	34.063	1294	0	0	0	0
1 020-BKH	1.000		BACKHOE OPERATOR	38.0	38.568	1466	0	0	0	0
1 060-PFM	1.000		PIPEFITTER FOREMAN	38.0	47.124	1791	0	0	0	0
1 060-PLM	3.000		PIPEFITTER	114.0	43.641	4975	0	0	0	0
3 020-580	1.000		CASE LDH/BH	38.0	26.241	0	997	0	0	0
5 002-SND	12.000	CY	SAND FOR BEDDING		12.000	0	0	0	144	0
5 005-249	4.000	EA	90 DEG DI ELBOW		1800.000	0	0	0	7200	0
5 005-8"P	320.000	LF	8" DI PIPE- PUSH ON		9.950	0	0	0	3184	0
5 005-CHM	0.150	LS	CHEMICAL CLEANING		30000.000	0	0	0	4500	0
5 010-HYD	1.000	EA	OUTSIDE HYDRANT		800.000	0	0	0	800	0
TOTAL COST FOR SUB ITEM: 009			TOTAL MAN HOURS	266	27687	10862	997	0	15828	0
UNIT COST	1.429	LF	PER MAN HOUR		72.861	28.584	2.624	0.000	41.653	0.000

60 LF IS REMOVED AND 320 LF OF NEW IS INSTALLED.

SUB ITEM: 011 REMOVE/REROUTE 12 KV LINE UNIT: LF QTY: 380.000 PROD RATE: 10.000 WRK HRS: 38.0
ADJ. QTY: 380.000 MH PR RATE: 0.000 ADJ HRS: 38.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 4.8

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-LAF	1.000		LABOR FOREMAN	38.0	35.164	1336	0	0	0	0
1 010-SKL	1.000		SKILLED LABOR	38.0	34.063	1294	0	0	0	0
1 020-BKH	1.000		BACKHOE OPERATOR	38.0	38.568	1466	0	0	0	0
1 070-EFM	1.000		ELECTRICAL FOREMAN	38.0	43.281	1645	0	0	0	0
1 070-ELC	3.000		ELECTRICIAN	114.0	40.005	4561	0	0	0	0
3 020-580	1.000		CASE LDH/BH	38.0	26.241	0	997	0	0	0
5 002-SND	12.000	CY	SAND FOR BEDDING		12.000	0	0	0	144	0
5 005-4PV	320.000	LF	4" PVC PIPE		1.180	0	0	0	378	0
5 016-12K	320.000	LF	12 KV CABLE		10.000	0	0	0	3200	0
5 016-GRD	320.000	LF	GROUNDING MATERIALS		6.000	0	0	0	1920	0
5 016-SPL	2.000	EA	CABLE SPLICE		1500.000	0	0	0	3000	0
5 030-350	14.000	CY	3500 PSI CONCRETE		90.000	0	0	0	1260	0
TOTAL COST FOR SUB ITEM: 011			TOTAL MAN HOURS	266	21200	10301	997	0	9902	0
UNIT COST	1.429	LF	PER MAN HOUR		55.790	27.109	2.624	0.000	26.057	0.000

60 LF IS REMOVED AND 320 LF OF NEW IS INSTALLED.

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 02200-023000 ACCESS ROAD CLEAR AND GRUB UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 STRIP ALIGNMENT UNIT: CY QTY: 1,450.000 PROD RATE: 100.000 WRK HRS: 14.5
ADJ. QTY: 1,450.000 MH PR RATE: 0.000 ADJ HRS: 14.5
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 1.8

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-SKL	1.000		SKILLED LABOR	14.5	34.063	494	0	0	0	0
1 020-DOZ	2.000		DOZER OPERATOR	29.0	35.784	1038	0	0	0	0
1 020-LDH	1.000		LOADER/ ROLLER OPERATOR	14.5	35.784	519	0	0	0	0
1 020-OPF	1.000		OPERATOR FOREMAN	14.5	39.863	578	0	0	0	0
1 090-TRH	3.000		TEAMSTER- HEAVY	43.5	35.744	1555	0	0	0	0
3 005-10D	3.000		10 CY DUMP TRUCK	43.5	39.854	0	1734	0	0	0
3 005-PU5	1.000		1/2 TON PICKUP- GAS	14.5	7.617	0	110	0	0	0
3 020-966	1.000		CAT R.T.LOADER-4.5 CY	14.5	52.110	0	756	0	0	0
3 020-D8N	2.000		CAT D8 DOZER	29.0	83.682	0	2427	0	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	116	9210	4183	5026	0	0	0
UNIT COST	12.500	CY	PER MAN HOUR		6.352	2.885	3.467	0.000	0.000	0.000

REMOVE THE STRIPPING TO A PILE WITH DEMOLITION CREW. USE A DOZER TO PILE (AND ONE AT THE DUMP AREA) FOR THE LOADER TO LOAD IT OUT.

PRODUCTION HERE IS BASED ON LOADER PRODUCTION OF 100 CY/HR.

TOTAL COST FOR BID ITEM: 02200-023000 TOTAL MAN HOURS	116	9210	4183	5026	0	0	0
UNIT COST		9209.845	4183.376	5026.469	0.000	0.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 02200-023100 LAYDOWN/PARKING CLEAR AND GRUB UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 STRIP AREAS OF GRASS/TOPSOIL UNIT: CY QTY: 700.000 PROD RATE: 100.000 WRK HRS: 7.0
ADJ. QTY: 700.000 MH PR RATE: 0.000 ADJ HRS: 7.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.9

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-SKL	1.000		SKILLED LABOR	7.0	34.063	238	0	0	0	0
1 020-DOZ	2.000		DOZER OPERATOR	14.0	35.784	501	0	0	0	0
1 020-LDH	1.000		LOADER/ ROLLER OPERATOR	7.0	35.784	250	0	0	0	0
1 020-OPF	1.000		OPERATOR FOREMAN	7.0	39.863	279	0	0	0	0
1 090-TRH	3.000		TEAMSTER- HEAVY	21.0	35.744	751	0	0	0	0
3 005-10D	3.000		10 CY DUMP TRUCK	21.0	39.854	0	837	0	0	0
3 005-PU5	1.000		1/2 TON PICKUP- GAS	7.0	7.617	0	53	0	0	0
3 020-966	1.000		CAT R.T.LOADER-4.5 CY	7.0	52.110	0	365	0	0	0
3 020-D8N	2.000		CAT D8 DOZER	14.0	83.682	0	1172	0	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	56	4446	2020	2427	0	0	0
UNIT COST	12.500	CY	PER MAN HOUR		6.352	2.885	3.467	0.000	0.000	0.000

REMOVE THE STRIPPING TO A PILE WITH DEMOLITION CREW. USE A DOZER TO PILE (AND ONE AT THE DUMP AREA) FOR THE LOADER TO LOAD IT OUT.

PRODUCTION HERE IS BASED ON LOADER PRODUCTION OF 100 CY/HR.

TOTAL COST FOR BID ITEM: 02200-023100 TOTAL MAN HOURS	56	4446	2020	2427	0	0	0
UNIT COST		4446.132	2019.561	2426.571	0.000	0.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 02200-031000 BASE FOR DISTURBED AREAS UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 ROAD BASE ON ACCESS ROAD UNIT: CY QTY: 1,290.000 PROD RATE: 100.000 WRK HRS: 12.9
ADJ. QTY: 1,290.000 MH PR RATE: 0.000 ADJ HRS: 12.9
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 1.6

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-SKL	1.000		SKILLED LABOR	12.9	34.063	439	0	0	0	0
1 020-14G	1.000		BLADE OPERATOR	12.9	35.784	462	0	0	0	0
1 020-LDH	1.000		LOADER/ ROLLER OPERATOR	12.9	35.784	462	0	0	0	0
1 090-TRK	1.000		TEAMSTER-LIGHT	12.9	35.226	454	0	0	0	0
3 005-WTR	1.000		3MG WATER TRUCK	12.9	39.126	0	505	0	0	0
3 020-12G	1.000		CAT MOTOR PATROL	12.9	45.030	0	581	0	0	0
3 020-VIB	1.000		VIBRATORY STL/RUB ROLLER	12.9	46.010	0	594	0	0	0
5 002-BSE	2322.000	TON	ROADWAY CRUSHED STONE		30.000	0	0	0	69660	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	52	73156	1817	1679	0	69660	0
UNIT COST	25.000	CY	PER MAN HOUR		56.710	1.409	1.302	0.000	54.000	0.000

SUB ITEM: 003 ROAD BASE ON PARKING AREA UNIT: CY QTY: 300.000 PROD RATE: 100.000 WRK HRS: 3.0
ADJ. QTY: 300.000 MH PR RATE: 0.000 ADJ HRS: 3.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.4

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-SKL	1.000		SKILLED LABOR	3.0	34.063	102	0	0	0	0
1 020-14G	1.000		BLADE OPERATOR	3.0	35.784	107	0	0	0	0
1 020-LDH	1.000		LOADER/ ROLLER OPERATOR	3.0	35.784	107	0	0	0	0
1 090-TRK	1.000		TEAMSTER-LIGHT	3.0	35.226	106	0	0	0	0
3 005-WTR	1.000		3MG WATER TRUCK	3.0	39.126	0	117	0	0	0
3 020-12G	1.000		CAT MOTOR PATROL	3.0	45.030	0	135	0	0	0
3 020-VIB	1.000		VIBRATORY STL/RUB ROLLER	3.0	46.010	0	138	0	0	0
5 002-BSE	545.000	TON	ROADWAY CRUSHED STONE		30.000	0	0	0	16350	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	12	17163	423	390	0	16350	0
UNIT COST	25.000	CY	PER MAN HOUR		57.210	1.409	1.302	0.000	54.500	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 02200-031000 BASE FOR DISTURBED AREAS UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 005 ROAD BASE ON LAYDOWN AREAS UNIT: CY QTY: 625.000 PROD RATE: 100.000 WRK HRS: 6.3
ADJ. QTY: 625.000 MH PR RATE: 0.000 ADJ HRS: 6.3
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.8

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-SKL	1.000		SKILLED LABOR	6.3	34.063	213	0	0	0	0
1 020-14G	1.000		BLADE OPERATOR	6.3	35.784	224	0	0	0	0
1 020-LDH	1.000		LOADER/ ROLLER OPERATOR	6.3	35.784	224	0	0	0	0
1 090-TRK	1.000		TEAMSTER-LIGHT	6.3	35.226	220	0	0	0	0
3 005-WTR	1.000		3MG WATER TRUCK	6.3	39.126	0	245	0	0	0
3 020-12G	1.000		CAT MOTOR PATROL	6.3	45.030	0	281	0	0	0
3 020-VIB	1.000		VIBRATORY STL/RUB ROLLER	6.3	46.010	0	288	0	0	0
5 002-BSE	1100.000	TON	ROADWAY CRUSHED STONE		30.000	0	0	0	33000	0
TOTAL COST FOR SUB ITEM: 005			TOTAL MAN HOURS	25	34694	880	814	0	33000	0
UNIT COST	25.000	CY	PER MAN HOUR		55.510	1.409	1.302	0.000	52.800	0.000
TOTAL COST FOR BID ITEM: 02200-031000 TOTAL MAN HOURS				89	125013	3120	2883	0	119010	0
UNIT COST					125013.145	3119.968	2883.177	0.000	119010.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 02300-031600 BORROW TO EMBANKMENT UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

THE BORROW SOURCE IS 1/2 MILE TO THE PLANT WEST. THE ULTIMATE NEEDS FOR FILL ARE AS FOLLOWS:

1/2 MILE HAUL ROAD- 13,250 CY
RAILROAD EMBANKMENT- 900 CY
FILL AROUND REACTOR BUILDING- 13,700 CY

ESTIMATE THAT THE PIT IS STRIPPED OF 6" OF TOPSOIL AND HAS 8' OF FILL. THEREFORE, AN AREA OF 100,000 SF MUST BE DISTURBED.

SUB ITEM: 001 STRIP BORROW PIT UNIT: CY QTY: 1,850.000 PROD RATE: 100.000 WRK HRS: 18.5
ADJ. QTY: 1,850.000 MH PR RATE: 0.000 ADJ HRS: 18.5
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 2.3

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-SKL	1.000		SKILLED LABOR	18.5	34.063	630	0	0	0	0
1 020-DOZ	2.000		DOZER OPERATOR	37.0	35.784	1324	0	0	0	0
1 020-LDH	1.000		LOADER/ ROLLER OPERATOR	18.5	35.784	662	0	0	0	0
1 020-OPF	1.000		OPERATOR FOREMAN	18.5	39.863	737	0	0	0	0
1 090-TRH	3.000		TEAMSTER- HEAVY	55.5	35.744	1984	0	0	0	0
3 005-10D	3.000		10 CY DUMP TRUCK	55.5	39.854	0	2212	0	0	0
3 005-PU5	1.000		1/2 TON PICKUP- GAS	18.5	7.617	0	141	0	0	0
3 020-966	1.000		CAT R.T.LOADER-4.5 CY	18.5	52.110	0	964	0	0	0
3 020-D8N	2.000		CAT D8 DOZER	37.0	83.682	0	3096	0	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	148	11750	5337	6413	0	0	0
UNIT COST	12.500	CY	PER MAN HOUR		6.352	2.885	3.467	0.000	0.000	0.000

REMOVE THE STRIPPING TO A PILE WITH DEMOLITION CREW. USE A DOZER TO PILE (AND ONE AT THE DUMP AREA) FOR THE LOADER TO LOAD IT OUT.

PRODUCTION HERE IS BASED ON LOADER PRODUCTION OF 100 CY/HR.

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 02300-031600 BORROW TO EMBANKMENT UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 003 BUILD HAUL ROAD UNIT: CY QTY: 13,250.000 PROD RATE: 100.000 WRK HRS: 132.5
ADJ. QTY: 13,250.000 MH PR RATE: 0.000 ADJ HRS: 132.5
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 16.6

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-SKL	1.000		SKILLED LABOR	132.5	34.063	4513	0	0	0	0
1 020-14G	1.000		BLADE OPERATOR	132.5	35.784	4741	0	0	0	0
1 020-DOZ	2.000		DOZER OPERATOR	265.0	35.784	9483	0	0	0	0
1 020-LDH	1.000		LOADER/ ROLLER OPERATOR	132.5	35.784	4741	0	0	0	0
1 020-OPF	1.000		OPERATOR FOREMAN	132.5	39.863	5282	0	0	0	0
1 090-TRH	3.000		TEAMSTER- HEAVY	397.5	35.744	14208	0	0	0	0
1 090-TRK	1.000		TEAMSTER-LIGHT	132.5	35.226	4667	0	0	0	0
3 005-10D	3.000		10 CY DUMP TRUCK	397.5	39.854	0	15842	0	0	0
3 005-PU5	1.000		1/2 TON PICKUP- GAS	132.5	7.617	0	1009	0	0	0
3 005-WTR	1.000		3MG WATER TRUCK	132.5	39.126	0	5184	0	0	0
3 020-12G	1.000		CAT MOTOR PATROL	132.5	45.030	0	5966	0	0	0
3 020-825	1.000		CAT 825 SHEEPSFOOT ROLL	132.5	108.806	0	14417	0	0	0
3 020-966	1.000		CAT R.T.LOADER-4.5 CY	132.5	52.110	0	6905	0	0	0
3 020-D8N	2.000		CAT D8 DOZER	265.0	83.682	0	22176	0	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	1325	119135	47636	71499	0	0	0
UNIT COST	10.000	CY	PER MAN HOUR		8.991	3.595	5.396	0.000	0.000	0.000

USE A DOZER TO PILE (AND ONE AT ON THE FILL) FOR THE LOADER TO LOAD IT OUT.

PRODUCTION HERE IS BASED ON LOADER PRODUCTION OF 100 CY/HR.

TOTAL COST FOR BID ITEM: 02300-031600 TOTAL MAN HOURS	1473	130886	52974	77912	0	0	0
UNIT COST		130885.647	52973.579	77912.068	0.000	0.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 02800-082000 FENCE WORK UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

THE EXISTING FENCE AROUND THE EXCAVATION WILL REMAIN FOR THE MOST PART, WITH THESE EXCEPTIONS:

1. IN ORDER TO RESTRICT ACCESS TO UNIT #1 THAT FENCE IS REMOVED AT BOTH THE NORTH AND SOUTH ENDS OF THE NEW REACOR FOOTPRINT FOR 225 LF.
2. A NEW FENCE TO CLOSE OFF UNIT #1 WILL BE ADDED- 100 LF.
3. THE PERMANENT FENCE TO ENCOMPASS THE NEW REACOR WILL BE PRICED IN THE NEXT CONTRACT.

SUB ITEM: 001 INSTALL UNIT#1 NEW FENCE UNIT: LF QTY: 100.000 PROD RATE: 5.000 WRK HRS: 20.0
ADJ. QTY: 100.000 MH PR RATE: 0.000 ADJ HRS: 20.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 2.5

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-LAF	1.000		LABOR FOREMAN	20.0	35.164	703	0	0	0	0
1 010-SKL	4.000		SKILLED LABOR	80.0	34.063	2725	0	0	0	0
1 020-BKH	1.000		BACKHOE OPERATOR	20.0	38.568	771	0	0	0	0
3 020-580	1.000		CASE LDH/BH	20.0	26.241	0	525	0	0	0
5 002-FNC	100.000	LF	8' HIGH CHAIN LINK FENCE		25.000	0	0	0	2500	0
5 030-350	3.000	CY	3500 PSI CONCRETE		90.000	0	0	0	270	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	120	7495	4200	525	0	2770	0
UNIT COST	0.833	LF	PER MAN HOUR		74.945	41.997	5.248	0.000	27.700	0.000

SUB ITEM: 003 REMOVE EXISTING FENCE UNIT: LF QTY: 225.000 PROD RATE: 10.000 WRK HRS: 22.5
ADJ. QTY: 225.000 MH PR RATE: 0.000 ADJ HRS: 22.5
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 2.8

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-LAF	1.000		LABOR FOREMAN	22.5	35.164	791	0	0	0	0
1 010-SKL	4.000		SKILLED LABOR	90.0	34.063	3066	0	0	0	0
1 020-BKH	1.000		BACKHOE OPERATOR	22.5	38.568	868	0	0	0	0
3 020-580	1.000		CASE LDH/BH	22.5	26.241	0	590	0	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	135	5315	4725	590	0	0	0
UNIT COST	1.667	LF	PER MAN HOUR		23.623	20.999	2.624	0.000	0.000	0.000

TOTAL COST FOR BID ITEM: 02800-082000 TOTAL MAN HOURS	255	12810	8924	1115	0	2770	0
UNIT COST		12809.605	8924.363	1115.243	0.000	2770.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 08000-010000 DEMOBILIZATION UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SEE INDIRECTS FOR INDIVIDUAL COST ELEMENTS

TOTAL COST FOR BID ITEM: 08000-010000 TOTAL MAN HOURS	0	0	0	0	0	0	0
UNIT COST		0.000	0.000	0.000	0.000	0.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 801.00000000 SUPERVISION UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 003 SITE SUPERVISION- CCI UNIT: HR QTY: 173.000 PROD RATE: 1.000 WRK HRS: 173.0
ADJ. QTY: 173.000 MH PR RATE: 0.000 ADJ HRS: 173.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 21.6

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 005-PM	7.000		PROJECT MANGR-E5 CCI	1211.0	58.253	70545	0	0	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	1211	70545	70545	0	0	0	0
UNIT COST	0.143	HR	PER MAN HOUR		407.773	407.773	0.000	0.000	0.000	0.000

SUB ITEM: 005 SITE CONSTRUCTION PERSONNEL UNIT: HR QTY: 173.000 PROD RATE: 1.000 WRK HRS: 173.0
ADJ. QTY: 173.000 MH PR RATE: 0.000 ADJ HRS: 173.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 21.6

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 005-GS	7.000		GENERAL SUPT-E4 CCI	1211.0	47.804	57891	0	0	0	0
1 005-SUP	7.000		CRAFT SUPER-E3 CCI	1211.0	38.839	47034	0	0	0	0
TOTAL COST FOR SUB ITEM: 005			TOTAL MAN HOURS	2422	104925	104925	0	0	0	0
UNIT COST	0.071	HR	PER MAN HOUR		606.504	606.504	0.000	0.000	0.000	0.000

TOTAL COST FOR BID ITEM: 801.00000000			TOTAL MAN HOURS	3633	175470	175470	0	0	0	0
UNIT COST					175469.901	175469.901	0.000	0.000	0.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 802.00000000 ENGINEERING UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 003 SITE CONSTRUCTION PERSONNEL UNIT: HR QTY: 173.000 PROD RATE: 1.000 WRK HRS: 173.0
ADJ. QTY: 173.000 MH PR RATE: 0.000 ADJ HRS: 173.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 21.6

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 005-CSE	7.000		COST/SCHED. ENG-E2 CCI	1211.0	33.783	40911	0	0	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	1211	40911	40911	0	0	0	0
UNIT COST	0.143	HR	PER MAN HOUR		236.481	236.481	0.000	0.000	0.000	0.000
TOTAL COST FOR BID ITEM: 802.00000000			TOTAL MAN HOURS	1211	40911	40911	0	0	0	0
UNIT COST					40911.177	40911.177	0.000	0.000	0.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 803.00000000 SURVEYING UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

BY SUBCONTRACTOR- THIS OPERATION WILL SURVEY WORK FOR PROGRESS BILLINGS.

SUB ITEM: 003 SITE SUPERVISION UNIT: HR QTY: 173.000 PROD RATE: 1.000 WRK HRS: 173.0
ADJ. QTY: 173.000 MH PR RATE: 0.000 ADJ HRS: 173.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 21.6

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 006-IM	7.000		INSTRUMENTMAN- E1 CCI	1211.0	34.924	42293	0	0	0	0
1 006-PTC	7.000		PARTY CHIEF-E3 CCI	1211.0	35.425	42900	0	0	0	0
1 006-ROD	7.000		RODMAN	1211.0	31.418	38047	0	0	0	0
4 110-SVS	7.000	MO	SURVEY SUPPLIES		100.000	0	0	700	0	0
4 110-SVY	1.000	SET	SURVEY INSTRUMENTS		10000.000	0	0	10000	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	3633	133941	123241	0	10700	0	0
UNIT COST	0.048	HR	PER MAN HOUR		774.224	712.375	0.000	61.850	0.000	0.000

TOTAL COST FOR BID ITEM: 803.00000000			TOTAL MAN HOURS	3633	133941	123241	0	10700	0	0
UNIT COST					133940.800	123240.800	0.000	10700.000	0.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 804.00000000 OFFICE PERSONNEL UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 SITE SUPERVISION UNIT: HR QTY: 173.000 PROD RATE: 1.000 WRK HRS: 173.0
ADJ. QTY: 173.000 MH PR RATE: 0.000 ADJ HRS: 173.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 21.6

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 005-PAY	7.000		PAY/ACCT TECH-ET2 CCI	1211.0	25.816	31263	0	0	0	0
1 005-SCT	7.000		SECRETARY-T1 CCI	1211.0	22.302	27007	0	0	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	2422	58270	58270	0	0	0	0
UNIT COST	0.071	HR	PER MAN HOUR		336.820	336.820	0.000	0.000	0.000	0.000
TOTAL COST FOR BID ITEM: 804.00000000			TOTAL MAN HOURS	2422	58270	58270	0	0	0	0
UNIT COST					58269.939	58269.939	0.000	0.000	0.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 805.00000000 QUALITY CONTROL/ASSURANCE UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

BY SUBCONTRACTOR EXCEPT FOR QA SERVICES

SUB ITEM: 001 SUBCONTRACTOR INSPECTION UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
6 100-ISP	25000.000	LS	SUBCONTRACTOR TESTING		1.000	0	0	0	0	25000
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	25000	0	0	0	0	25000
UNIT COST		LS	PER MAN HOUR		25000.000	0.000	0.000	0.000	0.000	25000.000
TOTAL COST FOR BID ITEM: 805.00000000			TOTAL MAN HOURS	0	25000	0	0	0	0	25000
UNIT COST					25000.000	0.000	0.000	0.000	0.000	25000.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 806.00000000 SAFETY UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 SUPPLIES UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 060-AID	6500.000	MHR	FIRST AID SUPPLIES		0.100	0	0	650	0	0
4 060-DRG	6.000	EA	DRUG TESTING		60.000	0	0	360	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	1010	0	0	1010	0	0
UNIT COST		LS	PER MAN HOUR		1010.000	0.000	0.000	1010.000	0.000	0.000

SUB ITEM: 003 SITE SUPERVISION- CCI UNIT: HR QTY: 173.000 PROD RATE: 1.000 WRK HRS: 173.0
ADJ. QTY: 173.000 MH PR RATE: 0.000 ADJ HRS: 173.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 21.6

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 005-SAF	0.500		SAFETY ENGR- E3 CCI	86.5	36.053	3119	0	0	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	87	3119	3119	0	0	0	0
UNIT COST	2.000	HR	PER MAN HOUR		18.026	18.026	0.000	0.000	0.000	0.000

THIS REPRESENTS THE CORPORATE SAFETY ENGINEER'S TIME AND EXPENSES (AND SITE SAFETY PLAN REVIEW).

TOTAL COST FOR BID ITEM: 806.00000000 TOTAL MAN HOURS	87	4129	3119	0	1010	0	0
UNIT COST		4128.580	3118.580	0.000	1010.000	0.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 807.00000000 G&A SUPPLIES UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 G&A SUPPLIES UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 005-FAX	1.000	EA	FAX MACHINE		800.000	0	0	800	0	0
4 005-LAZ	1.000	EA	LASER PRINTER		1000.000	0	0	1000	0	0
4 005-PRM	1.000	EA	PRIMIVERA COMPLETE		4500.000	0	0	4500	0	0
4 050-CLP	28.000	MO	CELL PHONES		125.000	0	0	3500	0	0
4 050-CMP	4.000	EA	COMPUTERS/SOFTWARE		2000.000	0	0	8000	0	0
4 050-JAN	7.000	MO	JANITOR SERVICE		600.000	0	0	4200	0	0
4 050-OFS	7.000	MO	OFFICE SUPPLIES		400.000	0	0	2800	0	0
4 050-TEL	7.000	MO	TELEPHONE		300.000	0	0	2100	0	0
4 060-PDM	214.000	MDY	PER DIEM		120.000	0	0	25680	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	52580	0	0	52580	0	0
UNIT COST		LS	PER MAN HOUR		52580.000	0.000	0.000	52580.000	0.000	0.000
TOTAL COST FOR BID ITEM: 807.00000000			TOTAL MAN HOURS	0	52580	0	0	52580	0	0
UNIT COST					52580.000	0.000	0.000	52580.000	0.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 808.00000000 GENERAL SERICES OPERATION UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 COMMERICAL POWER/SETUP UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 008-DIS	1.000	EA	ELECTRIC DISCONNECT		1025.000	0	0	1025	0	0
4 008-PLE	1.000	EA	LIGHT POLE		400.000	0	0	400	0	0
4 008-TSF	2.000	EA	5 KVA TRANSFORMER		1293.000	0	0	2586	0	0
4 050-PWR	7.000	MO	COMMERCIAL POWER		500.000	0	0	3500	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	7511	0	0	7511	0	0
UNIT COST		LS	PER MAN HOUR		7511.000	0.000	0.000	7511.000	0.000	0.000

SUB ITEM: 003 WATER/ICE/CUPS/CANS UNIT: MHR QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 050-WTR	15000.000	MHR	WATER/ICE/CUPS/CANS		0.050	0	0	750	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	0	750	0	0	750	0	0
UNIT COST		MHR	PER MAN HOUR		750.000	0.000	0.000	750.000	0.000	0.000

SUB ITEM: 009 GARBAGE/TOILETS UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 060-GAR	7.000	MO	GARBAGE REMOVAL- TRAILER		40.000	0	0	280	0	0
4 060-POR	14.000	MO	PORT-O-LETS		60.000	0	0	840	0	0
TOTAL COST FOR SUB ITEM: 009			TOTAL MAN HOURS	0	1120	0	0	1120	0	0
UNIT COST		LS	PER MAN HOUR		1120.000	0.000	0.000	1120.000	0.000	0.000

TOTAL COST FOR BID ITEM: 808.00000000			TOTAL MAN HOURS	0	9381	0	0	9381	0	0
UNIT COST					9381.000	0.000	0.000	9381.000	0.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 811.00000000 SMALL TOOLS UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

THIS IS BY SUBCONTRACTOR

SUB ITEM: 001 PURCHASE UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 050-CAR	80.000	MHR	CARPENTER SMALL TOOLS		0.750	0	0	60	0	0
4 050-ELC	150.000	MHR	ELECTRICIAN SMALL TOOLS		0.850	0	0	128	0	0
4 050-LAB	800.000	MHR	LABORER SMALL TOOLS		0.630	0	0	504	0	0
4 050-PFT	150.000	MHR	PIPEFITTER TOOLS		1.250	0	0	188	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	879	0	0	879	0	0
UNIT COST		LS	PER MAN HOUR		879.000	0.000	0.000	879.000	0.000	0.000

TOTAL COST FOR BID ITEM: 811.00000000			TOTAL MAN HOURS	0	879	0	0	879	0	0
UNIT COST					879.000	0.000	0.000	879.000	0.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 812.00000000 BONDS, TAXES, INSURANCE UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 BONDS UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 2.0-MBR	1600.000	PK$	FIRST 2 M BOND RATE		6.500	0	0	10400	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	10400	0	0	10400	0	0
UNIT COST		LS	PER MAN HOUR		10400.000	0.000	0.000	10400.000	0.000	0.000
TOTAL COST FOR BID ITEM: 812.00000000			TOTAL MAN HOURS	0	10400	0	0	10400	0	0
UNIT COST					10400.000	0.000	0.000	10400.000	0.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 814.00000000 FREIGHT UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

KEY: EQUIPMENT/NUMBER/LABOR HOURS FOR SETUP/SETUP DOLLARS/FREIGHT COST=

DUMP TRUCK/3/15 MHRS/$240/$300
PICKUP/4/4/60/200
LOWBOY TRACTOR/TRAILER/1/7/0/500
WATER TRUCK/1/5/50/300
FUEL & LUBE TRUCK/1/10/60/300
12G GRADER/1/6/70/1500
CASE BACKHOE/1/5/70/1500
966 FEL/1/6/100/1500
D-8 DOZER/2/40/400/6000
VIB ROLLER/1/6/150/1500
825 SHEEPSFOOT ROLLER/1/20/500/1500
OFFICE TRAILER/1/40/500/500
PUMP/1/10/100/500
350 KW GEN SET/1/8/50/500

SUB ITEM: 001 SETUP ALLOWANCE UNIT: HR QTY: 182.000 PROD RATE: 1.000 WRK HRS: 182.0
ADJ. QTY: 182.000 MH PR RATE: 0.000 ADJ HRS: 182.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 22.8

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 020-MCH	1.000		MECHANIC	182.0	38.568	7019	0	0	0	0
4 001-CRN	100.000	HR	OUTSIDE CRANE SERVICE		50.000	0	0	5000	0	0
4 001-SET	2280.000	DOL	SETUP EQUIPMENT MATERIAL		1.000	0	0	2280	0	0
4 100-FRG	16600.000	DOL	EQUIPMENT FREIGHT		1.000	0	0	16600	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	182	30899	7019	0	23880	0	0
UNIT COST	1.000	HR	PER MAN HOUR		169.777	38.568	0.000	131.209	0.000	0.000

SUB ITEM: 003 TEAR DOWN ALLOWANCE UNIT: HR QTY: 182.000 PROD RATE: 1.000 WRK HRS: 182.0
ADJ. QTY: 182.000 MH PR RATE: 0.000 ADJ HRS: 182.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 22.8

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 020-MCH	1.000		MECHANIC	182.0	38.568	7019	0	0	0	0
4 001-CRN	100.000	HR	OUTSIDE CRANE SERVICE		50.000	0	0	5000	0	0
4 001-SET	2280.000	DOL	SETUP EQUIPMENT MATERIAL		1.000	0	0	2280	0	0
4 100-FRG	16600.000	DOL	EQUIPMENT FREIGHT		1.000	0	0	16600	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	182	30899	7019	0	23880	0	0
UNIT COST	1.000	HR	PER MAN HOUR		169.777	38.568	0.000	131.209	0.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 815.00000000 CRAFT INCIDENTAL COSTS UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

THIS IS A SUBCONTRACTOR COST

SUB ITEM: 001 OVERTIME UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 001-001	285000.000	DOL	LABOR @ 10% OF HOURLY		0.100	0	0	28500	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	28500	0	0	28500	0	0
UNIT COST		LS	PER MAN HOUR		28500.000	0.000	0.000	28500.000	0.000	0.000

SUB ITEM: 003 BRASS ALLEY COSTS UNIT: EA QTY: 25.000 PROD RATE: 1.000 WRK HRS: 25.0
ADJ. QTY: 25.000 MH PR RATE: 0.000 ADJ HRS: 25.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 3.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 002-BRS	25.000	EA	BRASS ALLEY COSTS		50.000	0	0	1250	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	0	1250	0	0	1250	0	0
UNIT COST		EA	PER MAN HOUR		50.000	0.000	0.000	50.000	0.000	0.000

TOTAL COST FOR BID ITEM: 815.00000000			TOTAL MAN HOURS	0	29750	0	0	29750	0	0
UNIT COST					29750.000	0.000	0.000	29750.000	0.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 821.00000000 OFFICE/SHOP INSTALLATION UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 003 INSTALL OFFICE/STAIRS UNIT: HR QTY: 173.000 PROD RATE: 1.000 WRK HRS: 173.0
ADJ. QTY: 173.000 MH PR RATE: 0.000 ADJ HRS: 173.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 21.6

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-HLP	0.250		LABOR HELPER	43.3	34.063	1473	0	0	0	0
1 040-CAF	0.250		CARPENTER FOREMAN	43.3	40.165	1737	0	0	0	0
1 040-CAR	0.500		CARPENTER	86.5	37.899	3278	0	0	0	0
4 001-MOB	500.000	DOL	EQUIPMENT SETUP MAT'L		1.000	0	0	500	0	0
4 002-RNT	7.000	MO	TRAILER RENT		400.000	0	0	2800	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	173	9789	6489	0	3300	0	0
UNIT COST	1.000	HR	PER MAN HOUR		56.582	37.507	0.000	19.075	0.000	0.000

SUB ITEM: 007 INSTALL FURNITURE UNIT: HR QTY: 173.000 PROD RATE: 1.000 WRK HRS: 173.0
ADJ. QTY: 173.000 MH PR RATE: 0.000 ADJ HRS: 173.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 21.6

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 010-UNL	0.200		UNSKILLED LABOR	34.6	34.063	1179	0	0	0	0
4 005-BKC	2.000	EA	BOOKCASE		350.000	0	0	700	0	0
4 005-CHR	6.000	EA	DESK CHAIR		110.000	0	0	660	0	0
4 005-DRF	1.000	EA	DRAFTING TABLE/STOOL		600.000	0	0	600	0	0
4 005-DSK	4.000	EA	METAL DESK		300.000	0	0	1200	0	0
4 005-FRG	1.000	EA	REFRIGERATOR		1000.000	0	0	1000	0	0
4 005-SCT	1.000	EA	SECRETARY STATION		1200.000	0	0	1200	0	0
4 005-TEL	5.000	EA	TELEPHONE		150.000	0	0	750	0	0
TOTAL COST FOR SUB ITEM: 007			TOTAL MAN HOURS	35	7289	1179	0	6110	0	0
UNIT COST	5.000	HR	PER MAN HOUR		42.131	6.813	0.000	35.318	0.000	0.000

TOTAL COST FOR BID ITEM: 821.00000000			TOTAL MAN HOURS	208	17077	7667	0	9410	0	0
UNIT COST					17077.239	7667.239	0.000	9410.000	0.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 850.00000000 VEHICLES UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 SMALL EQUIPMENT OPERATION UNIT: HR QTY: 100.000 PROD RATE: 1.000 WRK HRS: 100.0
ADJ. QTY: 100.000 MH PR RATE: 0.000 ADJ HRS: 100.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 12.5

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 020-CMP	6.000		COMPRESSOR OPERATOR	600.0	31.381	18828	0	0	0	0
3 010-185	6.000		185 CFM PORT COMPRESSOR	600.0	12.272	0	7363	0	0	0
3 020-580	6.000		CASE LDH/BH	600.0	26.241	0	15745	0	0	0
3 020-PMP	6.000		6" DSL PUMP	600.0	7.832	0	4699	0	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	600	46635	18828	27807	0	0	0
UNIT COST	0.167	HR	PER MAN HOUR		466.353	188.283	278.070	0.000	0.000	0.000

SUB ITEM: 003 TRANSPORTATION UNIT: HR QTY: 100.000 PROD RATE: 1.000 WRK HRS: 100.0
ADJ. QTY: 100.000 MH PR RATE: 0.000 ADJ HRS: 100.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 12.5

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
3 005-4X4	7.000		4X4 EXPLORER- GAS	700.0	9.591	0	6714	0	0	0
3 005-PU5	21.000		1/2 TON PICKUP- GAS	2100.0	7.617	0	15996	0	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	0	22709	0	22709	0	0	0
UNIT COST		HR	PER MAN HOUR		227.094	0.000	227.094	0.000	0.000	0.000

SUB ITEM: 005 LOWBOY WORK UNIT: HR QTY: 100.000 PROD RATE: 1.000 WRK HRS: 100.0
ADJ. QTY: 100.000 MH PR RATE: 0.000 ADJ HRS: 100.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 12.5

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
1 090-TRH	3.000		TEAMSTER- HEAVY	300.0	35.744	10723	0	0	0	0
3 005-HBY	1.500		40' HIGHBOY TRAILER	150.0	7.677	0	1152	0	0	0
3 005-HWT	3.000		HIGHWAY TRACTOR	300.0	42.581	0	12774	0	0	0
3 005-LBY	1.500		50 TON LOWBOY TRAILER	150.0	7.677	0	1152	0	0	0
TOTAL COST FOR SUB ITEM: 005			TOTAL MAN HOURS	300	25801	10723	15077	0	0	0
UNIT COST	0.333	HR	PER MAN HOUR		258.006	107.232	150.774	0.000	0.000	0.000

TOTAL COST FOR BID ITEM: 850.00000000 TOTAL MAN HOURS	900	95145	29552	65594	0	0	0
UNIT COST		95145.315	29551.515	65593.800	0.000	0.000	0.000

CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 905.00000000 CONTINGENCY UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 003 SUBCONTRACTOR UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 905-SUB	1500000.000	PCT	CONTINGENCY ON SUBS		0.050	0	0	75000	0	0
TOTAL COST FOR SUB ITEM: 003			TOTAL MAN HOURS	0	75000	0	0	75000	0	0
UNIT COST		LS	PER MAN HOUR		75000.000	0.000	0.000	75000.000	0.000	0.000
TOTAL COST FOR BID ITEM: 905.00000000			TOTAL MAN HOURS	0	75000	0	0	75000	0	0
UNIT COST					75000.000	0.000	0.000	75000.000	0.000	0.000

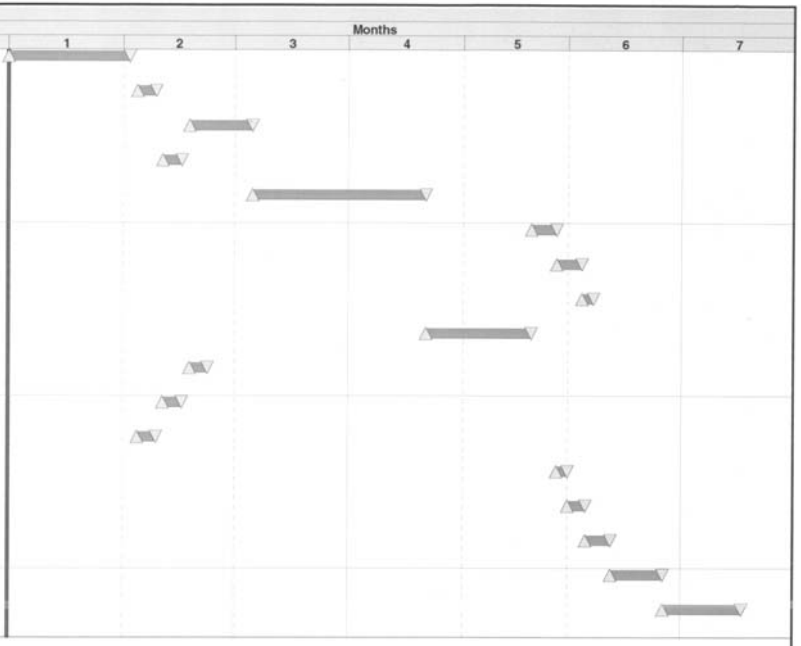
CLINTON CLINTON SITING CH2M HILL OWNER: EXELON BID DATE: 09/17/01

BID ITEM: 907.00000000 FEE ON COSTS UNIT: LS BID: 1.000 TAKE-OFF: 1.000 USED: BID
BID/T-O: 1.000 T-O/BID: 1.000

SUB ITEM: 001 FEE UNIT: LS QTY: 1.000 PROD RATE: 1.000 WRK HRS: 1.0
ADJ. QTY: 1.000 MH PR RATE: 0.000 ADJ HRS: 1.0
FROM MONTH: 0.0 TO: 0.0 DAYS: 5.0 HOURS: 8.0 SHIFTS: DAY CREW NO: 0.0 WRK DYS: 0.1

DETAIL ID	QUANTITY	UNIT	DESCRIPTION	MAN HOURS	ADJ. COST	LABOR	EQUIPMENT	JOB MATL	PERM MATL	SUBCONTRACT
4 907-FEE	1375000.000	PCT	FEE ON COST + CONTING.		0.150	0	0	206250	0	0
4 907-SUB	1100000.000	PCT	SUBCONTRACTOR'S FEE		0.100	0	0	110000	0	0
TOTAL COST FOR SUB ITEM: 001			TOTAL MAN HOURS	0	316250	0	0	316250	0	0
UNIT COST		LS	PER MAN HOUR		316250.000	0.000	0.000	316250.000	0.000	0.000
TOTAL COST FOR BID ITEM: 907.00000000			TOTAL MAN HOURS	0	316250	0	0	316250	0	0
UNIT COST					316250.000	0.000	0.000	316250.000	0.000	0.000
TOTAL COST FOR ESTIMATE: CLINTON			TOTAL MAN HOURS	15477	1581173	562401	172892	570920	158160	116800

Activity ID	Activity Description	Orig Dur
100	Mobilize	25
110	Strip Road	5
120	Strip Borrow	13
130	Strip Parking & Laydown	5
150	Build Road	33
160	Build Railroad	5
170	Demo Mud Map	5
180	Demo Asphalt	3
190	Relocate Existing Railroad	20
200	Relocate Existing Fire Loop	5
210	Relocate Existing 12 KV	5
220	Relocation Existing Fence	5
230	Base Road	3
240	Base Parking	3
250	Base Laydown	5
260	Float	10
270	Demobilize	15



Start Date 01OCT01
Finish Date 16APR02
Data Date 01OCT01
Run Date 20SEP01 14:06

Early Bar
Progress Bar
Critical Activity

CLPC

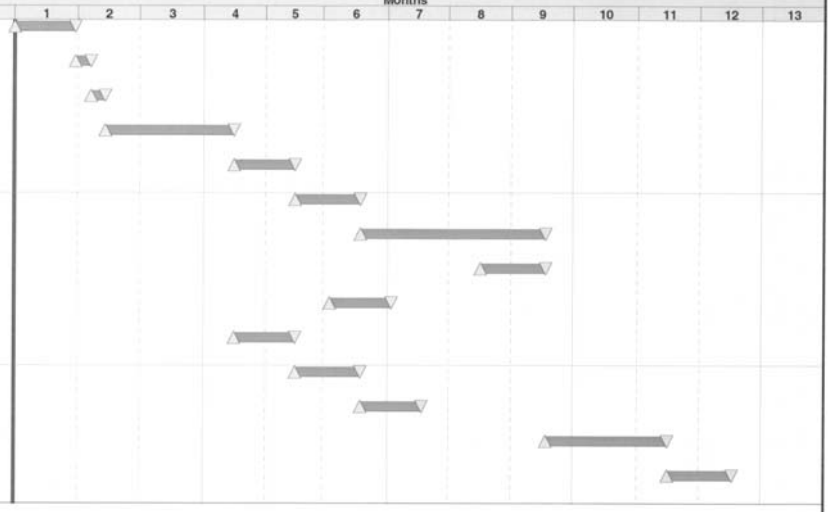
CH2M HILL, INC.

CONSTRUCTION SUITABILITY SCHEDULE
FOR CLINTON
APPENDIX I

CH2MHILL

APPENDIX I
Sheet 1 of 1

Activity ID	Activity Description	Orig Dur
100	Mobilize	22
110	Access Road Clear & Grub	5
120	Railroad Clear & Grub	5
130	Build Road	45
140	Build Railroad	22
150	Site Clear & Grub	22
160	C/F Site	65
170	12 KV	22
180	Ballast	22
190	Base	22
200	Pave	22
210	Lay Railroad	22
220	Float	43
230	Demobilize	22



Start Date 01OCT01
Finish Date 16SEP02
Data Date 01OCT01
Run Date 20SEP01 14:06

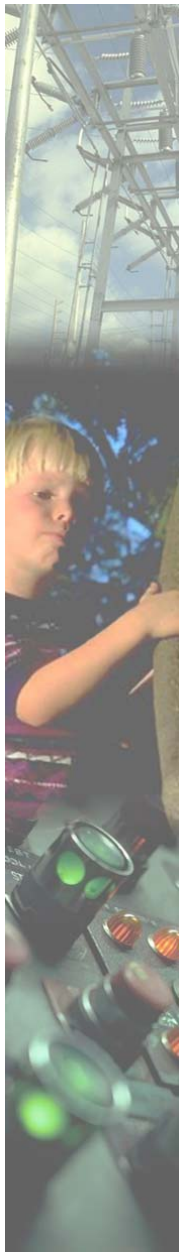
Early Bar
Progress Bar
Critical Activity

INPC

CH2M HILL, INC.

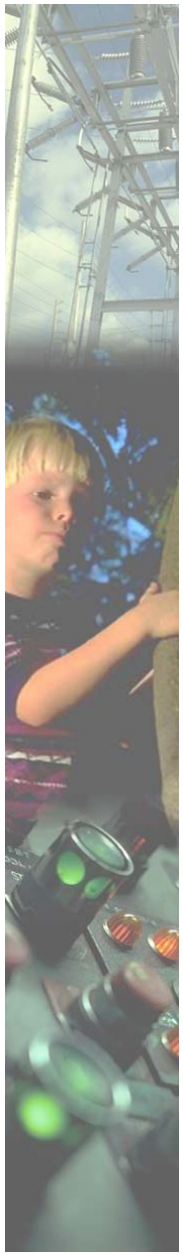
CONSTRUCTION SUITABILITY SCHEDULE
FOR INEEL
APPENDIX I

CH2MHILL

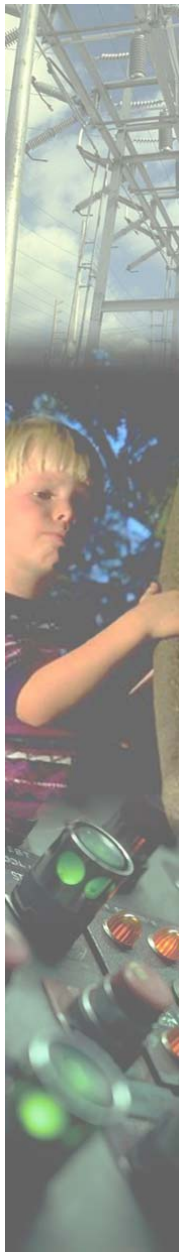


Appendix J - Top Level Regulatory Criteria for ESP Application

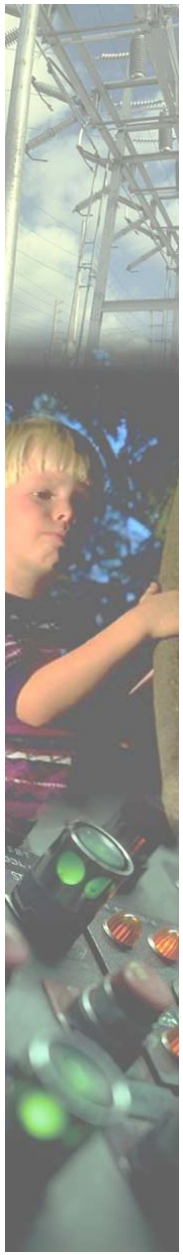
Primary Reference	Secondary Reference	Tertiary Reference	Requirements – (Some abbreviated or paraphrased)	ESP Area Reference List (Identifying Relevant Reg. Guides and NUREGs)
10 CFR 52.15 (b)			Application must comply with 10 CFR 50.30(a), 50.30(b), and 50.30(f)	N/A
	10 CFR 50.30 (a) (1)		Each application must be submitted to USNRC in accordance with requirements of 10 CFR 50.4	N/A
	10 CFR 50.30 (a) (2)		Additional 10 copies of general information and 30 copies of the safety analysis report retained for distribution as directed by NRC	N/A
	10 CFR 50.30 (a) (3)		Application must serve copies of updated application as directed by ASLB	N/A
	10 CFR 50.30 (a) (4)		Applicant must make copies of update application available at public hearing…	N/A
	10 CFR 50.30 (a) (5)		NRC will make copy of application available on the web site	N/A
	10 CFR 50.30 (a) (6)		Applicant will not serve copies of application until NRC determines it is sufficiently complete to docket	N/A
	10 CFR 50.30 (b)		Original application and amendments thereto signed by duly authorized officer under oath or affirmation	N/A
	10 CFR 50.30 (f)		Application shall be accompanied by any Environmental Report required pursuant to 10 CFR 51, Subpart A	N/A
		10 CFR 50.4	The following portions of 10 CFR 50.4, are also applicable: 50.4 (a), 50.4 (b) (1) – (3), 50.4 (c), 50.4 (d), and 50.4 (e) – These are administrative requirements pertaining to address, distribution, number of copies, form, and delivery of written communications.	N/A
10 CFR 52.17 (a) (1)			Application must contain information required by 10 CFR 50.33 (a) through (d), the information required by 10 CFR 50.34 (a) (12) and 10 CFR 50.34 (b) (10), and to the extent approval of emergency plans is sought under 10 CFR 52.17 (b) (2) (ii), the information required by 10 CFR 50.33 (g) and 10 CFR 50.33 (j), and 10 CFR 50.34 (b) (6) (v)	N/A



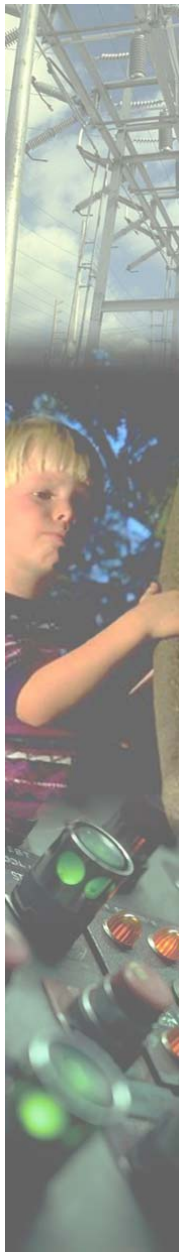
Primary Reference	Secondary Reference	Tertiary Reference	Requirements – (Some abbreviated or paraphrased)	ESP Area Reference List (Identifying Relevant Reg. Guides and NUREGs)
	10 CFR 50.33 (a) through (d)		Name of applicant, address of applicant, description of business or occupation of applicant, if applicant is corporation - where incorporated, principal business location, names, addresses and citizenship of directors and officers, FOCI statement	N/A
	10 CFR 50.34 (a) (12)		Applicants shall comply with earthquake engineering criteria in 10 CFR 50 Appendix S	N/A
		10 CFR 50 Appendix S	SSC important to safety must be designed to withstand earthquakes without loss of capability to perform their safety function Define safe shutdown earthquake (SSE) ground motion Design, test, or otherwise qualify safety related structures, systems, and components (SSC) to withstand the SSE without loss of function. The design must account for both seismic loads and concurrent functional and accident induced loads Define operating basis earthquake (OBE) ground motion in accordance with Appendix S (probably set at $\leq$ 1/3 SSE) Design all other SSC to remain functional during OBE Shutdown facility if OBE exceeded or significant damage occurs. Install appropriate seismic instrumentation Design SSC to address impacts of surface deformation on safety related SSC Design SSC to address impacts from local or distantly generated seismically induced floods and water waves	Seismic and Geologic
	10 CFR 50.34 (b) (10)		Applicants shall comply with earthquake engineering criteria in 10 CFR 50 Appendix S	N/A



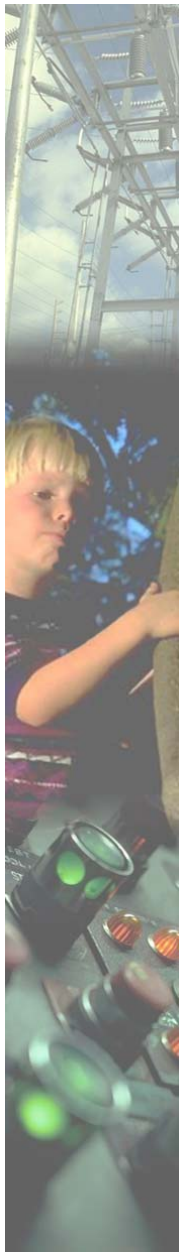
Primary Reference	Secondary Reference	Tertiary Reference	Requirements – (Some abbreviated or paraphrased)	ESP Area Reference List (Identifying Relevant Reg. Guides and NUREGs)
	10 CFR 50.33 (g)		If application is for operating license, the applicant shall submit radiological emergency response plans of State and local governmental agencies wholly or partially in the plume exposure or ingestion pathway EPZ. Generally plume exposure pathway is area about 10 miles in radius, ingestion pathway is about 50 miles in radius. The size and configuration of the EPZ may be determined on case-by-case basis for gas-cooled reactors or reactors < 250 MW thermal.	Emergency Planning
	10 CFR 50.33 (j)		If application contains Restricted Data (RD) or other defense information, it shall be prepared such that all RD and defense information are separated from unclassified information.	Security
	10 CFR 50.34 (b) (6) (v)		Plans for coping with emergencies, which shall include the items specified in 10 CFR 50 Appendix E – Note: 10 CFR Appendix E requires emergency planning information address protective measures to be taken within the site boundary and each EPZ to protect health and safety. In 44 CFR 351, FEMA chartered the EPA to develop protective action guidelines (PAGs) for use in planning local, state, and governmental agency response to radiological emergencies. The current EPA PAGs are contained in EPA 400-R-92-001 of October 1991. (see EPA 400-R-92-001 below)	Emergency Planning Site Description
		10 CFR 50 Appendix E	…sufficient information to ensure compatibility of plans for onsite areas and emergency planning zones, with facility design features, site layout, and site location with respect to access routes, surrounding population distributions, land use, etc.	Emergency Planning, Site Description
		EPA 400-R-92-001	Establishes offsite exposures at the plume exposure or ingestion pathway EPZ for initiating public protection due to airborne and food pathway radioactive materials resulting from unanticipated off-normal events (i.e., radiological emergencies) Note: Offsite planning may not be required if offsite exposures are less than the lower level PAGs of 1 rem WB and 5 rem thyroid.	N/A
10 CFR 52.17 (a) (1)			Application must contain a description and safety assessment of the site where the facility to be located	Site Description



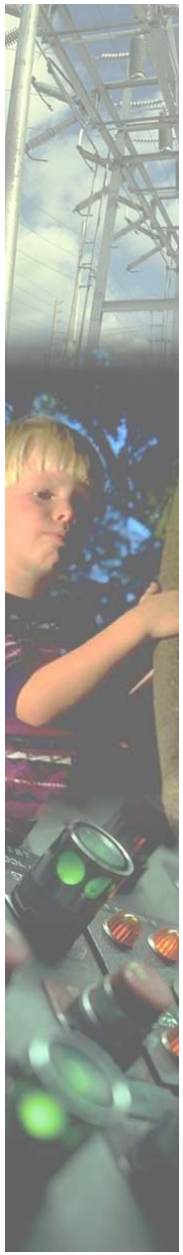
Primary Reference	Secondary Reference	Tertiary Reference	Requirements – (Some abbreviated or paraphrased)	ESP Area Reference List (Identifying Relevant Reg. Guides and NUREGs)
10 CFR 52.17 (a) (1)			The [safety] assessment must contain an analysis and evaluation of major structures, systems, and components that bear significantly on the acceptability of the site under the radiological consequence evaluation factors in 10 CFR 50.34 (a) (1)	Plant Parameters
	10 CFR 50.34 (a) (1)		Applicant for construction permit or design certification of combined license pursuant to 10 CFR 52 shall comply with 10 CFR 50.34 (a) (1) (ii)	N/A
		10 CFR 50.34 (a) (1) (ii)	A description and safety assessment of the site and a safety assessment of the facility including: (A) intended use of reactor including proposed maximum power level and nature and inventory of contained radioactive materials (B) Extent to which generally accepted engineering standards are applied to design of reactor (C) Extent to which the reactor incorporates unique, unusual or enhanced safety features having a significant bearing on the probability or consequences of accidental release of radioactive materials (D) Safety features to be engineered into the facility and barriers that must be breached as a result of an accident before a release of radioactive material to the environment can occur. Special attention must be directed to plant design features intended to mitigate the radiological consequences of accidents. In performing this assessment, an applicant shall assume a fission product release from the core into the containment assuming that the facility is operated at the ultimate power level contemplated. The applicant shall perform an evaluation and analysis of the postulated fission product release, using the expected demonstrable containment leak rate and any fission product cleanup systems intended to mitigate the consequences of the accidents, together with applicable site characteristics, including site meteorology, to evaluate the offsite radiological consequences. Site characteristics must comply with 10 CFR 100. The evaluation must determine that (1) An individual located at any point on the boundary of the exclusion area for any 2 hour period following the onset of the postulated fission product release would not receive a dose > 25 rem TEDE (2) An individual located at any point on the outer boundary of the low population zone, who is exposed to the radioactive cloud resulting from the postulated	Plant Parameters



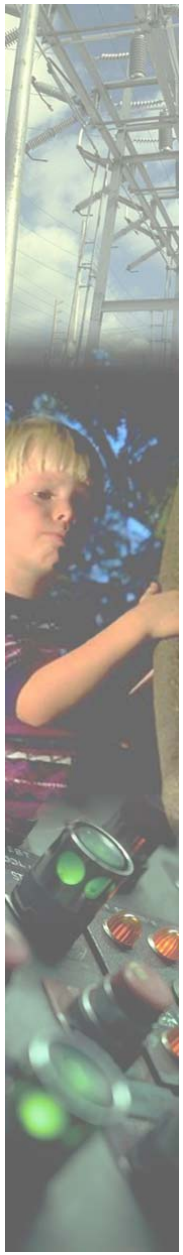
Primary Reference	Secondary Reference	Tertiary Reference	Requirements – (Some abbreviated or paraphrased)	ESP Area Reference List (Identifying Relevant Reg. Guides and NUREGs)
			release (during the entire period of its passage) would not receive a dose > 25 rem TEDE (E) W/respect to operation at projected initial power level, the applicant is required to submit information prescribed in 10 CFR 50.34 (a) (2) through 10 CFR 50.34 (a) (8)	
10 CFR 52.17 (a) (1)			Site characteristics must comply with 10 CFR 100. Note: For the PBMR, this reference is to the requirements of 10 CFR 100, Subpart B	N/A
	10 CFR 100.2		The siting requirements contained in 10 CFR 100 apply to applications for site approval for the purpose of constructing and operating reactors pursuant to 10 CFR 50 or 10 CFR 52	Seismic and Geologic Meteorology Hydrology Site Description
	10 CFR 100.3		Exclusion area: Area surrounding reactor in which licensee has authority to determine all activities including exclusion or removal of personnel and property…area may be traversed by road, rail, or river provided arrangement are made to control traffic in event of emergency. Residence within the area is normally prohibited Low Population Zone: Area surrounding the exclusion area which contains residents for which appropriate protective measures could be taken.	Site Description
	10 CFR 100.11 (c)		Technical Information Document 14844, March 23, 1962, contains a procedural method and sample calculation that result in distances roughly reflecting current siting practices of the Commission – TID 14844 calculations should be used to establish the exclusion area, low population zone, and the population center distance as point of departure for consideration of particular site requirements….	Site Description
	10 CFR 100.20		Subpart B: Factors to be Considered When Evaluating Sites for Applications On or After January 1997	N/A



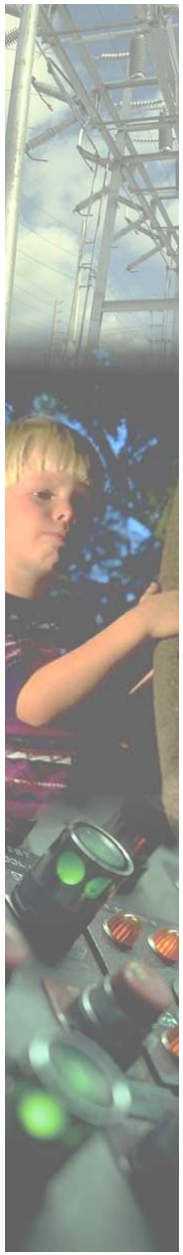
Primary Reference	Secondary Reference	Tertiary Reference	Requirements – (Some abbreviated or paraphrased)	ESP Area Reference List (Identifying Relevant Reg. Guides and NUREGs)
	10 CFR 100.20 (a)		Population density and use characteristics of the site environs, including the exclusion area, the population distribution, and site-related characteristics must be evaluated to determine whether individual as well as societal risk of potential plant accidents is low, and that physical characteristics unique to the proposed site that could pose a significant impediment to the development of emergency plans are identified	Site Description
	10 CFR 100.20 (b)		The nature and proximity of man-related hazards (e.g., airports, dams, transportation routes, military and chemical facilities) must be evaluated to establish site parameters for use in determining whether a plant design can accommodate commonly occurring hazards, and whether the risk of other hazards is very low.	Nearby Industrial
	10 CFR 100.20 (c)		Physical characteristics of the site, including seismology, meteorology, geology, and hydrology	Seismic and Geologic Meteorology Hydrology
	10 CFR 100.20 (c) (1)		10 CFR 100.23, geologic and seismic siting factors, describes the criteria and nature of investigations required to obtain the geologic and seismic data necessary to determine the suitability of the proposed site and plant design bases	Seismic and Geologic
	10 CFR 100.20 (c) (2)		Meteorological characteristics of the site that are necessary for safety analysis or that may have an impact upon plant design (such as maximum probable wind speed and precipitation) must be identified and characterized.	Meteorology
	10 CFR 100.20 (c) (3)		Factors important to hydrological radionuclide transport (such as soil, sediment, and rock characteristics, adsorption and retention coefficients, ground water velocity, and distances to the nearest surface body of water) must be obtained from on-site measurements. The maximum probable flood along with the potential for seismically induced floods discussed in 10 CFR 100.23 (d) (3) must be estimated using historical data.	Hydrology Seismic and Geologic
	10 CFR 100.21		Non-Seismic Siting Criteria Applications for site approval for commercial power reactors shall demonstrate that the proposed site meets the following criteria:	N/A



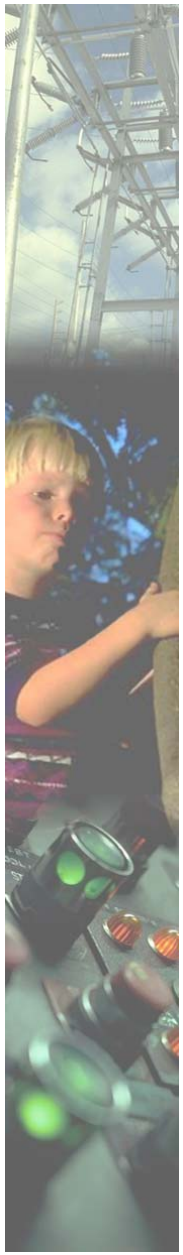
Primary Reference	Secondary Reference	Tertiary Reference	Requirements – (Some abbreviated or paraphrased)	ESP Area Reference List (Identifying Relevant Reg. Guides and NUREGs)
	10 CFR 100.21 (a)		Exclusion area (EA) and a low population zone (LPZ) as defined in 10 CFR 100.3	Site Description
	10 CFR 100.21 (b)		Population center distance at least one and one-third times the distance from the reactor to the outer boundary of the LPZ – in applying this guide, the boundary of the population center shall be determined upon consideration of population distribution. Political boundaries are not controlling in the application of this guide	Site Description
	10 CFR 100.21 (c)		Site atmospheric dispersion characteristics must be evaluated and dispersion parameters established such that:	Meteorology
	10 CFR 100.21 (c) (1)		Radiological effluent release limits associated with normal operation from the type of facility proposed to be located at the site can be met for any individual located offsite Note: For convenience, all other applicable CFR regulations are identified here: 10 CFR 20 Subpart C, Occupational Dose Limits (see 10 CFR 20.1201 below) 10 CFR 20 Subpart D, Radiation Dose Limits for Individual Members of the Public (see 10 CFR 20.1302 (a) and 10 CFR 20.1302 (b) below) 10 CFR 50 Appendix I, Numerical Guides for Design Objectives and Limiting Conditions for Operation to Meet the Criterion “ALARA” For Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents” (see 10 CFR 50 Appendix I below) 40 CFR 190, Subpart B, Environmental Standards for the Uranium Fuel Cycle (see 40 CFR 190 below)	Environmental
		10 CFR 20.1201	Establishes annual occupational dose limits for adults: 5 rem TEDE or 50 rem (sum of deep-dose and committed dose equivalents to individual organ or tissue (other than lens of eye), 15 rem (lens of the eye) 50 rem (skin or extremity)	N/A
		10 CFR 20.1302 (a)	Establishes dose limits of 100 mrem/yr and < 2 mrem/hr to the public resulting from exposures to all radioactive effluents (liquid, air) released to unrestricted areas.	N/A



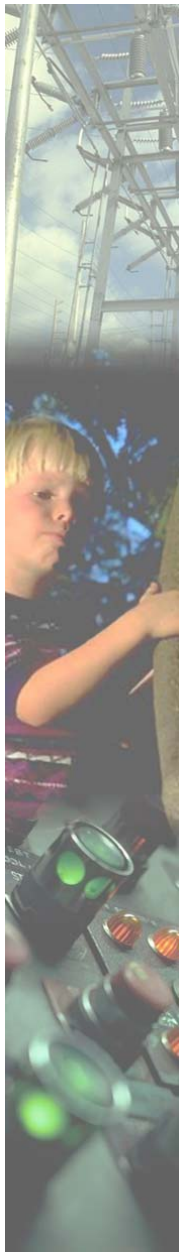
Primary Reference	Secondary Reference	Tertiary Reference	Requirements – (Some abbreviated or paraphrased)	ESP Area Reference List (Identifying Relevant Reg. Guides and NUREGs)
		10 CFR 20.1302 (b)	Annual average concentrations of radioactive gaseous and liquid effluents at boundary of unrestricted area do not exceed values specified in 10 CFR 20, Appendix B, Table 2, and Dose to an individual continuously present in an unrestricted area < 2 mrem/hr and 50 mrem/yr.	N/A
		10 CFR 50, Appendix I	Establishes ALARA design objective guidelines to limit estimated annual dose from: Liquid effluents to ≤ 3 mrem total body or < 10 mrem to any organ Gaseous effluents to ≤ 5 mrem total body or < 15 mrem skin Radioactive iodine and particulate in gaseous effluents to ≤ 15 mrem to any organ	N/A
		40 CFR 190	Establishes annual dose equivalent limits to the public of ≤ 25 mrem (whole body), ≤ 75 mrem (thyroid), and ≤ 25 mrem (any other organ) Establishes limits on total effluents entering the terrestrial, atmospheric, and aquatic environments per gigawatt-year of electrical energy to: Kr 85 < 50,000 curies I-129 < 5 millicuries Pu (and other alpha emitting transuranic nuclides with half lifes > 1 year) to < 0.5 millicuries	N/A
	10 CFR 100.21 (c) (2)		Radiological dose consequences of postulated accidents shall meet the criteria set forth in 10 CFR 50.34 (a) (1) for the type of facility proposed to be located at the site	Site Description Plant Parameters
	10 CFR 100.21 (d)		The physical characteristics of the site, including meteorology, geology, seismology, and hydrology must be evaluated and site parameters established such that potential threats from such physical characteristics will pose no undue risk to the type of facility proposed to be located at the site.	Seismic and Geologic Meteorology Hydrology Plant Parameters



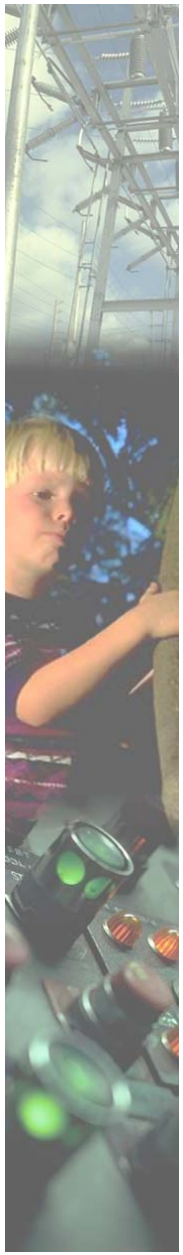
Primary Reference	Secondary Reference	Tertiary Reference	Requirements – (Some abbreviated or paraphrased)	ESP Area Reference List (Identifying Relevant Reg. Guides and NUREGs)
	10 CFR 100.21 (e)		Potential hazards associated with nearby transportation routes, industrial, and military facilities must be evaluated and site parameters established such that potential hazards from such routes and facilities will pose no undue risk to the type of facility proposed to be located at the site	Nearby Industrial
	10 CFR 100.21 (f)		Site characteristics must be such that adequate security plans and measures can be developed	Security
	10 CFR 100.21 (g)		Physical characteristics unique to the proposed site that could pose a significant impediment to the development of emergency plans must be identified	Site Description Emergency Planning
	10 CFR 100.21 (h)		Reactor sites should be located away from very densely populated centers. Areas of low population density are, generally, preferred. However, in determining acceptability of a particular site located away from a very densely populated center but not in an area of low density, consideration will be given to safety, environmental, economic, or other factors, [e.g., superior seismic characteristics, better access to labor, rail, highway, transmission lines, or less environmental impact on undeveloped areas, wetlands, or endangered species….] which may result in the site being found acceptable.	All
	10 CFR 100.23		Geologic and Seismic Siting Criteria – Sets forth the principal geologic and seismic considerations that guide the NRC in evaluation of suitability of a proposed site and adequacy of the design bases established such that there is reasonable assurance that a reactor can be constructed and operated at the proposed site without undue risk to the public. Application to engineering design are contained in 10 CFR 50 Appendix S	Seismic and Geologic
	10 CFR 100.23 (a)		The requirements in 10 CFR 100.23 (c) and 10 CFR 100.23 (d) apply to applicants for an early site permit….	N/A
	10 CFR 100.23 (b)		Commencement of Construction – The investigations required in 10 CFR 100.23 (c) are within the scope of investigations permitted by 10 CFR 50.10 (c) (1)	Redress
		10 CFR 50.10 (c) (1)	A Construction Permit is not required for activities (such as borings and other environmental investigations) related to establishing information re: site suitability for construction of a reactor facility….	N/A



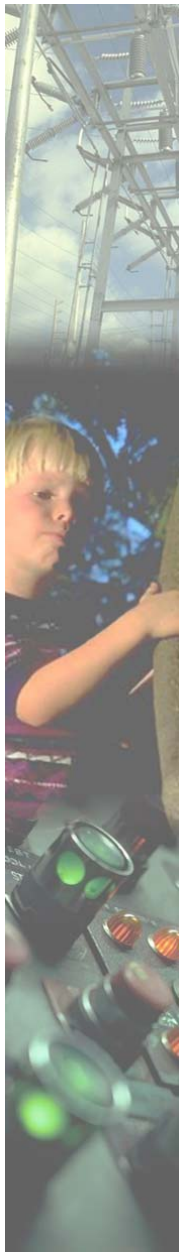
Primary Reference	Secondary Reference	Tertiary Reference	Requirements – (Some abbreviated or paraphrased)	ESP Area Reference List (Identifying Relevant Reg. Guides and NUREGs)
	10 CFR 100.23 (c)		Geological, seismological, and engineering characteristics of a site and its environs must be investigated in sufficient scope and detail to: • permit an adequate evaluation of the proposed site, • provide sufficient information to support evaluations performed to arrive at estimates of the Safe Shutdown Earthquake Ground Motion • permit adequate engineering solutions to actual or potential geologic and seismic effects at the proposed site. The size of the region to be investigated and type of data pertinent to the investigations must be determined based on the nature of the region surrounding the proposed site. Data on the vibratory ground motion, tectonic surface deformation, nontectonic deformation, earthquake recurrence rates, fault geometry and slip rates, site foundation material, and seismically induced floods and water waves must be obtained by reviewing pertinent literature and carrying out field investigations. However, each applicant shall investigate all geologic and seismic factors (for example, volcanic activity) that may affect the design and operation of the proposed nuclear power plant irrespective of whether such factors are explicitly included in this section.	Seismic and Geologic
	10 CFR 100.23 (d)		Geologic and Seismic Siting Factors. The geologic and seismic siting factors considered for design must include a determination of the Safe Shutdown Earthquake Ground Motion for the site, the potential for surface tectonic and nontectonic deformations, the design bases for seismically induced floods and water waves and other design conditions as stated in 10 CFR 100.23 (d) (4).	Seismic and Geologic
	10 CFR 100.23 (d) (1)		Determination of the Safe Shutdown Earthquake Ground Motion. The Safe Shutdown Earthquake Ground Motion for the site is characterized by both the horizontal and vertical free-field ground motion response spectra at the free ground surface. The SSEGM for the site is determined considering the results of the investigations required by 10 CFR 100.23 (c). Uncertainties are inherent in such estimates. These uncertainties must be addressed through an appropriate analysis, such as a probabilistic seismic hazard analysis or suitable sensitivity analyses. Paragraph IV (a) (1) of Appendix S to 10 CFR 50 defines the minimum Safe Shutdown Earthquake Ground Motion for design.	Seismic and Geologic



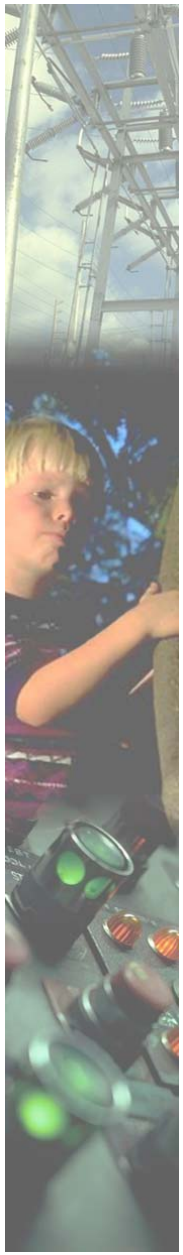
Primary Reference	Secondary Reference	Tertiary Reference	Requirements – (Some abbreviated or paraphrased)	ESP Area Reference List (Identifying Relevant Reg. Guides and NUREGs)
	10 CFR 100.23 (d) (2)		Determination of the potential for surface tectonic and nontectonic deformations. Sufficient geological, seismological, and geophysical data must be provided to clearly establish whether there is a potential for surface deformation.	Seismic and Geologic
	10 CFR 100.23 (d) (3)		Determination of design bases for seismically induced floods and water waves. The size of seismically induced floods and water waves that could affect a site from either locally or distantly generated seismic activity must be determined.	Seismic and Geologic
	10 CFR 100.23 (d) (4)		Determination of siting factors for other design conditions. Siting factors for other design conditions that must be evaluated include soil and rock suitability, liquefaction potential, natural and artificial slope stability, cooling water supply, and remote safety-related structure siting. Each applicant shall evaluate all siting factors and potential causes of failure, such as, the physical properties of the materials underlying the site, ground disruption, and the effects of vibratory ground motion that may affect the design and operation of the proposed nuclear power plant	Seismic and Geologic
		10 CFR 100 Appendix A	The criteria of Appendix A specify the nature of investigations required to obtain the geologic and seismic data necessary to determine site suitability.	Seismic and Geologic
10 CFR 52.17 (a) (1)			In addition the application should describe 10 CFR 52.17 (a) (1) (i) thru (viii)….	N/A
10 CFR 52.17 (a) (1) (i)			Number, type, and thermal power level of facilities for which the site may be used	Plant Parameters
10 CFR 52.17 (a) (1) (ii)			Boundaries of the site	Site Description
10 CFR 52.17 (a) (1) (iii)			Proposed general location of each facility on the site	Site Description
10 CFR 52.17 (a) (1) (iv)			Effluents: Anticipated maximum levels of radiological and thermal effluents each facility will produce	Environmental Plant Parameters



Primary Reference	Secondary Reference	Tertiary Reference	Requirements – (Some abbreviated or paraphrased)	ESP Area Reference List (Identifying Relevant Reg. Guides and NUREGs)
10 CFR 52.17 (a) (1) (v)			Cooling Systems: Type of cooling system, intakes, and outflows that may be associated with each facility	Plant Parameters
10 CFR 52.17 (a) (1) (vi)			Seismic, meteorological, hydrologic, and geologic characteristics of proposed site	Seismic and geologic Meteorology Hydrology
10 CFR 52.17 (a) (1) (vii)			Location and description of any nearby industrial, military, or transportation facilities and routes	Nearby Industrial
10 CFR 52.17 (a) (1) (viii)			Existing and projected future population profile of the area surrounding the site	Site Description
10 CFR 52.17 (a) (2)			Environmental report required by 10 CFR 51.45 and 10 CFR 51.50 – report must focus on environmental effects of construction and operation of reactor(s) which have characteristics that fall within postulated site parameters – Report does NOT need to include assessment of benefits of proposed action. Report MUST include evaluation of alternative sites. To determine whether any obviously superior alternative to site proposed	Environmental
	10 CFR 51.45		Describes required contents of Environmental Report	Environmental
	10 CFR 51.50		Describes required contents of Environmental Report	Environmental
10 CFR 52.17 (b) (1)			Physical characteristics unique to the proposed site, such as egress limitations from the area surrounding the site, that could pose a significant impediment to development of emergency plans	Site Description Emergency Planning

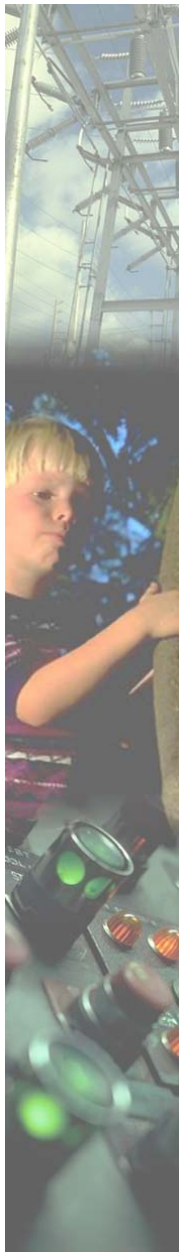


Primary Reference	Secondary Reference	Tertiary Reference	Requirements – (Some abbreviated or paraphrased)	ESP Area Reference List (Identifying Relevant Reg. Guides and NUREGs)
10 CFR 52.17 (b) (2)			ESP Application… (i) May propose major features of the emergency plans, such as exact sizes of EPZ that can be reviewed and approved in consultation with FEMA in the absence of complete and integrated emergency plans. OR (ii) May include complete and integrated emergency plans for review and approval in consultation with FEMA pursuant to 10 CFR 50.47	Emergency Planning
	10 CFR 50.47		Describes required contents for complete and integrated emergency plans and approvals thereof	Emergency Planning
10 CFR 52.17 (b) (3)			If application proposes major features of E Plan, application must include description of contacts and arrangements with local, state, and federal governmental agencies with EP responsibilities OR If application contains complete E Plans for review and approval, shall include local, state, and federal governmental certifications that: (i) plans are practicable, (ii) agencies are committed to participate in further development and drills, (iii) agencies are committed to executing their responsibilities in event of emergency. If certifications can't be obtained, application must include a utility plan that shows the proposed plans provide reasonable assurance that adequate protective measures will be taken in the event of a radiological emergency	Emergency Planning
10 CFR 52.17 (c)			If applicant wants to perform site activities allowed by 10 CFR 50.10 (e) (1) without obtaining the authorization required by that section, the application shall contain a plan for redress of the site if the activities are performed – and the site permit expires before it is referenced in an application for CP or combined license. The application must demonstrate reasonable assurance that the redress will achieve an environmentally stable and aesthetically acceptable site suitable for whatever use may conform with local zoning laws.	Redress

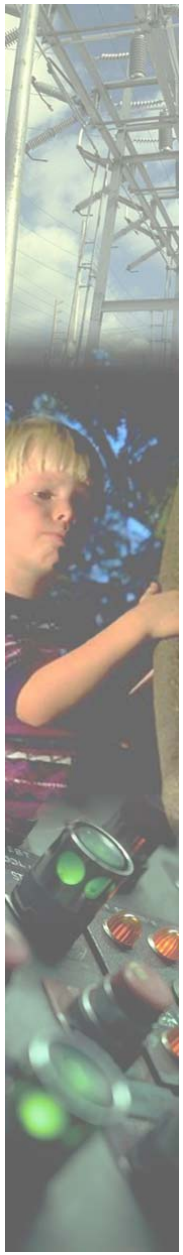


Primary Reference	Secondary Reference	Tertiary Reference	Requirements – (Some abbreviated or paraphrased)	ESP Area Reference List (Identifying Relevant Reg. Guides and NUREGs)
	10 CFR 50.10 (e) (1)		Provides NRR authority to allow site preparation activities (clearing, excavation, access roads, construction support facilities, service facilities)	N/A
	10 CFR 51, Subpart A		Requirements for Environmental Impact Statement (EIS) or supplement to an existing EIS, Environmental Reports, and Environmental Assessments.	Environmental

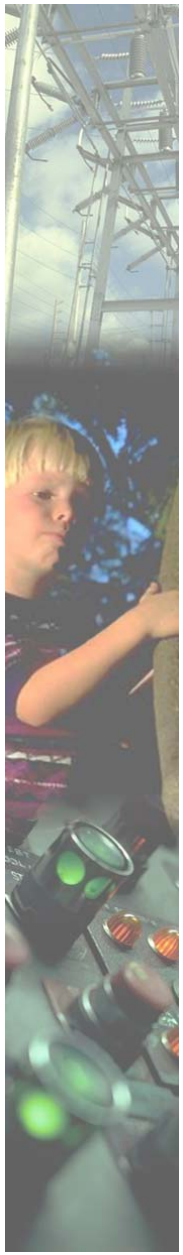
Although 10 CFR 100 Subpart A is not applicable to an ESP application, siting of the PBMR will likely need to address the areas identified in Subpart A.				
Primary Reference	**Secondary Reference**	**Tertiary Reference**	**Requirements – (Some abbreviated or paraphrased)**	**ESP Area Reference List (Identifying Relevant Reg. Guides and NUREGs)**
	10 CFR 100.10		Subpart A: Factors To Be Considered When Evaluating Sites (for applications before January 1997)	N/A
	10 CFR 100.10 (a)		Characteristics of reactor design and proposed operation including:	Plant Parameters
	10 CFR 100.10 (a) (1)		Intended use of reactor including proposed maximum power level and nature and inventory of contained radioactive materials	Plant Parameters
	10 CFR 100.10 (a) (2)		The extent to which generally accepted engineering standards are applied to the design of the reactor	Plant Parameters
	10 CFR 100.10 (a) (3)		The extent to which the reactor incorporates unique or unusual features having a significant bearing on the probability or consequences of an accidental release of radioactive materials	Plant Parameters
	10 CFR 100.10 (a) (4)		The safety features that are to be engineered into the facility and those barriers that must be breached as a result of an accident before a release of radioactive material to the environment can occur	Plant Parameters



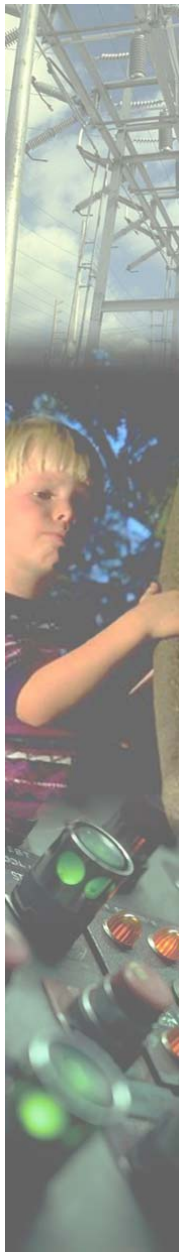
Although 10 CFR 100 Subpart A is not applicable to an ESP application, siting of the PBMR will likely need to address the areas identified in Subpart A.				
Primary Reference	**Secondary Reference**	**Tertiary Reference**	**Requirements – (Some abbreviated or paraphrased)**	**ESP Area Reference List (Identifying Relevant Reg. Guides and NUREGs)**
	10 CFR 100.10 (b)		Population density and use characteristics of the site environs, including the exclusion area, low population zone, and population center distance.	Site Description
	10 CFR 100.10 (c)		Physical characteristics of the site, including seismology, meteorology, geology, and hydrology	Seismic and Geologic Meteorology Hydrology
	10 CFR 100.10 (c) (1)		10 CFR 100 Appendix A "Seismic and Geologic Siting Criteria for Nuclear Power Plants" describes the nature of investigations required to obtain the geologic and seismic data necessary to determine site suitability and to provide reasonable assurance that a nuclear power plant can be constructed and operated at a proposed site without undue risk to the health and safety of the public. It describes procedures for determining the quantitative vibratory ground motion design basis at a site due to earthquakes and describes information needed to determine whether and to what extent a nuclear power plant need be designed to withstand the effects of surface faulting.	Seismic and Geologic
	10 CFR 100.10 (c) (2)		Meteorological conditions at the site and in surrounding area should be considered	Meteorology
	10 CFR 100.10 (c) (3)		Geological and hydrological characteristics of the proposed site may have a bearing on the consequences of an escape of radioactive material from the facility. Special precautions should be planned in a reactor is to be located at a site where a significant quantity of radioactive effluent might accidentally flow into nearby streams or rivers or might find ready access to underground water tables	Hydrology
	10 CFR 100.10 (d)		Where unfavorable physical characteristics of the site exist, the proposed site may nevertheless be found to be acceptable if the design of the facility includes appropriate and adequate compensating engineering safeguards	N/A
	10 CFR 100.11		Determination of Exclusion Area, Low Population Zone, and Population Center Distance	Site Description



Although 10 CFR 100 Subpart A is not applicable to an ESP application, siting of the PBMR will likely need to address the areas identified in Subpart A.				
Primary Reference	**Secondary Reference**	**Tertiary Reference**	**Requirements – (Some abbreviated or paraphrased)**	**ESP Area Reference List (Identifying Relevant Reg. Guides and NUREGs)**
	10 CFR 100.11 (a)		As an aid in evaluating a proposed site, an applicant should assume a fission product release (i.e., based upon a major accident, hypothesized for purposes of site analysis or postulated from considerations of possible accidental events, that would result in potential hazards not exceeded by those from any accident considered credible. Such accidents have generally been assumed to result in substantial meltdown of the core with subsequent release of appreciable quantities of fission products), the expected demonstrable leak rate from the containment and the meteorological conditions pertinent to his site to derive an exclusion area, a low population zone, and population center distance. For the purpose of this analysis, which shall set forth the basis for the numerical values used, the applicant should determine the following:	Site Description, Plant Parameters
	10 CFR 100.11 (a) (1)		An exclusion area of such size that an individual located at any point on its boundary for two hours immediately following onset of the postulated fission product release would not receive a total radiation dose to the whole body in excess of 25 rem whole body or a total radiation dose in excess of 300 rem to the thyroid from iodine exposure	Site Description
	10 CFR 100.11 (a) (2)		A low population zone of such size that an individual located at any point on its outer boundary who is exposed to the radioactive cloud resulting from the postulated fission product release (during the entire period of its passage) would not receive a total radiation dose to the whole body in excess of 25 rem or a total radiation dose in excess of 300 rem to the thyroid from iodine exposure.	Site Description
	10 CFR 100.11 (a) (3)		A population center distance of at least one and one-third times the distance from the reactor to the outer boundary of the low population zone. In applying this guide, the boundary of the population center shall be determined upon consideration of population distribution. Political boundaries are not controlling the application of this guide. Where very large cities are involved, a greater distance may be necessary because of total integrated population dose consideration.	Site Description
	10 CFR 100.11 (b)		For sites for multiple reactor facilities consideration should be given to the following:	Plant Parameters

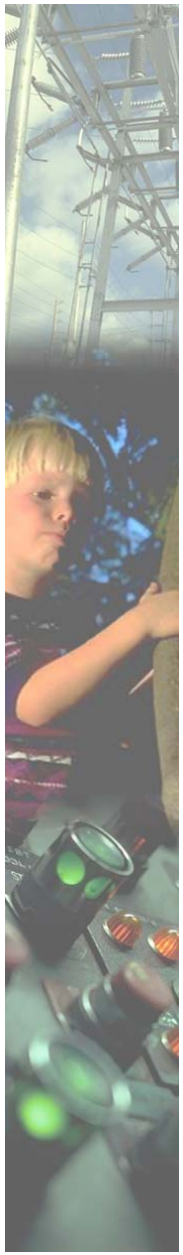


Although 10 CFR 100 Subpart A is not applicable to an ESP application, siting of the PBMR will likely need to address the areas identified in Subpart A.				
Primary Reference	**Secondary Reference**	**Tertiary Reference**	**Requirements – (Some abbreviated or paraphrased)**	**ESP Area Reference List (Identifying Relevant Reg. Guides and NUREGs)**
	10 CFR 100.11 (b) (1)		If the reactors are independent to the extent that an accident in one reactor would not initiate an accident in another, the size of the exclusion area, low population zone and population center distance shall be fulfilled with respect to each reactor individually. The envelopes of the plan overlay of the areas so calculated shall then be taken as their respective boundaries.	Site Description Emergency Planning
	10 CFR 100.11 (b) (2)		If the reactors are interconnected to the extent that an accident in one reactor could affect the safety of operation of any other, the size of the exclusion area, low population zone, and population center distance shall be based on the assumption that all interconnected reactors emit their postulated fission product releases simultaneously. This requirement may be reduced in relation to the degree of coupling between reactors, the probability of concomitant accidents and the probability that an individual would not be exposed to the radiation effects from simultaneous releases. The applicant would be expected to justify to the satisfaction of the Commission the basis for such a reduction in the source term.	Site Description Emergency Planning
	10 CFR 100.11 (b) (3)		The applicant is expected to show that the simultaneous operation of multiple reactors at a site will not result in total radioactive effluent releases beyond the allowable limits of applicable regulations	Site Description Emergency Planning

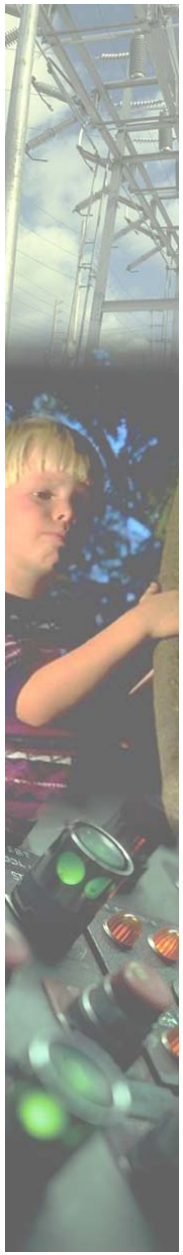


Appendix J - Secondary Level Regulatory Criteria for ESP Application

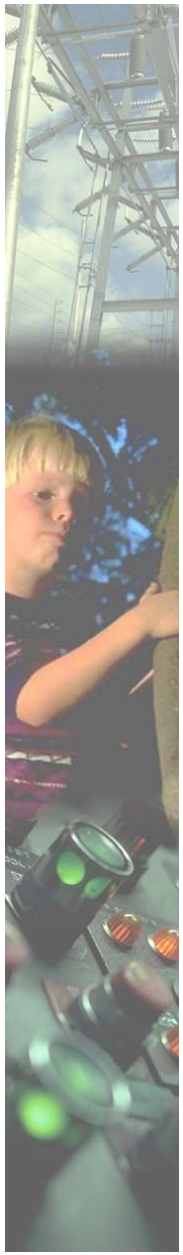
ESP AREA	Relevant NRC Regulatory Guides	Relevant NRC NUREGs
Emergency Planning	RG 1.70, Standard Format and Content of Safety Analysis Report for Nuclear Power Plants, Rev 3, November 1978, Sections 2.1.2, 2.1.3, 2.2, 13.3 RG 4.7, General Site Suitability Criteria for Nuclear Power Stations, Rev 2, April 1998, Sections 3, 4, 5, 8 and Appendix A RG 1.101, Emergency Planning and Preparedness for Nuclear Power Plants, Rev 3, August 1992 DG 1075, Proposed Revision 4 to Regulatory Guide 1.101, Emergency Planning and Preparedness for Nuclear Power Reactors, March 2000	NUREG 0800 NUREG 0654 and Rev 1 Addenda NUREG 0396
Environmental Report	RG 1.70, Standard Format and Content of Safety Analysis Report for Nuclear Power Plants, Rev 3, November 1978, Sections 11.2.3, 11.3.3, 11.5.3 RG 4.2, Preparation of Environmental Reports for Nuclear Power Stations, Rev 2, July 1976 (plus Supplement 1 of September 2000) RG 4.7, General Site Suitability Criteria for Nuclear Power Stations, Rev 2, April 1998, Sections 7, 9, 10, 11, 12 , and Appendix B	NUREG 1555
Hydrology	RG 1.70, Standard Format and Content of Safety Analysis Report for Nuclear Power Plants, Rev 3, November 1978, Section 2.4 RG 4.2, Preparation of Environmental Reports for Nuclear Power Stations, Rev 2, July 1976 (plus Supplement 1 of September 2000), Section 2.4 RG 4.7, General Site Suitability Criteria for Nuclear Power Stations, Rev 2, April 1998, Section 7 RG 1.59, Design Basis Floods for Nuclear Power Plants, Rev 2, August 1977 [plus errata published 7/30/1980] RG 1.102, Flood Protection for Nuclear Power Plants, Rev 1, September 1976	NUREG 0800



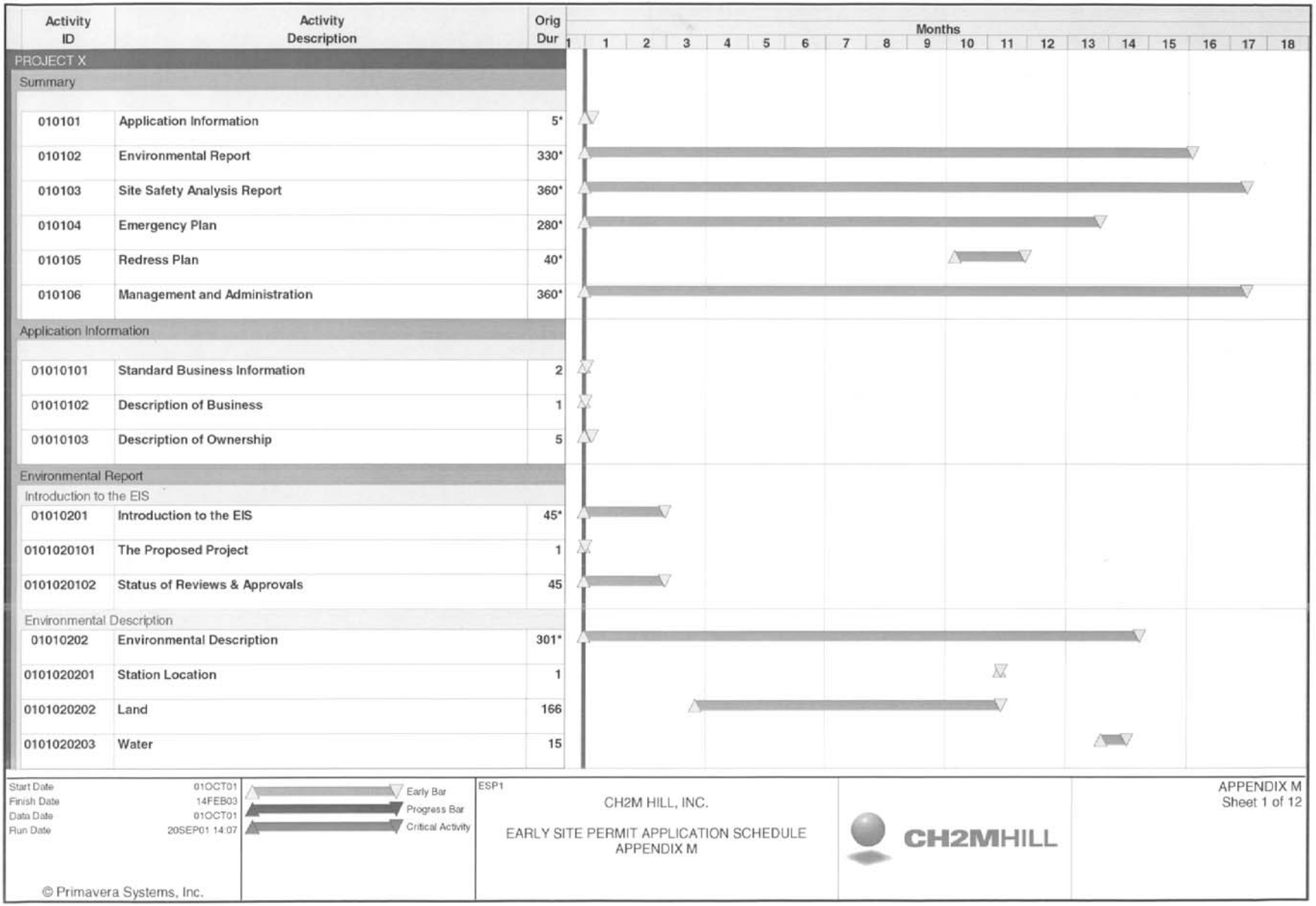
ESP AREA	Relevant NRC Regulatory Guides	Relevant NRC NUREGs
Meteorology	RG 1.70, Standard Format and Content of Safety Analysis Report for Nuclear Power Plants, Rev 3, November 1978, Section 2.3 RG 4.7, General Site Suitability Criteria for Nuclear Power Stations, Rev 2, April 1998, Sections 2, 3 and Appendix A RG 1.23, Onsite Meteorological Programs, February 1972 AND Meteorological Measurement Program For Nuclear Power Plants, April 1986, Second Proposed Revision 1 to Regulatory Guide 1.23 RG 1.27, Ultimate Heat Sink for Nuclear Power Plants, Rev 2, January 1976 RG 1.76, Design Basis Tornado for Nuclear Power Plants, April 1974 RG 1.3, Assumptions Used for Evaluating the Potential Radiological Consequences of a Loss-of-Coolant Accident for Boiling Water Reactors, Rev 2, June 1974 RG 1.4, Assumptions Used for Evaluating the Potential Radiological Consequences of a Loss-of-Coolant Accident for Pressurized Water Reactors, Rev 2, June 1974 RG 1.117, Tornado Design Classification, Rev 1, April 1978 RG 1.109, Calculation of Annual Doses to Man From Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR 50, Appendix I, Rev 1, October 1977 RG 1.111, Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents In Routine Releases From Light-Water-Cooled Reactors, Rev 1, July 1977 RG 1.112, Calculation of Release of Radioactive Materials in Gaseous and Liquid Effluents From Light-Water-Cooled Power Reactors, Rev)-R, April 1976 RG 1.113, Estimating Aquatic Dispersion of Effluents from Accidental and Route Reactor Releases for the Purpose of Implementing Appendix I, Rev 1, April 1977	NUREG 0800
Nearby Industrial, Military, or Transportation Facilities/ Routes	RG 1.70, Standard Format and Content of Safety Analysis Report for Nuclear Power Plants, Rev 3, November 1978, Sections 2.1 and 2.2 RG 4.7, General Site Suitability Criteria for Nuclear Power Stations, Rev 2, April 1998, Sections 3, 4, 5, and 8 RG 4.2, Preparation of Environmental Reports for Nuclear Power Stations, Rev 2, July 1976 (plus Supplement 1 of September 2000), Sections 2.1 and 7.2	NUREG 0800 NUREG 1555



ESP AREA	Relevant NRC Regulatory Guides	Relevant NRC NUREGs
Plant Parameters Envelope	RG 1.70, Standard Format and Content of Safety Analysis Report for Nuclear Power Plants, Rev 3, November 1978, Section 1.2 RG 4.7, General Site Suitability Criteria for Nuclear Power Stations, Rev 2, April 1998, Sections 2 and 7 RG 4.2, Preparation of Environmental Reports for Nuclear Power Stations, Rev 2, July 1976 (plus Supplement 1 of September 2000), Sections 3.4, 3.5	NUREG 0800 NUREG 1555 NEI 01-XX (Revision C) Industry Guideline for Preparing An Early Site Permit Application
Security	RG 1.70, Standard Format and Content of Safety Analysis Report for Nuclear Power Plants, Rev 3, November 1978, Section 13.6 RG 4.7, General Site Suitability Criteria for Nuclear Power Stations, Rev 2, April 1998, Section 6	NUREG 0800
Seismic and Geologic	RG 1.70, Standard Format and Content of Safety Analysis Report for Nuclear Power Plants, Rev 3, November 1978, Sections 2.5, 3.2, and 3.7 RG 4.7, General Site Suitability Criteria for Nuclear Power Stations, Rev 2, April 1998, Section 1, and Appendix A RG 1.29, Seismic Design Classification, Rev 3, September 1978 RG 1.59, Design Basis Floods for Nuclear Power Plants, Rev 2, August 1977 [plus errata published 7/30/1980] – portion dealing with seismically induced floods and water waves RG 1.60, Design Response Spectra for Seismic Design of Nuclear Power Plants, Rev 1, December 1973 RG 1.61, Damping Values for Seismic Design of Nuclear Power Plants, October 1973 RG 1.92, Combining Modal Responses and Spatial Components in Seismic Response Analysis, Rev 1, February 1976 RG 1.132, Site Investigations for Foundations of Nuclear Power Plants, March 1979 RG 1.138, Laboratory Investigations of Soils For Engineering Analysis and Design of Nuclear Power Plants, April 1978 RG 1.165, Identification and Characterization of Seismic Sources and Determination of Safe Shutdown Earthquake, March 1997 DG 1101, Proposed Revision 2 of Regulatory Guide 1.132, Site Investigations for Foundations of Nuclear Power	NUREG 0800



ESP AREA	Relevant NRC Regulatory Guides	Relevant NRC NUREGs
	Plants, February 2001 DG 1105, Procedures and Criteria for Assessing Seismic Soil Liquefaction at Nuclear Power Plant Sites, March 2001	
Site Description	RG 1.70, Standard Format and Content of Safety Analysis Report for Nuclear Power Plants, Rev 3, November 1978, Sections 1.2, 2.1.1, 2.1.2, 2.1.3, and 2.2 RG 4.7, General Site Suitability Criteria for Nuclear Power Stations, Rev 2, April 1998, Sections 3, 4, and 8	NUREG 0800
Site Redress	None	None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Months
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PROJECT X
Summary
010101 Application Information 5*
010102 Environmental Report 330*
010103 Site Safety Analysis Report 360*
010104 Emergency Plan 280*
010105 Redress Plan 40*
010106 Management and Administration 360*
Application Information
01010101 Standard Business Information 2
01010102 Description of Business 1
01010103 Description of Ownership 5
Environmental Report
Introduction to the EIS
01010201 Introduction to the EIS 45*
0101020101 The Proposed Project 1
0101020102 Status of Reviews & Approvals 45
Environmental Description
01010202 Environmental Description 301*
0101020201 Station Location 1
0101020202 Land 166
0101020203 Water 15
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Finish Date 14FEB03
Data Date 01OCT01
Run Date 20SEP01 14:07
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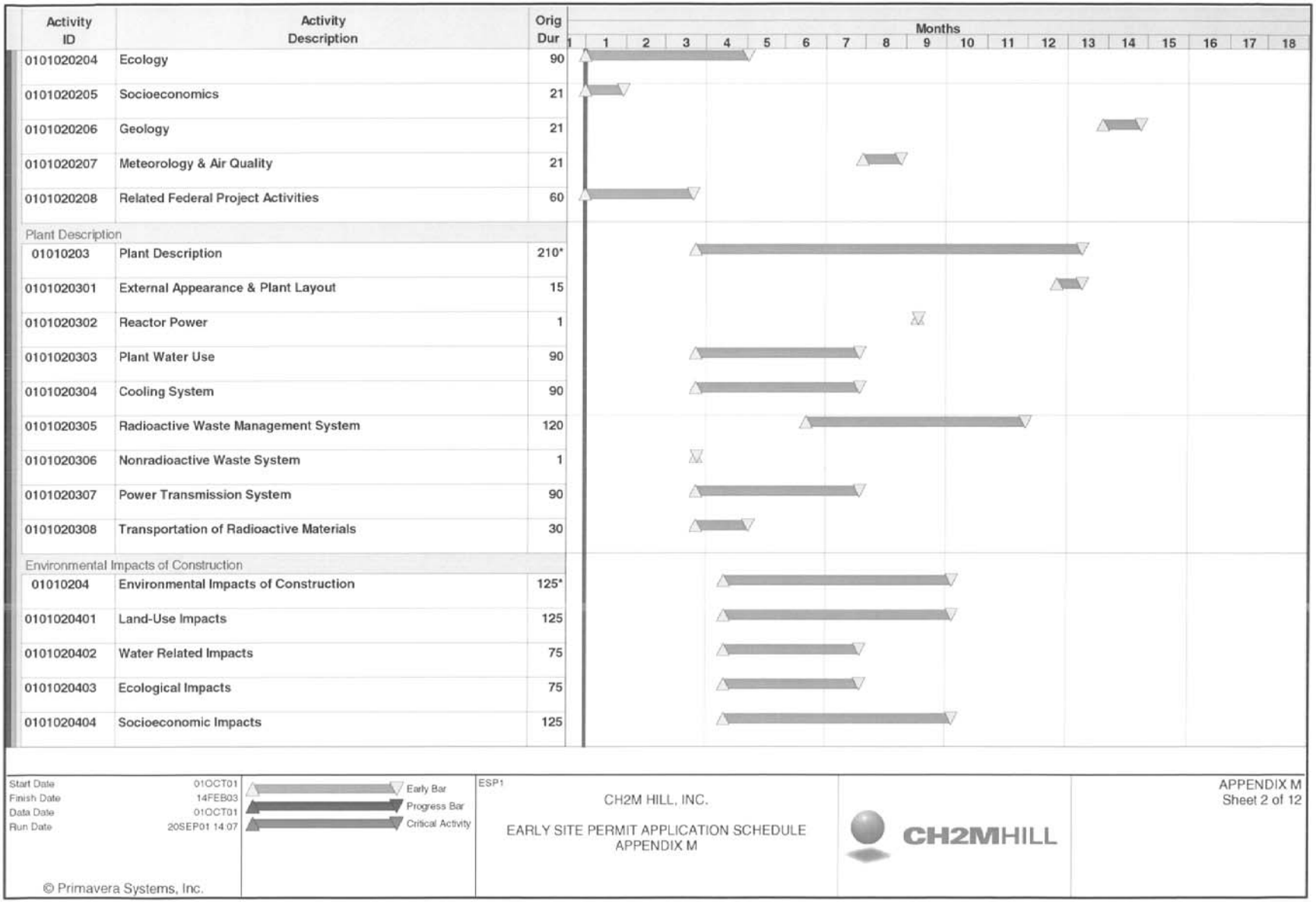
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0101020205 Socioeconomics 21
0101020206 Geology 21
0101020207 Meteorology & Air Quality 21
0101020208 Related Federal Project Activities 60
Plant Description
01010203 Plant Description 210*
0101020301 External Appearance & Plant Layout 15
0101020302 Reactor Power 1
0101020303 Plant Water Use 90
0101020304 Cooling System 90
0101020305 Radioactive Waste Management System 120
0101020306 Nonradioactive Waste System 1
0101020307 Power Transmission System 90
0101020308 Transportation of Radioactive Materials 30
Environmental Impacts of Construction
01010204 Environmental Impacts of Construction 125*
0101020401 Land-Use Impacts 125
0101020402 Water Related Impacts 75
0101020403 Ecological Impacts 75
0101020404 Socioeconomic Impacts 125
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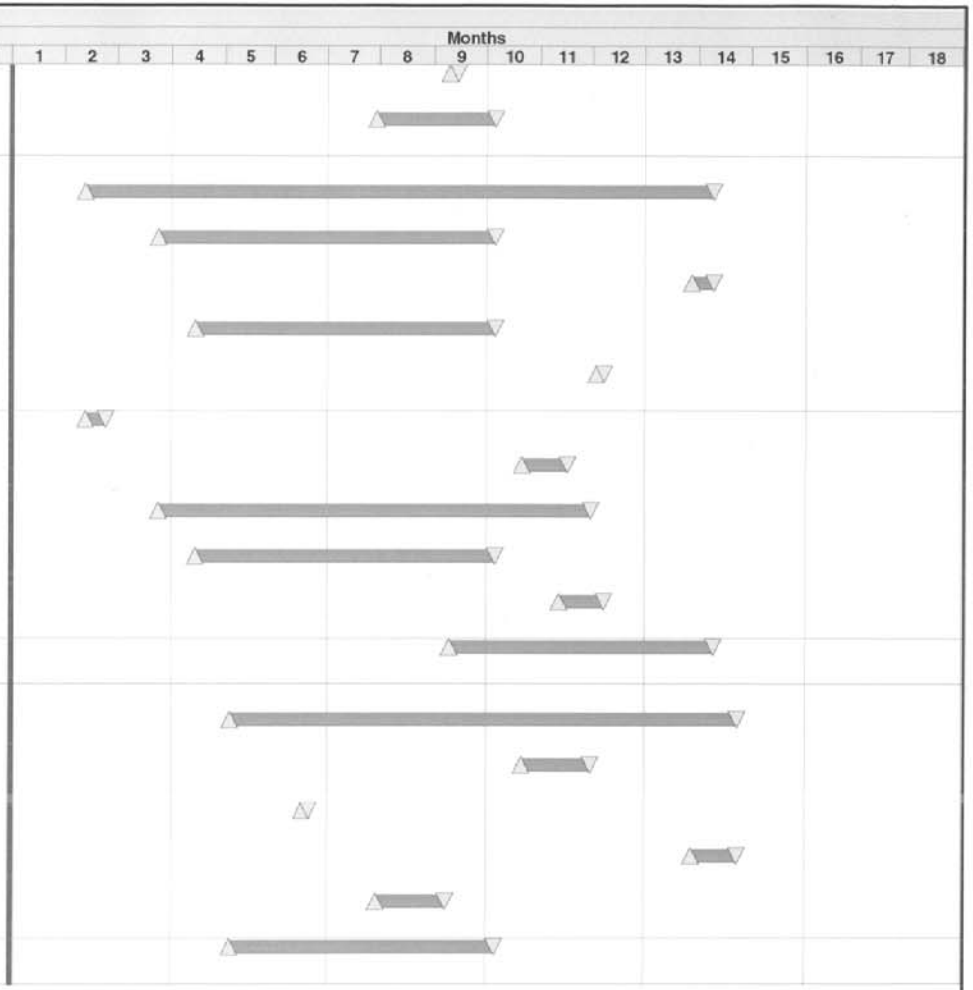
Activity ID	Activity Description	Orig Dur
0101020405	Radiation Exposure to Construction Workers	5
0101020406	Measures/Controls-Limit Adverse Impacts	50
Environmental Impacts of Station Operation		
01010205	Environmental Impacts of Station Operation	260*
0101020501	Land-Use Impacts	140
0101020502	Water Related Impacts	10
0101020503	Cooling System Impacts	125
0101020504	Radiological Impacts of Normal Operations	5
0101020505	Environmental Impacts of Waste	10
0101020506	Transmission System Impacts	20
0101020507	Uranium Fuel Cycle Impacts	180
0101020508	Socioeconomic Impacts	125
0101020509	Decommissioning	20
0101020510	Measures/Controls-Limit Adverse Impacts	110
Environmental Measurements & Measuring Programs		
01010206	Environ Measurements & Measuring Programs	210*
0101020601	Thermal Monitoring	30
0101020602	Radiological Monitoring	3
0101020603	Hydrological Monitoring	20
0101020604	Meteorological Monitoring	30
0101020605	Ecological Monitoring	110



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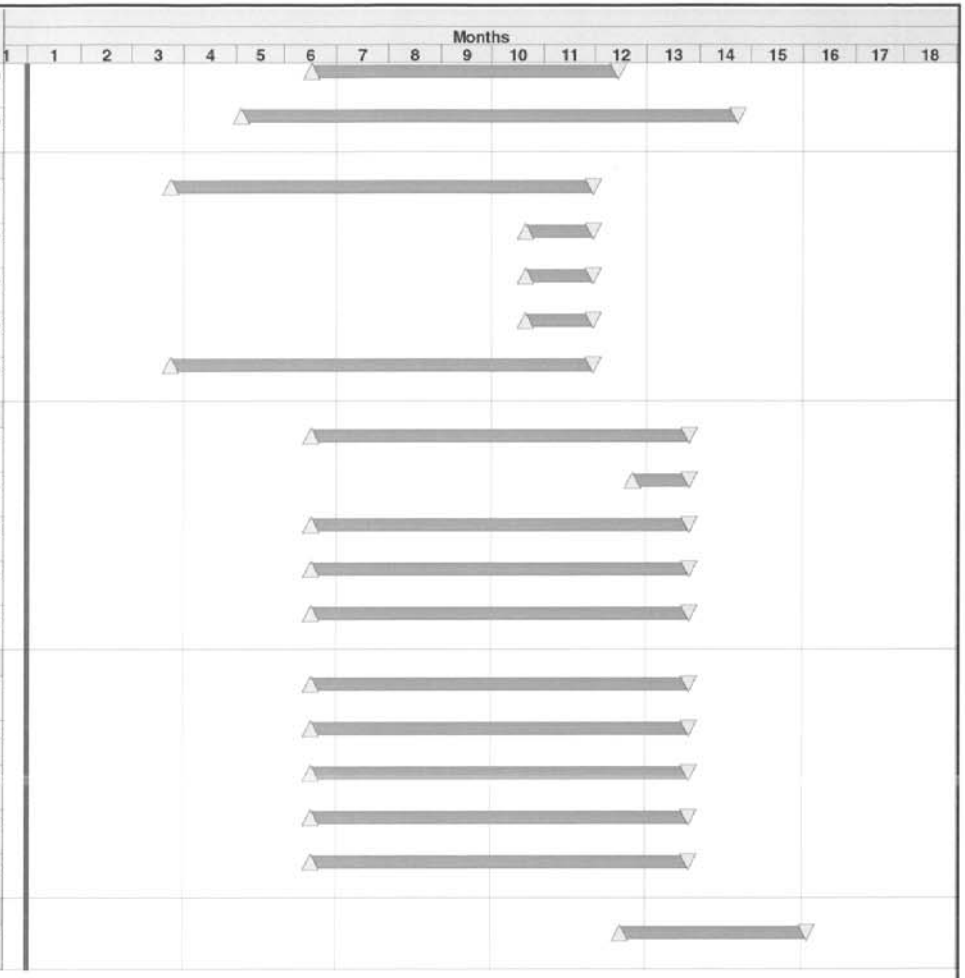
Activity ID	Activity Description	Orig Dur
0101020606	Chemical Monitoring	130
0101020607	Summary of Monitoring Programs	210
Env Impacts of Postulated Acci Inv RAM		
01010207	Env Impacts of Postulated Acci Inv RAM	180*
0101020701	Design Basis Accidents	30
0101020702	Severe Accidents	30
0101020703	Severe Accident Mitigation Design Alternatives	30
0101020704	Transportation Accidents	180
Need for Power		
01010208	Need for Power	160*
0101020801	Description of Power System	25
0101020802	Power Demand	160
0101020803	Power Supply	160
0101020804	Assessment of Need for Power	160
Alternatives to the Proposed Action		
01010209	Alternatives to the Proposed Action	160*
0101020901	No-Action Alternatives	160
0101020902	Energy Alternatives	160
0101020903	Alternative Sites	160
0101020904	Alternative Plant & Transmission Systems	160
Environmental Consequences of Proposed Action		
01010210	Environmental Consequences of Proposed Action	80*



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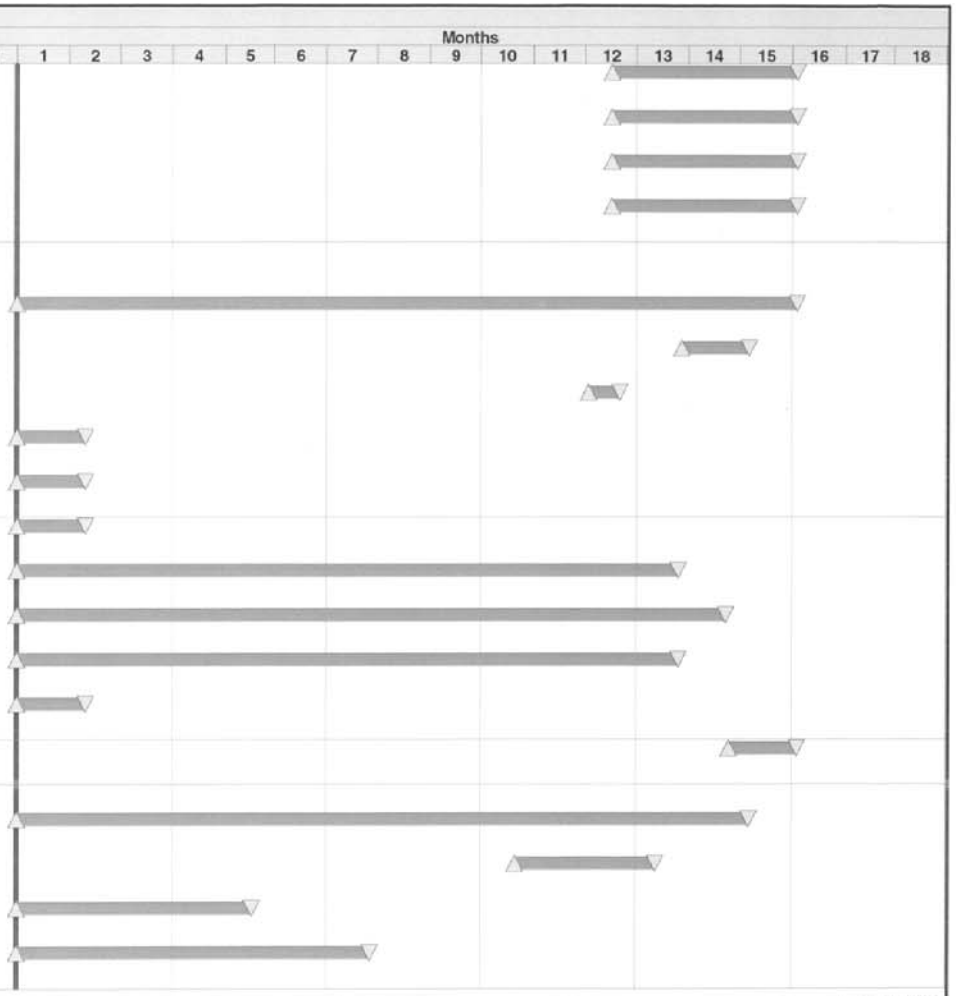
0101021001	Unavoidable Adverse Environmental Impacts	80
0101021002	Irreversible & irretrieveable Commit of Resource	80
0101021003	Relationship-Short-Term & Long-Term Productivity	80
0101021004	Benefit-Cost Balance	80
Site Safety Analysis Report		
Introduction and General Description of Plant		
01010301	Introduction & General Description of Plant	330*
0101030101	Introduction	30
0101030102	General Plant Description	15
0101030103	Comparison Tables	30
0101030104	Identification of Agents & Contractors	30
0101030105	Requirements for Further Technical Information	30
0101030106	Material Incorporated by Reference	280
0101030107	Drawings & Other Detailed Information	300
0101030108	Conformance to NRC Regulatory Guides	280
0101030109	Standard Design	30
0101030110	Document Preparation	30
Site Characteristics		
01010302	Site Characteristics	310*
0101030201	Geography and Demography	60
0101030202	Nearby Industrial, Transp & Military Facilities	100
0101030203	Meteorology	150



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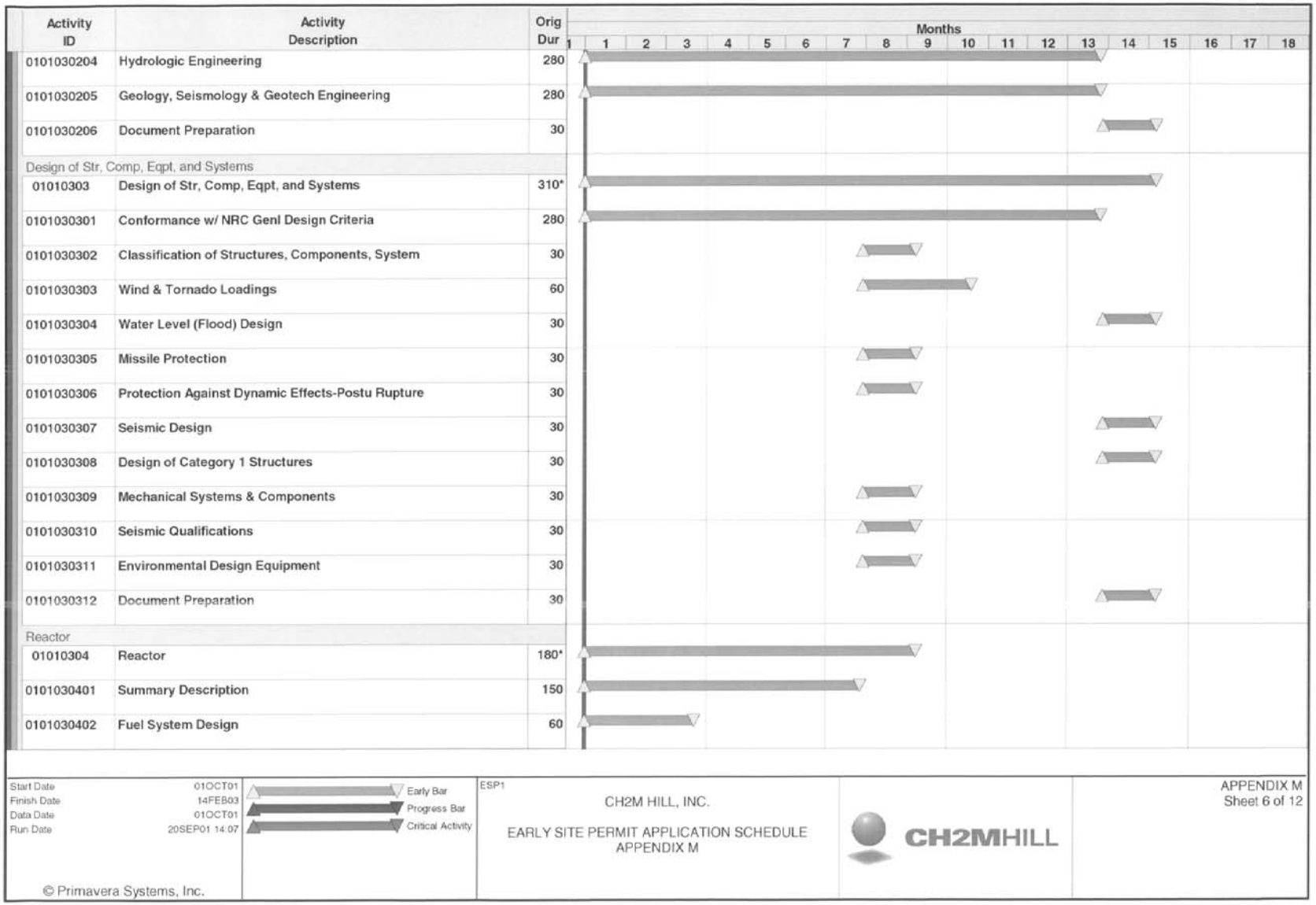
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0101030204 Hydrologic Engineering 280
0101030205 Geology, Seismology & Geotech Engineering 280
0101030206 Document Preparation 30
Design of Str, Comp, Eqpt, and Systems
01010303 Design of Str, Comp, Eqpt, and Systems 310*
0101030301 Conformance w/ NRC Genl Design Criteria 280
0101030302 Classification of Structures, Components, System 30
0101030303 Wind & Tornado Loadings 60
0101030304 Water Level (Flood) Design 30
0101030305 Missile Protection 30
0101030306 Protection Against Dynamic Effects-Postu Rupture 30
0101030307 Seismic Design 30
0101030308 Design of Category 1 Structures 30
0101030309 Mechanical Systems & Components 30
0101030310 Seismic Qualifications 30
0101030311 Environmental Design Equipment 30
0101030312 Document Preparation 30
Reactor
01010304 Reactor 180*
0101030401 Summary Description 150
0101030402 Fuel System Design 60
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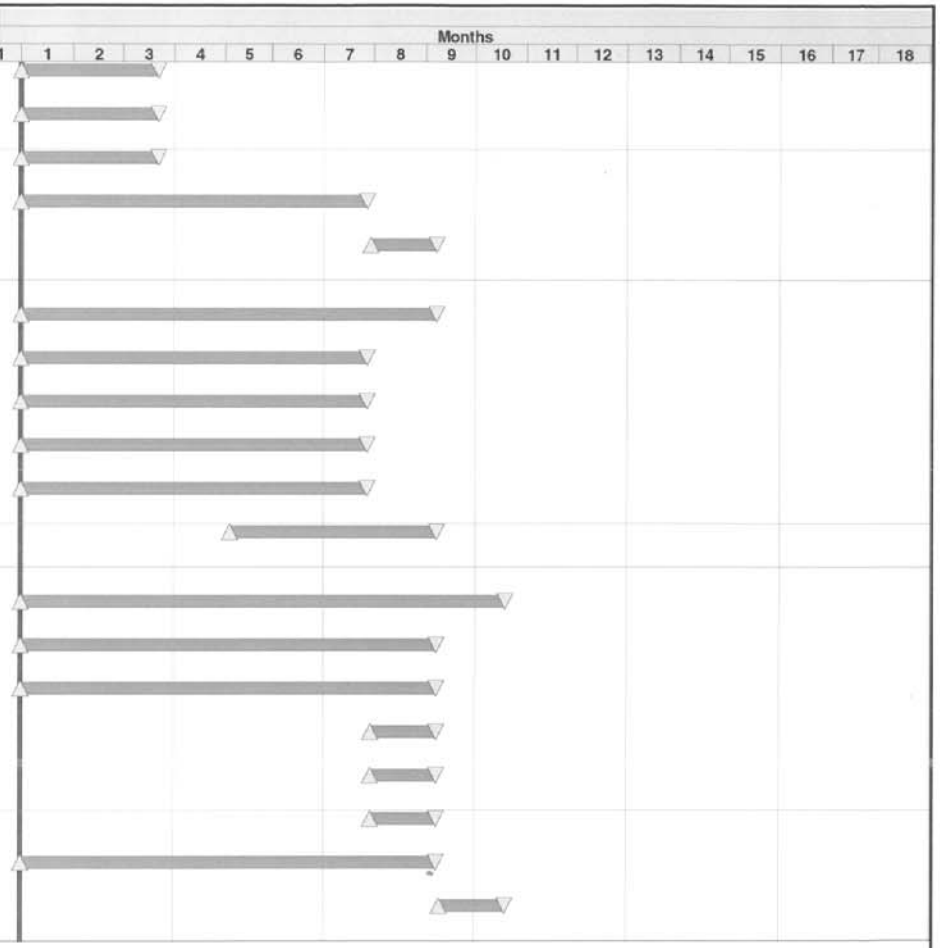
Activity ID	Activity Description	Orig Dur
0101030403	Nuclear Design	60
0101030404	Thermal & Hydraulic Design	60
0101030405	Reactor Materials	60
0101030406	Functional Design Reactivity Control System	150
0101030407	Document Preparation	30
Reactor Coolant & Connected Systems		
01010305	Reactor Coolant & Connected Systems	180*
0101030501	Summary Description	150
0101030502	Integrity of Reactor Coolant Pressure Boundary	150
0101030503	Reactor Vessels	150
0101030504	Component & Subsystem Design	150
0101030505	Document Preparation	90
Engineered Safety Features		
01010306	Engineered Safety Features	210*
0101030602	Confinement System	180
0101030603	Emergency Core Cooling System	180
0101030604	Habitability Systems	30
0101030605	Fission Product Removal & Control	30
0101030606	ISI of Class 2&3	30
0101030607	Other Engineered Safety Features	180
0101030608	Document Preparation	30



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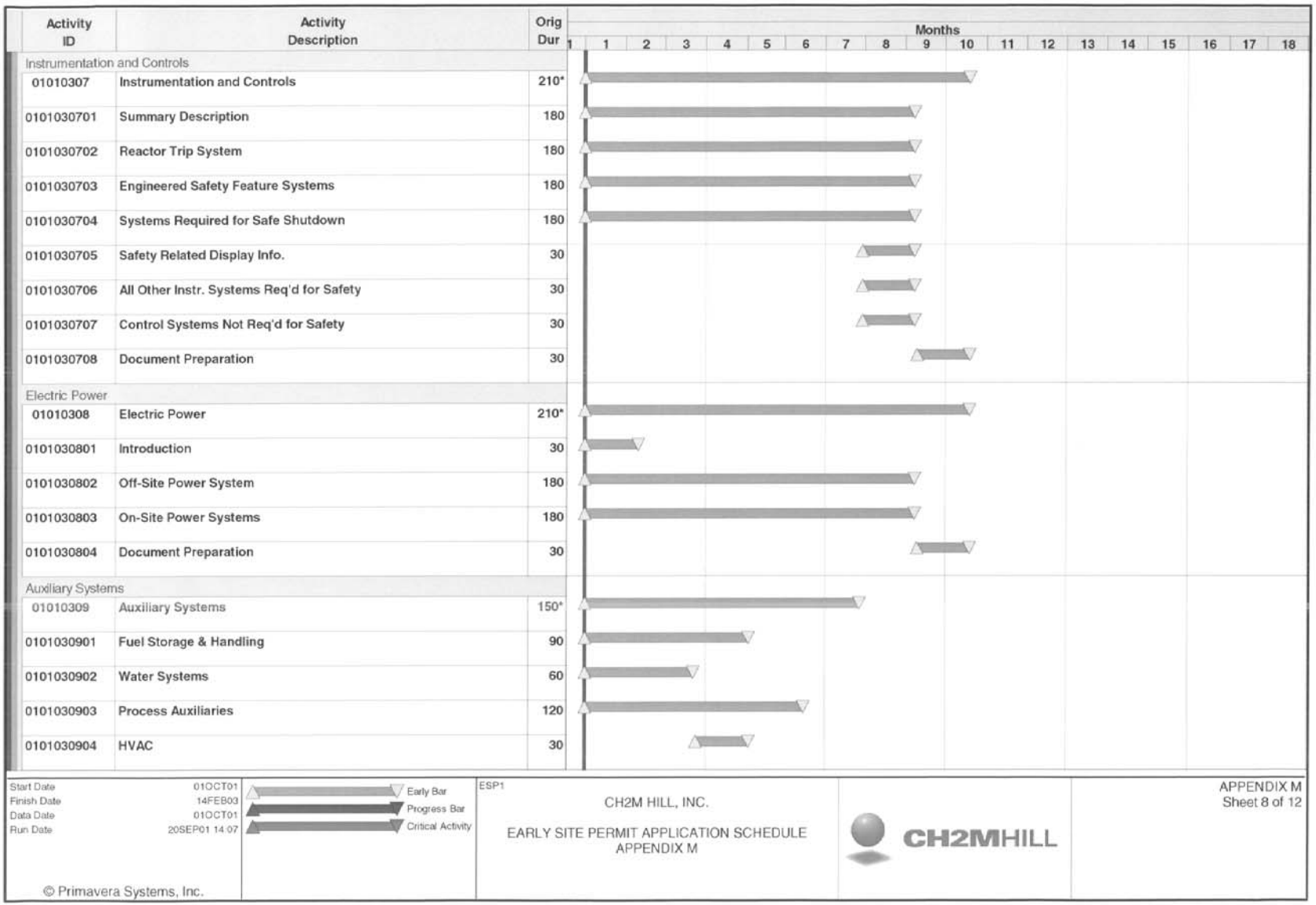
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Instrumentation and Controls
01010307 Instrumentation and Controls 210*
0101030701 Summary Description 180
0101030702 Reactor Trip System 180
0101030703 Engineered Safety Feature Systems 180
0101030704 Systems Required for Safe Shutdown 180
0101030705 Safety Related Display Info. 30
0101030706 All Other Instr. Systems Req'd for Safety 30
0101030707 Control Systems Not Req'd for Safety 30
0101030708 Document Preparation 30
Electric Power
01010308 Electric Power 210*
0101030801 Introduction 30
0101030802 Off-Site Power System 180
0101030803 On-Site Power Systems 180
0101030804 Document Preparation 30
Auxiliary Systems
01010309 Auxiliary Systems 150*
0101030901 Fuel Storage & Handling 90
0101030902 Water Systems 60
0101030903 Process Auxiliaries 120
0101030904 HVAC 30
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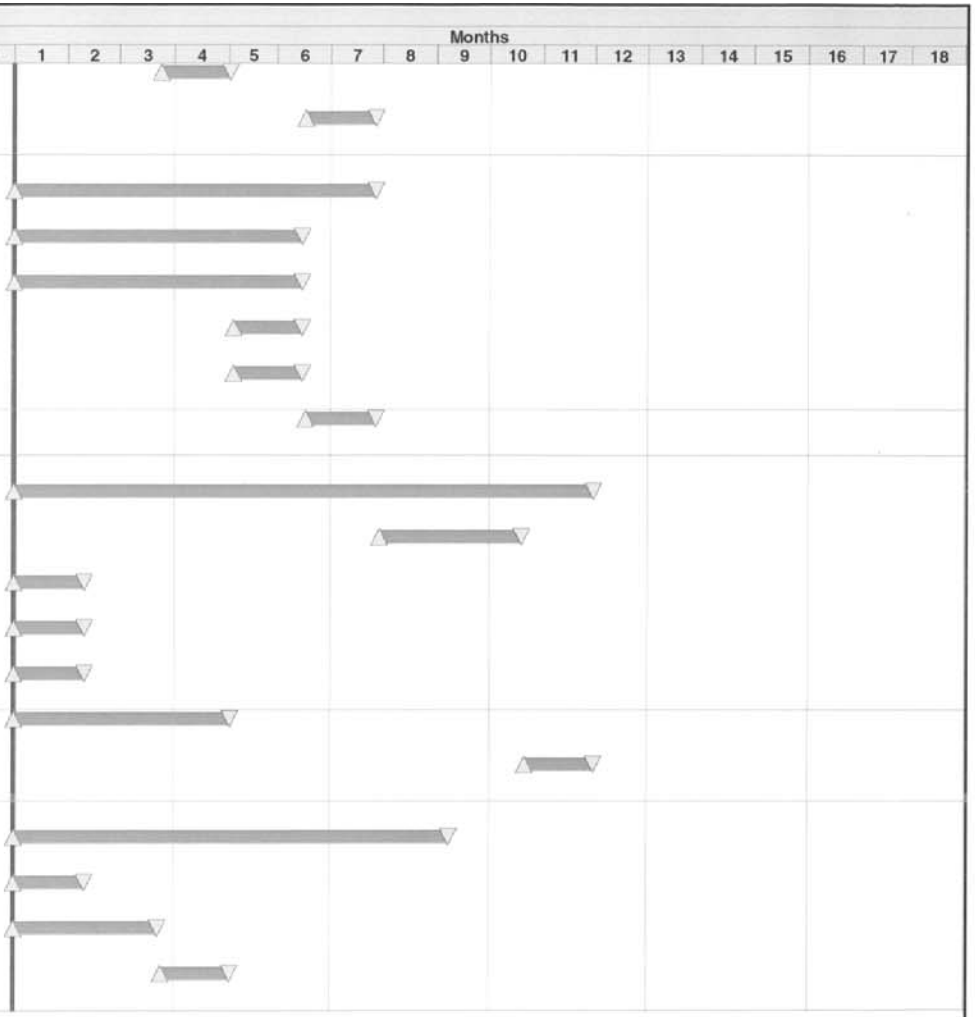
Activity ID	Activity Description	Orig Dur
0101030905	Other Auxiliary Systems	30
0101030906	Document Preparation	30
Power Conversion System		
01010310	Power Conversion System	150*
0101031001	Summary Description	120
0101031002	Turbine-Generator	120
0101031003	Main Steam Supply System	30
0101031004	Other Features of Steam/Power Conv. System	30
0101031005	Document Preparation	30
Radioactive Waste Management		
01010311	Radioactive Waste Management	240*
0101031101	Source Terms	60
0101031102	Liquid Waste Management Systems	30
0101031103	Gaseous Waste Management Systems	30
0101031104	Solid Waste Management Systems	30
0101031105	Process Effluent Radiological Mon/Sampl Sys	90
0101031106	Document Preparation	30
Radiation Protection Program		
01010312	Radiation Protection Program	180*
0101031201	ALARA Program	30
0101031202	Radiation Sources	60
0101031203	Radiation Protection Design Features	30



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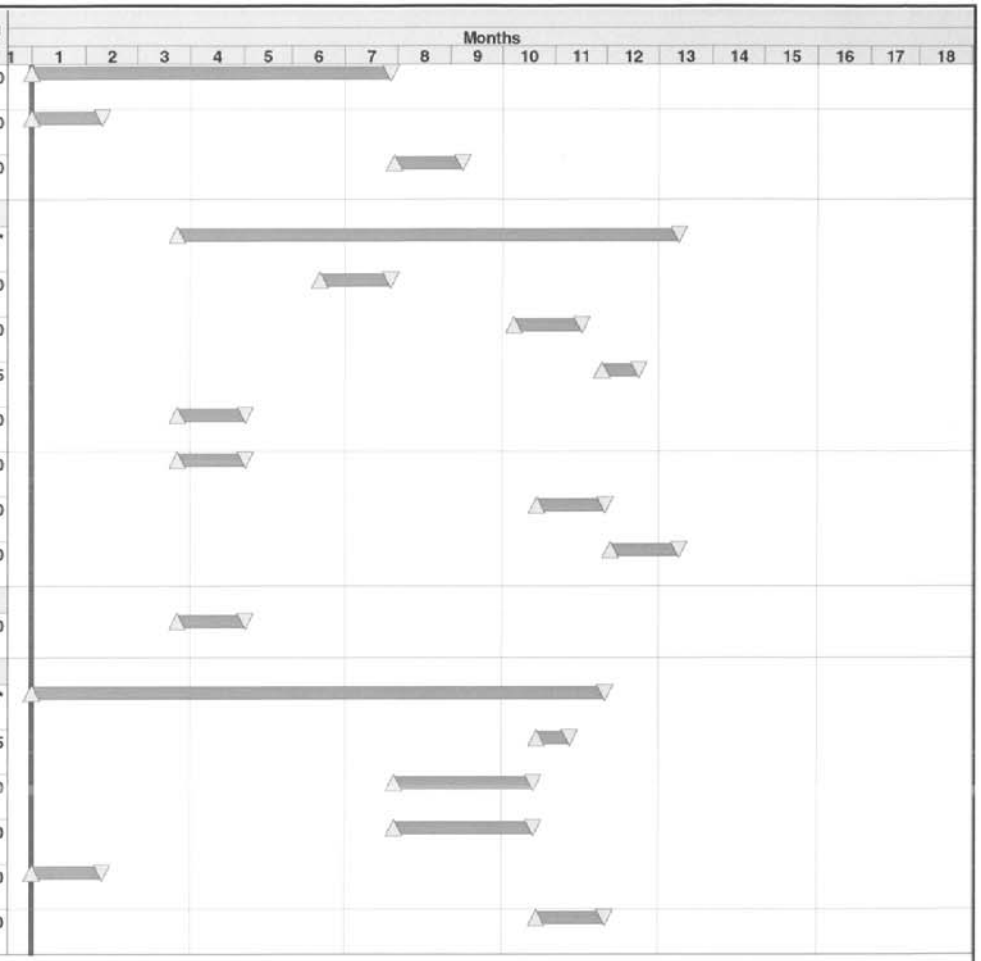
Activity ID	Activity Description	Orig Dur
0101031204	Dose Assessment	150
0101031205	Health Physics Program	30
0101031206	Document Preparation	30
Conduct of Operations		
01010313	Conduct of Operations	210*
0101031301	Organizational Structure of Applicant	30
0101031302	Training	30
0101031303	Emergency Planning	15
0101031304	Reviews and Audits	30
0101031305	Plant Procedures	30
0101031306	Industrial Security	30
0101031307	Document Preparation	30
Initial Test Program		
01010314	Initial Test Program	30
Accident Analyses		
01010315	Accident Analyses	240*
0101031501	Introduction	15
0101031502	Safety Assessment of Site	60
0101031503	Safety Assessment of Facility	60
0101031504	Radiological Codes	30
0101031505	Document Preparation	30



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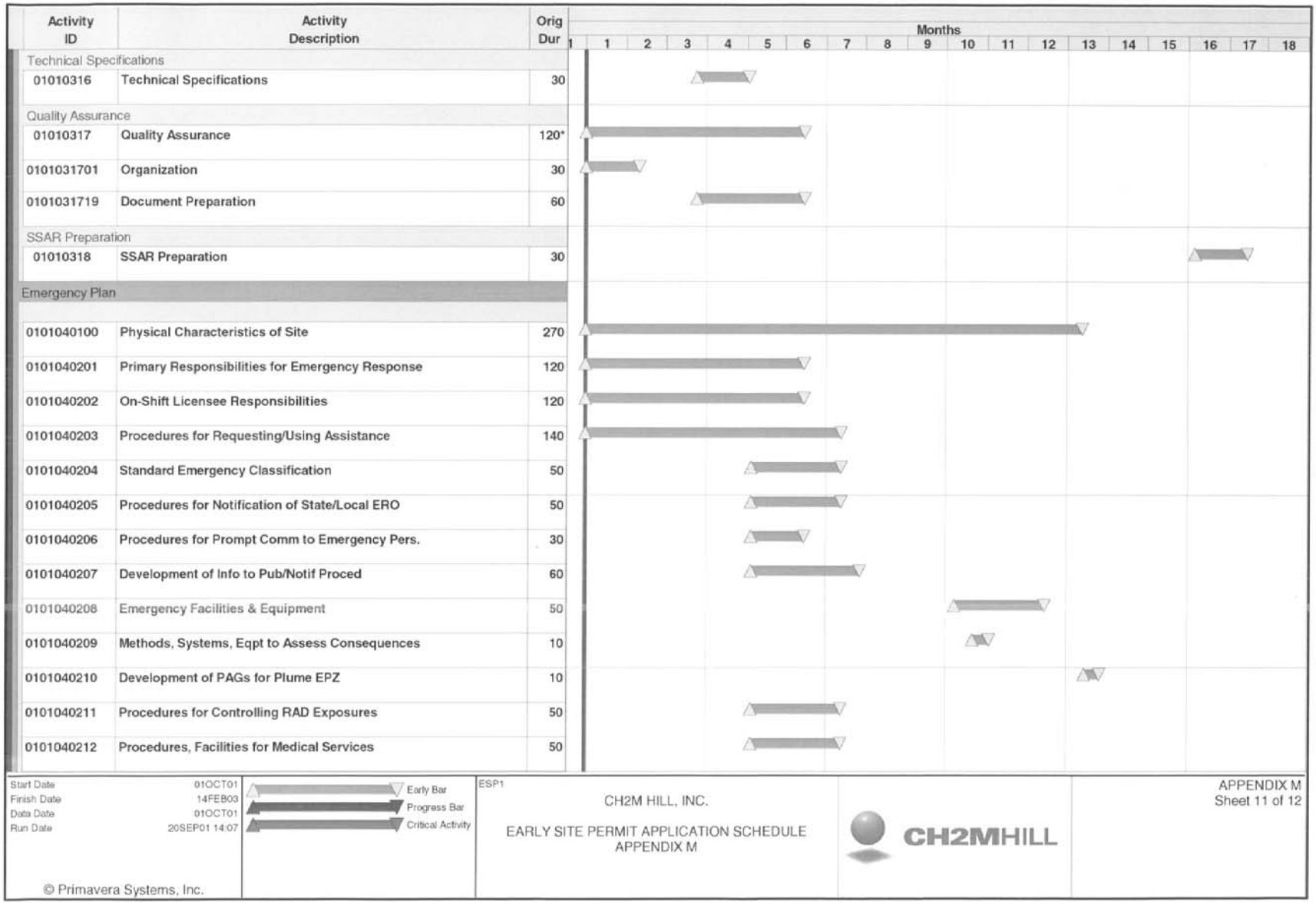
Critical Activity

ESP1

CH2M HILL, INC.

EARLY SITE PERMIT APPLICATION SCHEDULE
APPENDIX M

CH2MHILL


Activity ID
Activity Description
Orig Dur
Months
1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
Technical Specifications
01010316 Technical Specifications 30
Quality Assurance
01010317 Quality Assurance 120*
0101031701 Organization 30
0101031719 Document Preparation 60
SSAR Preparation
01010318 SSAR Preparation 30
Emergency Plan
0101040100 Physical Characteristics of Site 270
0101040201 Primary Responsibilities for Emergency Response 120
0101040202 On-Shift Licensee Responsibilities 120
0101040203 Procedures for Requesting/Using Assistance 140
0101040204 Standard Emergency Classification 50
0101040205 Procedures for Notification of State/Local ERO 50
0101040206 Procedures for Prompt Comm to Emergency Pers. 30
0101040207 Development of Info to Pub/Notif Proced 60
0101040208 Emergency Facilities & Equipment 50
0101040209 Methods, Systems, Eqpt to Assess Consequences 10
0101040210 Development of PAGs for Plume EPZ 10
0101040211 Procedures for Controlling RAD Exposures 50
0101040212 Procedures, Facilities for Medical Services 50
Start Date 01OCT01
Finish Date 14FEB03
Data Date 01OCT01
Run Date 20SEP01 14:07
Early Bar
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Sheet 11 of 12
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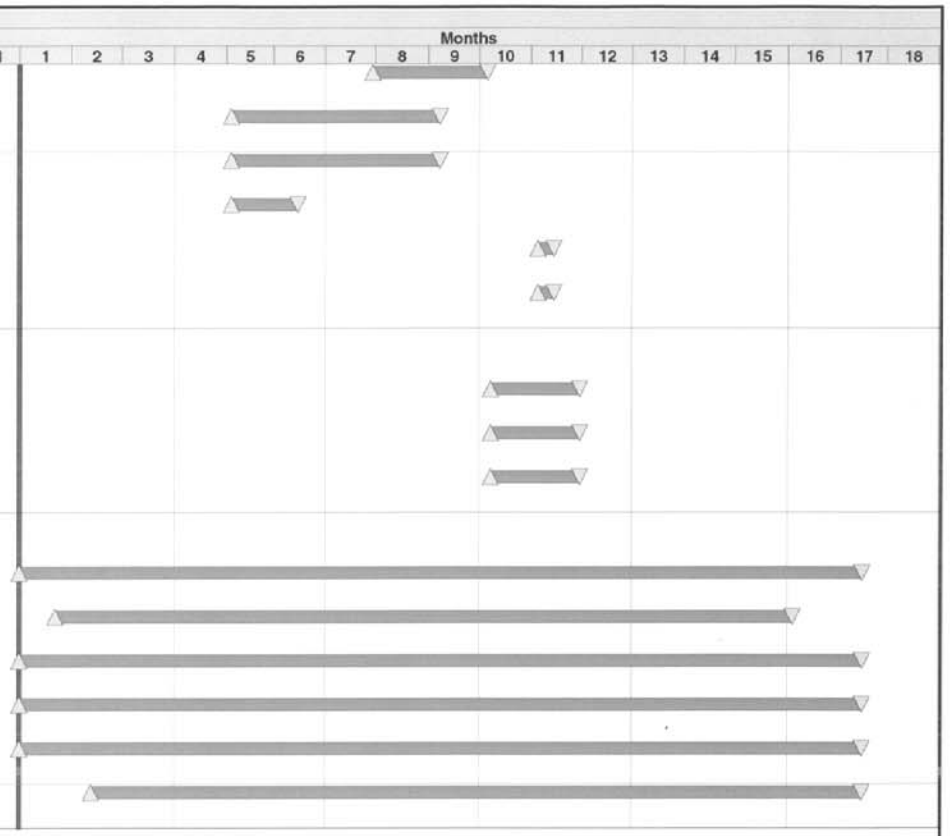
Activity ID	Activity Description	Orig Dur
0101040213	General Plans for Recovery/Reentry	50
0101040214	Procedures for Periodic Exercises	90
0101040215	Radiological Emergency Response Training	90
0101040216	Plan Development and Review	30
0101040301	Plume Exposure Pathway	8
0101040302	Ingestion Pathway	8
Redress Plan		
01010501	Future Site Ownership and Use	40
01010502	Use of Applicant Constructed Facilities	40
01010503	Re-Contour, Re-Veg, Replanting Cleared Areas	40
Management and Administration		
01010601	Project Management	360
01010602	Subcontracting/Procurement	315
01010603	Quality Assurance	360
01010604	Data Management Systems	360
01010605	Document Control and Production	360
01010606	CADD Support	330



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