

**-Transmittal 1-**

**Comment Response Matrix**

**In Response to JAFP-related Inquiries from the US Army Corps of Engineers (USACE) in a Letter dated Nov 16, 2015**

Inquiry #	USACE Comment	(DRAFT) AGDC Response
<b>Main Body of the Letter dated Nov 16, 2015 (Items 1 – 9)</b>		
1	Project Dimensions: The application, to include appendices and attachments, provides different mainline and lateral pipeline lengths (i.e., 727-mile versus 733-mile; 29-mile lateral versus 30-mile). These values should be consistent and reflect the dimensions of the current project.	<p>Agree. The change has been made.</p> <p>The Mainline length is reported as rounded to the nearest whole number: 733 miles. The Fairbanks Lateral is reported as rounded to the nearest whole number: 30 miles</p>
2	Project Descriptions: The application, to include appendices and attachments, provides several differing project origin and termination descriptions (i.e., ...originates at "Prudhoe Bay and terminates at Mat-Su Borough near Cook Inlet"; "... terminates at Point Mackenzie"; " ... from near Dead horse to Cook Inlet area"). The project description should be consistent to avoid confusion.	<p>Agree. The change has been made.</p> <p>Below are terms we do and don't use in the application</p> <p><b>Point of Origin</b>  <b>Do Use:</b> "Prudhoe Bay" or "North Slope"  <b>Don't Use:</b> "Deadhorse" or "PBU"</p> <p><b>Point of Termination</b>  <b>Do Use:</b> "ENSTAR tie-in near Big Lake" or if you want to be more descriptive, "connects into ENSTAR's distribution system at MP 39 of the Beluga Natural Gas Pipeline southwest of Big Lake"  <b>Don't Use:</b> "Cook Inlet" or "Point MacKenzie" or "Port MacKenzie"</p>
3	A review of the GIS mapping tool has resulted in locations that warrant clarification and/or correction. For your convenience, each polygon requiring additional review has been listed in the attached table (Enclosure 1.) and identified by the nearest milepost, GPS coordinates and/or other adjacent identifying feature. Based upon any revision, please provide updated GIS shapefiles and mapping tool (if applicable). Additionally, please provide an updated Appendix I, REV. 6.1 Jurisdictional Determination.	<p>Agree. We have reviewed the 280 GIS-related comments in Enclosure 1 and have responded to each in the attached spreadsheet. ASAP has made changes in the GIS to address these comments or has provided clarity where needed. Any GIS changes were applied globally to the geodatabase; where the same issue was called out (often repeatedly) we didn't just correct the issue in those places, but applied the change throughout the project to ensure project-wide completeness.</p>

<p>4</p>	<p>The application and construction drawings indicate that the construction ROW will be 120 feet wide, whereas, other project descriptions indicate a proposed construction ROW of 300 feet. Please clarify or update the information to represent the intended construction ROW width as well as provide any additional information or locations which may alter the defined ROW.</p>	<p>Agree. The change has been made to the application to provide clarity on the expected construction ROW. We expect to include language similar to the following to clarify:</p> <p><b>Do Use:</b>  The ASAP Project will require a variable-width Construction Right-of-Way (ROW) that matches the Project Footprint. The Mainline Construction ROW will range from a 120' easement at its narrowest point to a 350' easement at its widest point, which includes temporary workspaces and other lands required for constructing the pipeline. The Fairbanks Lateral Construction ROW will range from a 100' easement at its narrowest point to a 350' easement at its widest point.</p> <p>The ASAP Project will require a variable width Operational ROW. The Mainline Operational ROW will range from a 53' easement at its narrowest point to a 350' easement at its widest point; this maximum distance will be required during the Operational Phase of the Project to maintain certain side slope cuts performed during the Construction Phase of the Project. The Fairbanks Lateral Operational ROW will range from a 30ft easement at its narrowest point to 350' easement at its widest point.</p> <p>Temporary Workspaces and HDD False Rights-of-Way will require up to an 800-ft wide easement.</p> <p>Or (in short): "maximum 350ft mainline ROW" or "maximum 350ft Fairbanks Lateral ROW"</p> <p><b>Don't Use:</b>  "nominal 120ft / 53ft ROW" or "120ft ROW" "nominally" or "general" or "standard" or "120' / 53' minimum ROW" or "variable-width ROW" (on its own without description that includes max ROW)</p>
<p>5</p>	<p>Provide facility name, location and permit number for all proposed gravel/borrow areas associated with the construction of this project. Also, please disclose the location of any new proposed gravel/borrow locations associated with this project and the current regulatory permitting status.</p>	<p>A list and locations are provided in the revised application. No permits exist for any site, as they will be sought later in time. The site list and locations were also provided by email to the Corps of Engineers in November 2015 for verification.</p>

6	The application, to include the appendices and attachments, provide different wetland acreage impacts (i.e., 8000, 8287, 7825) by duration (permanent versus temporary) and habitat type in the project description. Please provide the accurate wetland impact, by duration and habitat type, specific to REV 6.1, and maintain consistency within all supporting appendices and attachments, specific to REV6.1.	Agree. The change has been made.
7	Wetlands and WOUS were characterized in the Wetlands / WOUS Delineation report however there was no characterization provided for remaining habitats proposed for impact (see application: 11 acres of intertidal habitat, 164 acres of subtidal).	<p>Agree. The change has been made. The following paragraphs are now contained in the 2015 Wetland Delineation Report to characterize the marine environment around Prudhoe Bay:</p> <p><i>Arctic marine environments provide food and habitat for various species of algae, plants, invertebrates, fishes, birds and mammals. Eastern Beaufort Sea habitats include coastal marshes, barrier islands, shoreline, nearshore waters and marine habitat. The marine habitats extend seaward from the coastline to perform important functions that include the active filtration or assimilation of sediments, nutrients, and pollutants originating from upland watersheds before entering the open ocean. The marine habitats in and around Prudhoe Bay are classified as either subtidal or intertidal.</i></p> <p><i>Subtidal marine habitats are characterized by continuous submersion (Cowardin et al., 1979) and are differentiated based upon substrate classifications. Rocky bottom subtidal wetlands typically endure higher wave action resulting in well-aerated water and plants strongly attached to rocks by holdfasts. In comparison, unconsolidated benthic subtidal habitats are considered relatively stable and are characterized by rooted plants. Aquatic bed subtidal habitats are characterized by plants that grow on and below the surface water level and are either attached to the seafloor or freely float in the water column. Various coldwater algae and rooted vascular plant species, such as sea grass, are also present in these areas.</i></p> <p><i>Intertidal marine habitats are characterized by intermittent aquatic submersion due to tidal action (Cowardin et al., 1979). More than 48,000 acres in Alaska have been classified as intertidal marine habitat (Hall et al., 1994), and many are associated with river outlets. The mercurial water regime characteristic of these habitats results in myriad environments ranging from substrates barren of vegetation to others dominated by aquatic algae and eelgrass (Hall 1988).</i></p>

*Often, these habitats are associated with emergent wetlands. Northern Alaskan intertidal environments are often underlain by rocky substrates.*

*The Prudhoe Bay area is generally located between the outlets of two major River systems: the Colville River (to the West) and the Sagavanirktok ('Sag') River (immediately to the east). It is also fed by the smaller Putuligayak ('Put') River and other drainages.*

*The coastal area along the Arctic Coastal Plain is generally low and flat, and barrier islands and alongshore spits are frequently present, although these formations usually support little vegetation (USACE, 2012b). Lagoons often form behind them.*

*The Beaufort Sea continental shelf is relatively narrow, extending for 35 to 50 miles offshore with depths up to 600 feet, before steeply dropping off into the Arctic Ocean Basin. The overall surface circulation of the Beaufort Sea is dominated by a clockwise gyre in the Arctic Ocean Basin. (USACE, 2012b). During the short summer "ice free" (open water) season, currents along the coastline can be highly variable as a result of local wind patterns; prevailing winds at this time strongly influence sea ice movement, and Easterly winds produce offshore currents that can result in a seaward movement of pack ice (USACE, 2012b). Westerlies produce onshore currents that bring ice towards shore and, occasionally restricting ship traffic around Barrow. (Colonell and Niedoroda 1990, cited in USACE 2012b).*

*Prudhoe Bay is home to some biologically important areas, including the migration route for arctic cisco returning to the Colville River from the MacKenzie River, habitat for various species of whales and eiders, denning locations for polar bear and ice seals, and benthic communities such as clam habitat or "the boulder patch" (a unique area of boulders that provides habitat for multiple species in an otherwise habitat poor environment ("the boulder patch"). Nearshore areas are known for having bottomfast ice, and further out, shorefast ice. The spring and fall seasons are quite turbid for nearshore environments. Ice gauging of sediments at "ice in" and "ice out" is probably a factor that limits productivity and biodiversity of the benthic nearshore habitat.*

*The impacted areas around the Dredge and Disposal areas are nearshore environments that are disturbed by regular storms, freeze-thaw events, churning sea ice, and wind and ocean currents. Coastal erosion around West Dock occurs regularly, and industry users have long replenished its beach with*

*marine sediment to mitigate erosion. The dredge material, being too great in volume and too fine in composition, to be used as suitable beach nourishment at West Dock, will be disposed of over bottomfast ice. The material will settle in the subtidal area of Prudhoe Bay in spring at break up once the sea ice melts and is churned up by winter storms. Sediments in the project footprint are disturbed by bottomfast and shorefast ice at break up and freeze up, wave / ocean current activity and wind activity. Within the Project Footprint and Action area, there have been some, but few, sightings of marine mammals and threatened bird species. During the whaling season, subsistence whalers from Nuiqsuit typically hunt seaward of Cross Island, thereby not overlapping with the Project's action area. The 650-ft breach through the West Dock Causeway is utilized by migratory fish, such as the anadromous Arctic cisco, and by marine fishes, such as juvenile arctic cod. Fish migrate both through the breach and around the West Dock causeway as they migrate from Canadian waters to the Colville River (AGDC, 2015).*

*References:*

*AGDC. 2015. "Attachment 3: West Dock Dredge and Disposal Plan". In ASAP Environmental Evaluation Document. October 2, 2015.*

*Colonell, J.M. and A.W. Niedoroda. 1990. "Appendix B: Coastal Oceanography of the Alaska Beaufort Sea." In An Assessment of Marine Environmental Impacts of West Dock Causeway, ed. J.M. Colonell and B.J. Gallaway, B1-B74. Prepared for Prudhoe Bay Unit Owners represented by ARCO Alaska, Inc., by LGL Alaska Research Associates, Inc. and Environmental Science and Engineering, Inc., Anchorage, AK.*

*Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. Washington, DC: US Department of Interior, Fish and Wildlife Service, Office of Biological Services, Publication No. FWS/OBS-79/31.*

*USACE. 2012b. Point Thomson Project Final Environmental Impact Statement. July.*

8	The application, to include the appendices and attachments, makes several references to a "Compensatory Mitigation Plan." Please provide a copy of the Compensatory Mitigation Plan or clarification of the document's status in relation to the current project proposal, REV 6.1.	Agree. The change has been made. A more definitive mitigation statement has been provided, and the status of the Compensatory Mitigation Plan has been clarified.
9	What is the proposed compensatory mitigation for wetland impacts? Mitigation appears to be considered generally by utilizing a variety of methods but the application lacks a specific mitigation direction or statement for addressing project impacts.	The Project is proposing to use a State of Alaska sponsored mitigation bank that is currently being developed and is expected to come online prior to construction. However, as this is State-sponsored bank is not yet operational, the JAfP now addresses mitigation under a scenario of current banking and credit conditions and under a potential future scenario in which the State-sponsored bank is operational.
10	<p>The following attachments are designated as REV 6.0. Please clarify whether the attachments will be updated to reflect changes / modifications under REV 6.1, or should they be considered obsolete from use:</p> <ul style="list-style-type: none"> <li>a. Attachment 8a - Wetlands and Waters Report</li> <li>b. Attachment 8a-A- 2014 Wetland Delineation Data Forms</li> <li>c. Attachment 8a-8 - 2014 Functional Assessment Datasheets</li> <li>d. Attachment 8e-A- Map Book of 2014 Survey Areas (lacks 6.1 alignment)</li> <li>e. Aquatic Site Assessment October, 2014</li> </ul>	This inquiry pertains to documents that were not included in the ASAP Project's Joint Application for Permit (JAfP) that was submitted to the USACE on Sept 11, 2015. AGDC regards this inquiry as part of a Request for Information (RFI) and has provided its response in a separate transmittal.
11	<p>On March 13, 2015, the U.S. Army Corps of Engineers (USACE) held a meeting with AES to discuss the work completed to date including the April 2010 Wetlands Technical Report (Apr10 WTR), March 2011 Jurisdictional Determination Report (Mar11 JDR) and the October 2014 Aquatic Site Assessment (Oct14 ASA).</p> <p>In correspondence to AGDC, dated April 1, 2015, the Corps provided additional guidelines that should be addressed and utilized in development of a robust Aquatic Site Assessment (ASA), as proposed for use by AGDC in the October, 2014 Aquatic Site Assessment Report. Please provide the information, as requested. For your convenience, a copy of this correspondence is included (Enclosure 2.).</p>	This inquiry pertains to documents that were not included in the ASAP Project's Joint Application for Permit (JAfP) that was submitted to the USACE on Sept 11, 2015. AGDC regards this inquiry as part of a Request for Information (RFI) and has provided its response in a separate transmittal.

<b>12</b>	Please provide additional clarification for PHMSA-related inquiries:	This inquiry pertains to documents that were not included in the ASAP Project's Joint Application for Permit (JAfP) that was submitted to the USACE on Sept 11, 2015. AGDC regards this inquiry as part of a Request for Information (RFI) and has provided its response in a separate transmittal.
<b>12a.</b>	What is the maximum 36-inch pipeline design / operating temperature for the gas entering the pipeline on the North Slope at Mile Post 0?	Same as above
<b>12b.</b>	What is the gas discharge temperature at the condition plant going into the pipeline facilities?	Same as above
<b>12c.</b>	Will gas coolers be installed either at the plant or at Mile Post 0 to keep the gas below freezing?	Same as above
<b>12d.</b>	The 36-inch pipeline in Table 2-3 has a wall thickness of 0.527-inch and grade of X70 for class 1 locations for a maximum allowable operating pressure (MAOP) of 1480 pounds per square inch (psi). How much additional pipe wall thickness is in the design for longitudinal / bending stresses for burying the pipeline to account for permafrost freezing and thawing (alternative for strain based design)?	Same as above
<b>12e.</b>	How has the AGDC evaluated the pipe design, operating conditions and soil / terrain conditions through route borings for longitudinal and bending strains?	Same as above
<b>12f.</b>	How will anomalies such as corrosion wall loss be assessed and repaired to ensure longitudinal and bending strains are adequate?	Same as above
<b>12g.</b>	How will climate change effect the usage of additional pipe wall thickness to alleviate the effects of higher longitudinal and bending strains on the pipeline?	Same as above
<b>12h.</b>	Has AGDC taken into account the effect the longitudinal / bending strains on girth welds and girth weld misalignment? If so, how?	Same as above
<b>12i.</b>	Will all mainline girth welds be non-destructively inspected to ensure they do not fail under longitudinal and bending strains?	Same as above

<b>12j.</b>	With the methane being at about 89% of total gas composition and with the remainder of the gas being other components such as ethane / propane / butane / CO2 and other, what will be the liquids fall-out in the gas stream from traveling from Mile Post 0 to the delivery point in Anchorage area based upon the design operation pressures?	Same as above
<b>12k.</b>	How often will the pipeline be pigged to move natural gas liquids down and out of the pipeline?	Same as above
<b>12l.</b>	How often will the pipeline be pigged for integrity management, whether it is in a high consequence area or not in a high consequence area?	Same as above
<b>12m.</b>	How much of the pipeline mileage is in a high consequence area and where is it located?	Same as above
<b>12n.</b>	What type of pigs will be used to pig the pipeline and how often will they be run? (such as pigs for: cleaning, wall loss/corrosion, dents, pipe or weld cracking, or pipe movement)?	Same as above
<b>12o.</b>	Will all girth welds and all girth weld repairs be non-destructively tested in accordance with the 49 CFR Part 192 and API 1104 - whether mainline, station, fabrication, river crossing, or other type above ground girth weld?	Same as above
<b>12p.</b>	What is the operating profile for the pipeline for all seasons: pressure and flowing temperature based upon maximum and minimum gas flow volumes and maximum/minimum ambient temperatures?	Same as above
<b>12q.</b>	How will gas vents on the mainline be designed, constructed and operated so that liquids are not vented out of the vents with the gas?	Same as above
<b>12r.</b>	With approximately 40 mainline valves located along the pipeline route, how will AGDC close these valves in an emergency (maintenance crew, automatic closure with pressure drop, or remote closure, other)?	Same as above
<b>12s.</b>	How much time will it take to close the mainline valves?	Same as above
<b>12t.</b>	How will pipeline operating conditions and emergencies be monitored and will they be monitored 24-hours per day?	Same as above

<b>12u.</b>	What effect will the time to close the mainline valves have on surrounding facilities?	Same as above
<b>12v.</b>	Where will pipeline maintenance crews be located along the pipeline route?	Same as above
<b>12w.</b>	What type design (such as pipe wall thickness, grade and design factor or other design), construction, and maintenance procedures will be used when crossing or in proximity to the Trans-Alaska Pipeline System (TAPS) to maintain TAPS integrity in these encroachment areas?	Same as above
<b>Supplemental Questions by Email (Items S1 – S3), dated 11/20 (From S. Gibson)</b>		
<b>S1.</b> S. Gibson	Impacts for the West Dock area on the GIS just states 'varies'. The Corps needs to know, what is intertidal, subtidal and existing fill (existing fill is not a 404 impact although the information needs to be submitted with the 404 application so we know what will not be under our authority for permitting and to complete Sections 7 and 106; '404 impacts' are for wetlands and waters of the U.S. only)	<p>Agreed. The change has been made. The GIS is clear now as to what is intertidal, subtidal, and existing fill. AGDC has provided a field in the GIS so that wetlands and non-wetlands areas can be more easily distinguished.</p> <p>We have created two shapefile layers that provide the corps with what AGDC believes are jurisdictional and non-jurisdictional wetlands overlapped by the project features and footprint.</p>
<b>S2.</b> S. Gibson	Wetlands impacts in the GIS do not match those in the application. GIS permanent impacts stated at 7799.04 acres and temp impacts stated at 461.72 acres.	Agreed. The change has been made so that any discrepancies or apparent discrepancies have been corrected / clarified.
<b>S3.</b> S. Gibson	Avoidance of impacts to wetland types of Lake and Stream at 36.69; not clear how there can be avoidance of 667.22 acres within PEM, PFO and PSS?	We reviewed this issue with the Corps at AGDC's offices on 11/23/15. The Corps explained that the issue at hand was that it was not clear how polygons labeled "avoidance" and resulting acreages were avoiding impacts and being tabulated. AGDC pointed out that avoidance was usually labeled as "ice pad", "ice road", "bridge", "HDD" or "boring". However, there were some additional labels in the field related to TAPS Right-of-Way crossings labeled as avoidance that had an attribute in a different field that was not a descriptive term like "boring". All of the TAPS ROW crossings are borings, and this has been made clear to the Corps. AGDC has made the change in the GIS attribute field to clarify this; the type of avoidance impacts are labeled clearly on all maps the totals are now tabulated more logically / clearly.

Response to Questions in Enclosure 1		
E1	(GIS-related questions, E1 – E279)	Responses are provided in the attached spreadsheet
Response to Questions provided verbally or by email		
<p>Email 1 – 9/15/2015 (M. Romero)</p>	<p>Order of sheets not correct, project should have the vicinity map as page 1 as specified in the letter requesting additional information for a complete application.</p> <p>+/- on dimensions are not sufficient Where is the list of new adjacent property owners?</p> <p>Why are many dimensions 'min', if the Corps is to permit the project only the 'min' would be authorized Dimensions for the impacts in waters below HTL (sheets 6 &amp; 7) are not shown, how are the impacts supposed to be measured?</p> <p>How do I access the webviewer? Project impact footprint –</p> <p>How is pg 3, 4 of Mainline Interior 298-498 avoidance?</p> <p>What is going on in the stream crossings? If they are not HDD then there should be some impact but nothing is showing there?</p>	<p>The change has been made. The vicinity map has been moved up.</p> <p>The +/- symbols have been replaced with exact values or definitive ranges (min-max).</p> <p>We have included the max values</p> <p>The webviewer is accessible from a link on the AGDC-ASAP website</p> <p>We have clarified in the GIS</p> <p>We have clarified in the GIS and in the mapping</p> <p>We have clarified in the GIS and in the mapping</p>
<p>Email 2 – 9/16/15 (M. Romero)</p>	<p>Pertaining to West Dock Typical Sheet: "Each dimension should have lines, and the 2.8 should be on the vertical line (I can't get it to rotate) so you know what is being measured - the depth of the fill. Otherwise the drawing is good."</p>	<p>We have made the requested change. The typical is revised accordingly and matches the GIS.</p>

<p>Email 3 – 9/18/15 (M. Romero)</p>	<p>On reviewing the drawings I have found multiple examples where dimensions asked for in the April 30, 2015, letter have not been completed yet, I recommend that the letters sent from the Corps be reviewed to make sure the information asked for is actually in the application.</p>	<p>We have re-reviewed those letters and have addressed dimensions on the typicals, as instructed in earlier correspondence. Exact or maximum distances or dimensions are now provided throughout.</p>
<p>Email 4 – 10/21/15 (M. Romero)</p>	<p>Can you verify whether the avoidance measures reported for 6.0 are inclusive in the recent submission on 6.1?</p>	<p>Avoidance, Minimization, and Compensation measures were listed in the Sept 2015 application, along with a Mitigation Statement - but not in a single place. This has been corrected. Sections have been moved to a single location in the additional information document to address Box 23 in the application. The mitigation statement has been expanded.</p> <p>In the previous application submittal from September 2015, the information was provided in: <i>Additional Information Document - Section 2.8.3 ('Avoidance and Minimization of Impacts'), Section 2.8.5.1 ('Version 5 to Version 6 Modifications'), Section 2.8.7 ('Version 6 to Version 6.1 Modifications'), Section 2.8.10 (Specific Measures Applied to Version 5 and 6 to Avoid Waters of the United States Impacts); Appendix D ('Avoidance and Minimization');</i>The narrative in these sections should have provided sufficient information to discuss avoidance going from Rev 5 to Rev 6, and then from Rev 6 to Rev 6.1; the first 16 pages of Appendix D tables were specific route refinements that described changes in Rev 6.1, but there was also other information that followed that was pertinent going back to 6.0. For instance, after the flow diagrams in Appendix D of the Sept 2015 application, we used narrative to describe hydrology and wetlands avoidance beginning on page 37 of the pdf in that former application.</p>